

League of Women Voters Education Fund
1730 M Street, N.W.
Washington, D.C. 20036

TEXAS

(state)

PRELIMINARY PROPOSAL FOR A STATE LEAGUE
ENERGY EDUCATION OUTREACH PROJECT
(PHASE II)

Date: September 15, 1978

State President: Betty Anderson

League: LWV-Texas

Address & Phone:

Address & Phone: 1212 Guadalupe, #109
Austin, TX 78701
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1. Workshop Participant (project manager):

Patricia Bruno

Address & Phone:

2. Workshop Participant:

Pat L. Nickell

Address & Phone:

Evaluation of Phase I

1. Briefly, what were the objectives of the first state League energy education project?

The primary objectives of the first energy project were to: (1) hold three energy conferences in various locations in Texas; (2) provide information on both energy production and conservation, though emphasizing conservation -- a need in a producer state such as Texas; (3) reach expected audiences of 50-75 participants at each conference including League members, legislators, and the general public; (4) videotape the Austin conference for distribution to other local League areas.

2. From the state League's point of view, was the project successful in meeting those objectives?

Yes. The project was successful from the point of view of the LWV-Texas in that the conferences were informative and the desired number of individuals were reached. We a---if yes, what aspects contributed significantly to its success?--

were not as successful in reaching legislators in the first two conferences, however the one held in Austin achieved this goal. This was due to location as well as emphasis on a legislative response panel in Austin. The videotape has been ordered for showing in Amarillo, Corpus Christi, San Marcos, Harlingen, and Abilene. It was shown in Austin initially.

b. If no, why not? What, if anything, do you think should have been done differently or should be done differently in another project?

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Description of Phase II

Describe your overall proposed project, including your plans to make full use of effective materials developed in the first phase and to increase your audience or to target certain groups. (Attach an additional sheet, if necessary.)

The purpose of this project is to produce a 30- or 60-minute video tape documentary in cooperation with KTXT-TV, Lubbock's public television station, in order to regionally examine the questions and controversies surrounding nuclear waste disposal.

This documentary will examine three prongs of the nuclear waste issue: public fears, emerging policy and legislation, and proposed methods and costs of waste disposal/storage.

Program format will include interviews with Carter nuclear policy architects, regional nuclear energy advocates, environmentalists, and area consumer protest groups.

It would also include a brief review of recent proceedings from public hearings conducted in Midland, Amarillo, and El Paso, Texas over proposed nuclear disposal sites.

The documentary will further include an explanation of major risks and safeguards, existing, and proposed, for the transportation, storage and disposal of nuclear waste material.

Production will be under the supervision of Production Manager George Warmingham, and the program will air on Channel 5, KTXT in the spring of 1979. Video copies will be made available for use by local Leagues through the state office. Information on the documentary will be available to the West Texas local Leagues in Abilene, El Paso, Amarillo, Midland, and Odessa for local TV promotion. Copies of the tape will be offered to the Public Broadcast Service with its 200+ stations in a national network, a print of the program will also be available to any broadcast station to air on a non-commercial basis, and to educational and cultural institutions within the state.

Timetable Give a brief outline of goals or activities you would plan to accomplish in each time period.

Nov--Dec Begin research; complete interviews in Washington, D.C. and Austin, Texas; begin reviews of public hearings, and finish on-site filming and interviews in Carlsbad, N.C.; initiate project grant publicity.

Jan--Feb Complete interviews in Midland, Amarillo, Albuquerque, and Los Alamos; complete research and hearing reviews; transfer video cassette to two-inch tape; begin editing.

March--April Complete editing and production; finish promotional material for publicity.

May--June Dubbing and distributing four tapes for airing; make material available for air.

Budget Attach a general, proposed project budget

SEND THIS PROPOSAL BY SEPTEMBER 20, 1978 TO THE ENERGY DEPARTMENT, LEAGUE OF WOMEN VOTERS EDUCATION FUND, 1730 M ST., N.W., WASHINGTON, D.C. 20036.

Disposal of Radioactive Wastes Unsolved Problem, Study Finds

Associated Press

Permanent, safe disposal of radioactive wastes from nuclear power plants remains an unsolved problem, both technically and socially—and the social obstacles may well be the most difficult to remove, a government review group said yesterday.

The Interagency Review Group submitted its final report to the White House and said it is preparing specific recommendations for submission to President Carter within the next few weeks.

The group, composed of 14 agencies headed by the Energy Department, issued a draft report last October but revised some of its findings.

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One of its major revisions involved a finding last October that "overall scientific and technological knowledge is adequate" to select regions and study sites for nuclear waste disposal. This finding had also said "successful isolation of radioactive wastes . . . appears technically feasible for periods of thousands of years."

In the final report yesterday, these findings were rewritten with a less confident tone.

Present knowledge was deemed adequate, not to select disposal regions, but only "to identify potential repository sites for further investigation." The report added there was no reason to think a suitable disposal site could not be found.

As for the feasibility of safe, permanent burial of nuclear wastes, the re-

port said this could be determined only by examining specific locations.

The scientific feasibility of burying radioactive wastes "remains to be established," the report conceded.

It said solving political and social problems to guarantee safe disposal "may well be more difficult than finding solutions to remaining technical problems."

One difficult question is how to make sure society protects nuclear burial grounds from disruption or intrusion during the hundreds or thousands of years the wastes remain dangerous.

Another is the fear that agencies capable of safely burying relatively small amounts of nuclear wastes "may fail as the demands placed on them multiply."

Still another tough problem is whether state governments and populations can be persuaded to accept nuclear waste dumps at specific locations.

The review group recommended that the president establish a planning council to include selected state governors, representatives of Indian tribes and the public.

And it backed the idea of requiring the government to get a state to agree before a nuclear burial site could be located within its borders. That would give each state a veto power.

States would not be allowed to bar all nuclear waste disposal in advance, but would have to consider each proposal individually.

future generation

institutional failure

popular acceptance

TEXAS DEPARTMENT OF WATER RESOURCES

1700 N. Congress Avenue
Austin, Texas



Harvey Davis
Executive Director

June 4, 1979

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Mr. Paul T. Wrotenbery, Director
Governor's Budget & Planning Office
Executive Office Building
411 West 13th Street
Austin, Texas 78701

Dear Mr. Wrotenbery:

Re: U.S. Department of Energy (DOE) -- Draft Environmental Impact Statement (DEIS) -- Waste Isolation Pilot Plant (WIPP), (DOE/EIS-0026-D), Volumes 1 and 2, April 1979. (State Reference: EIS-9-004-012).

In response to your April 23 memorandum, the staff of the Texas Department of Water Resources (TDWR) has reviewed the referenced DEIS, prepared by DOE, pursuant to Section 102(2)(C) of the National Environmental Policy Act of 1969. The DEIS was prepared in connection with DOE's pending decision on a recommendation made by the Presidential Interagency Review Group (PIRG) on Nuclear Waste Management in March 1979 that a nuclear WIPP be constructed in Eddy County, New Mexico to serve as a combined facility consisting of a transuranic-waste (Section 2.3.3, p. 2-20, et seq.) repository, an intermediate-scale facility, and an associated research-and-development facility for conducting experiments. The WIPP will require approval and a license by the U.S. Nuclear Regulatory Commission (NRC). Aside from a limited quantity of spent fuel in the intermediate-scale facility, high-level nuclear waste will be brought to the WIPP only for use in experiments that will examine the interactions between solidified, containerized, high-level nuclear waste and the geologic burial medium. These experiments will build a base of empirical data for consideration in later decisions on the establishment of a system of repositories for the disposal or storage of high-level nuclear waste. All transuranic waste emplaced at the WIPP will be retrievable for 10 years; spent fuel will be retrievable for 20 years, and experimental waste will be removed when the experiments are completed.

TDWR understands that the 30-square mile site (100 acres to be used for facilities; the rest for buffer zones), located in Eddy County, New Mexico, approximately 25 miles north Texas-New Mexico State boundary (see Section 2.3.2, p. 2-18, et seq., DEIS, Vol. 1; and Figure 8.1, p. 8-2, DEIS, Vol. 1) will involve an estimated construction cost of \$225 million (1978 prices), spread over four years, and an annual operating cost of approximately \$36 million. In addition, the project involves engineering, construction management,

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and technical support costs estimated at \$205 million. The basic goal of the WIPP, under the direction of DOE's Albuquerque Office, is to test, under an experimental and retrievable basis, the depositing of radioactive defense wastes in a deep salt bed, the Salado Formation, at depths ranging from 2,100 feet to 2,700 feet below ground surface. The experiments with limited quantities of processed, containerized, high-level wastes would be carried out 2,600 feet below ground level. These wastes would later be removed. There is the possibility, however, that up to 1,000 spent fuel assemblies from commercial nuclear power plants will be placed in canisters and buried in salt at the 2,600-foot level. Thus, while the primary mission is directed at the disposal of transuranic defense wastes, the project has crucial significance for the commercial nuclear power industry which has been seeking a successful demonstration to the solution of the problem of disposing long-lived radioactive wastes.

From the standpoint of our basic duties as a State of Texas agency, and our statutory Statewide responsibilities and functions relative to water resources and water quality planning, development, and regulation, the TDWR offers the following review comments:

1. Consistent with current energy policy of the State of Texas, TDWR supports, in principle, efforts seeking a solution to the problem of nuclear waste storage, subject to the conditions and suggestions stated herein. Relevant State policy is contained in the Texas Energy Advisory Council's (TEAC) document Texas Energy Policy: 1978 Update, December 15, 1978. In the section on "Nuclear Waste Disposal," the TEAC recommends that Texas continue to work with the federal government to determine the suitability of Texas geologic formations for long-term storage; that Texas seek the powers of approval over the location in Texas of any waste disposal site; and that the State support the reprocessing of spent nuclear fuel. TDWR has interest in the New Mexico WIPP facility not only because of the potential physical impact on the State of Texas' water and related natural and economic resources, but also because the proposed research, development, and operational experiences to be gained from the New Mexico WIPP could be utilized in the siting, design, construction, and operation of any possible future nuclear waste repositories which might be established in Texas. However, this recognition by TDWR of current State policy regarding the support of nuclear waste study and research efforts should not be misconstrued as TDWR's formal concurrence in the proposed project details, which essentially are still in the conceptual stage.
2. Volume 1: pages 7-58 through 7-75, and 12-1; and Volume 2: pages D-4, -5, -9, and -10.
TDWR staff members feel that a relatively small "project-area-of-influence" has been selected for analysis, and therefore the referenced DEIS may not reflect the true

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hazard potentialities. In general, the DEIS concludes that the true hazards are less serious than the risks assessed, and it further implies that the public risks to the State of Texas are either not quantifiable or else insignificant. Actually, we feel that there is reason to believe that the hazards may be greater, and in some cases the hazards are different, than the risks actually assessed. Effort should be made to expand the study of the anticipated consequences well beyond the conventional EIS considerations or the immediate implications of currently limited available data.

Specifically, the DEIS presents the following basic conservative findings, reflecting insignificant impacts, hazards, and risks:

- a. The DEIS indicates that proposed nuclear WIPP has no demonstrable or hypothetical physical impact on Texas. Of the 18,960 acres of land in Eddy County, New Mexico to be withdrawn by DOE if the WIPP site is selected and approved, 17,200 acres are federal lands controlled by the U.S. Department of the Interior, Bureau of Land Management, and 1,760 acres belong to the State of New Mexico. There are no private lands within the site. All of this land is presently leased for grazing, 25 percent is subject to potash leases, and 35 percent is subject to hydrocarbon leases, with some overlap. There are no State of New Mexico land-use policies, plans, or controls on this land. (DEIS, Vol. 1, p. 12-1).
- b. There are 13 permanent residents within 10 miles of the site. There is a transient population at potash mines in the region. The nearest town is Loving, New Mexico, with a population of 1,100. Carlsbad is located 26 miles west, with a population of 25,000. (DEIS, Vol. 2, pp. D-9, -10).
- c. There is no major reason to expect any severe or unacceptable socio-economic impacts attributable to the proposed WIPP site location. No major or unusual impacts on the local or regional environmental or ecological systems are anticipated due to the proposed construction and operation of the proposed WIPP. No significant archaeological sites will be destroyed. No endangered species are known to occur within the site. (DEIS, Vol. 2, p. D-10).
- d. From the standpoint of hydrologic criteria, the referenced DEIS indicates that the proposed site affords high confidence that natural dissolution will not breach the salt beds at the site during the time that the radioactive waste poses a significant hazard to man. Location of the site near a broad

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surface water divide, lack of established drainage, and an elevation well above the Pecos River -- all permit easy construction to prevent flooding of the repository. Aquifers above and below the repository have relatively low transmissivity. Therefore, flooding of the repository during its operation through shafts or drill holes is unlikely. Adequate plugging of these access points on decommissioning will be more readily attained. The major aquifers above and below the WIPP beds contain saline water unsuitable for most beneficial uses although the quality of water in the Rustler Formation varies widely and is locally useable for livestock watering. The hydrologic parameters of most of the aquifers do not permit rapid flow of water; the low permeability would limit the flow even if heads were to be modified in future pluvial cycles. However, the Culebra member of the Rustler Formation (a dolomite) is believed to be highly cavernous locally and therefore highly transmissive in local areas. Calculation of various postulated failure scenarios indicates that the transport of radioactive isotopes through most of the overlying and underlying aquifers would be slow enough that a significant hazard to humans would not exist even if the salt beds were breached. The nearest natural discharge point is the Pecos River, approximately 14 miles away. Using the maximum measured rates of water movement for intervals between the site and Malaga Bend results in a time interval of about 1,700 years after a breach for the first traces of nonretarded isotopes (i.e., iodine-129) to appear at the Pecos River. The DEIS states that the long-lived transuranic isotopes would be retarded by ion absorption and would not begin to appear at Malaga Bend, New Mexico until 35,000 years after a postulated breach of the salt beds. Concentrations, or possible doses, would not reach significant hazard level in the Pecos River. (DEIS, Vol. 2, pp. D-4, -5; and Vol. 1, Sec. 7.3, pp. 7-58 through 7-75).

- e. In view of the foregoing data, the DEIS perceives no adverse physical impacts of the proposed New Mexico WIPP on Texas lands, resources, or people.

3. Volume 1: Section 7.3 (Hydrology), pages 7-58 to 7-75; Volume 2: Section D.1 (Geologic Criterion), pages D-2, -3; and Section D.2 (Hydrologic Criterion), pages D-4, -5).

Our analysis of the captioned sections relative to water resources and related land and economic resources, indicates that the impacts on the State of Texas can be properly and fully evaluated only if the entire geologic sequence of formations and the hydrologic framework of the Delaware Basin are evaluated on an integrated, regional

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Sec. for Health & Environment

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basis. Basic principles of hydrologic and hydraulic continuity dictate the necessity of aquifer-wide analysis. From the standpoint of water resources planning, development, and management, the "region of influence" could be somewhat larger than the "WIPP project area of influence" adopted for the referenced DEIS analysis.

More rigorous consideration should be given to the following facts. The closed Delaware Basin includes not only portions of Eddy and Lea Counties, New Mexico, but also all of Loving and Reeves Counties, Texas, and portions of Winkler, Ward, Pecos, Culberson, and Jeff Davis Counties, Texas. In turn, five of these seven Texas counties are part of a seven-county subarea forming a homogenous subarea (Zone 3) of the Rio Grande Basin (i.e., Loving, Reeves, Winkler, Ward, Crane, Upton, and Pecos Counties (see map). In this regard, special attention is directed to relevant water resources demand and supply information contained in Texas Water Development Board (TWDB) document, Continuing Water Resources Planning and Development for Texas, Volume 2, (Draft), May 1977. This document contains data on ground-water availability through the year 2030 for the Cenozoic Alluvium Aquifer (involving parts of Winkler, Ward, Pecos, and Reeves Counties), the Santa Rosa Aquifer (involving parts of Ward and Winkler Counties), and the Rustler Aquifer (involving parts of Culberson, Reeves, Loving, Ward, Pecos, and Jeff Davis Counties). These data reflect the substantial continued dependence of nine Texas counties on the ground water resources of the Cenozoic Alluvium, Santa Rosa, and Rustler Aquifers. Specifically, attention is directed to the following data:

- a. The large and extensive Cenozoic Alluvium and Santa Rosa Aquifers have over 30 million acre-feet of fresh to slightly saline ground water in total storage. About 32 percent, or 9.5 million acre-feet of the total storage of the aquifers can be safely withdrawn by wells without significant adverse saline-water encroachment in parts of Pecos, Reeves, Ward, and Winkler Counties. It is estimated that approximately 21 million acre-feet of fresh to slightly saline ground water will be in storage in these four counties after the year 2030. These are the major water supplies presently available within this region of Texas.
- b. Municipal water requirements (in Zone 3), which are projected to increase from 14.8 thousand acre-feet used in 1974 to 17.9 thousand acre-feet annually by the year 2000, will continue to be supplied principally from ground water. Manufacturing water requirements are projected to increase from 3.1 thousand acre-feet used in 1974 to 6.8 thousand acre-feet annually by the year 2000. In Ector County, it is anticipated that 4.2 thousand acre-feet of annual manufacturing requirements will be met by surface-water supplies from the adjoining Colorado River Basin through facilities of the Colorado River Municipal

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Water District. Ground-water pumpage will supply the remaining 2.6 thousand acre-feet of manufacturing requirements in Zone 3. Steam-electric power generation requirements, which are projected to increase from 2.3 thousand acre-feet used in 1974 to 9.3 thousand acre-feet annually by the year 2000, will continue to be supplied from ground water.

- c. In 1974, approximately 33.5 thousand acre-feet of surface water was used for irrigation, primarily in Pecos, Reeves, and Ward Counties. Under year 2000 conditions of development, it is anticipated that this requirement will continue to exist.
- d. Projected mining and livestock water needs will continue to be met from ground water and local, unregulated surface-water sources.
- e. The in-basin surface-water supply in Zone 3 is obtained from Lake Balmorea, which is dependent upon spring flow, and from Red Bluff Reservoir. Inflows to Red Bluff Reservoir for use in Texas are subject to provisions of the Pecos River Compact with the State of New Mexico. The future quantity, and to a large extent the quality, or water supplies available in Red Bluff Reservoir may depend in large measure upon the results of current litigation between Texas and New Mexico relative to the Pecos River Compact.

4. General Comments

The referenced DEIS appears to have been presented to serve not only as a conventional project environmental assessment under Section 102(2)(C) of the National Environmental Policy Act of 1969 (P.L. 91-190), but also to a considerable degree as a generic risk assessment, and technology assessment, for at least a segment of the nuclear-energy cycle. Therefore, we feel that in addition to the previously proposed extension of the project study area of influence, the DEIS for the WIPP would be enhanced by including specific provisions with respect to the following matters:

- a. The need for developing an effective, acceptable monitoring and surveillance system plan, based on protecting and checking not only the integrity of geologic media and the interrelated natural resources, but also the integrity of the containerized, buried waste itself. This should include, in particular, monitoring wells in the Rustler, and Santa Rosa Aquifers.
- b. The need for developing preventive and emergency contingency plans relative to the accidental discharge of radioactive materials at the WIPP and the associated liability responsibility

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policy covering the entire cycle of consideration, including:
discovery, notification, evaluation, containment, countermeasures,
cleanup, mitigation, disposal, documentation, cost recovery,
delegation of authority, multi-regional actions, funding, etc.

We appreciated the opportunity to review the referenced DEIS, which we believe identifies the basic administrative, coordinative, and analytical requirements of Section 102(2)(C) of the National Environmental Policy Act of 1969.

Sincerely,

Harvey Davis
Executive Director



Texas Energy Advisory Council

Consultant Contract Award

In its quarterly meeting on December 15, 1978, the Texas Energy Advisory Council approved the awarding of a contract for performance of energy development project S-8-1. The specific funds involved have been provided by the Southwest Border Regional Commission and the project was approved by the commission's designated project committee on December 12, 1978. Texas Energy Advisory Council's action was taken under the Texas Energy Development Act of 1977 (Vernon's Annotated Civil Statutes, Article 4413(47b)) and in accordance with guidelines adopted by the council on December 2, 1977, and published in the *Texas Register* on December 16, 1977. The project will be administered by TEAC.

Description of Project. S-8-1 provides for installation of about 70 passive solar water heaters (at \$645 FOB), roughly 300 linear feet of vine canopy for passive cooling, and 30 attic ventilation systems. Training for installation and maintenance of systems is included in the project which will be conducted under a contract with the Community Development Corporation of Brownsville with Nicolas Ramon as project manager, at a cost of \$100,912 from the Southwest Border Regional Commission funds and about \$185,000 in matching funds.

Doc. No. 788352

Policy Position on Selected Energy Issues: 1978 Update

Energy has long been of importance to the economic and social structure of the State of Texas. Recent developments have focused the attention of the nation on energy issues and their potential effects. The Texas Energy Advisory Council is the state entity primarily responsible for the formulation, continual reassessment, and modification of a state energy policy.

To this end, the Texas Energy Advisory Council offers *A Policy Position on Selected Energy Issues: 1978 Update* as its recommendation for a basic energy policy in Texas. The statements as presented represent the majority views of the council and do not necessarily reflect the opinions of the individual members.

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Introduction

The Texas Energy Advisory Council was created by the Energy Policy Planning Act of 1977 to continue the basic functions begun under a similar statute in 1975. It is composed of Lieutenant Governor William P. Hobby, chairman; Speaker of the House of Representatives Bill Clayton, vice-chairman; Attorney General John L. Hill; Railroad Commission Chairman Mack Wallace; General Land Office Commissioner Bob Armstrong; Public Utility Commissioner Alan Erwin; Agriculture Commissioner Reagan Brown; Comptroller of Public Accounts Bob Bullock; Senator Peyton McKnight; Representative Joe Hanna; and ex officio members Max Sherman, chairman of the Advisory Committee, and Advisory Committee Vice-Chairman Laura Keever. The council's primary responsibility is the formulation, continual reassessment, and modification of a state energy policy for recommendation to the legislature and executive officers of the state.

On February 21, 1977, the Energy Advisory Council adopted *A Policy Position on Selected Energy Issues*. Since that time, new and redefined problems have given rise to new and different issues, thus the need for reassessing a state energy policy. Input to the update process has originated with further experience and analyses within the council staff. Significant contributions have been made by the staffs of selected state agencies and the energy institutes of Texas

A&M, Texas Tech, the University of Houston, and the University of Texas. Other members of the university and scientific communities have also provided comments and review. The Advisory Committee to the council provided a comprehensive review of the initial staff draft.

On the basis of this review, a revised draft of this document was published in the November 7, 1978, edition of the *Texas Register*. Further review was provided by a public hearing conducted by members of the Advisory Committee to the council on November 17, 1978. Then on November 30, 1978, the full Advisory Committee reviewed the oral and written testimony received, incorporated appropriate amendments, and recommended council adoption of the updated policy statement.

On December 15, 1978, the Texas Energy Advisory Council formally adopted the policy statement which follows. The document represents the council's energy policy opinions and recommendations to the legislature and executive officers of the State of Texas. This policy will be continually reassessed and modified as changes in national and regional situations affect energy issues of importance to Texas.

General Principles

At least three general principles must underlie the development of an energy policy. First, an overall view of the appropriate role of government in the energy affairs of our state and nation must be formulated. Secondly, decisions must be made expeditiously in order to influence the course of events and to facilitate the transition to more acceptable energy alternatives. Thirdly, there must be a drive toward a comprehensive energy policy that eliminates inconsistencies and contradictions among individual issue positions. This will be difficult since many existing institutions dealing with energy are already in place and our current legislative and regulatory process leaves energy policy formulation fragmented.

The role of government in protecting the public interest and in promoting the public good can best be fulfilled when appropriate recognition is given to the positive contribution of private enterprise and a relatively free market economy. Our market system results in the production and distribution of goods and services with an efficiency which can rarely, if ever, be duplicated by government. At the same time, it should be well understood that certain public goods are not adequately taken into account by a free market economy without government involvement. Environmental quality questions are of this nature. It cannot be assumed that unconstrained free market operations will always result in adequate protection of our environment by all elements. State and regional goals, as well as national goals, must be established both for protection of the environment and for energy availability. The quest is for a reasonable and responsible balance between economic, environmental, and social benefits and costs. To deny that there will be costs from energy development is to ignore the obvious. In addition, paying less than the true cost of finding, producing, and using energy resources encourages wasteful consumption.

While the free market usually yields the most desirable long-range results, market changes during periods of severe supply interruption and rapid price increases are often more disruptive than we are willing to accept. Government can provide the stability for the orderly transition called for in the

second principle. Government must realize that continued interference in the free market can be equally disruptive and may by its interference be self-defeating of its original intent.

The second principle underlying the formulation of an energy policy is the provision of an expeditious and orderly transition involving basic energy sources and uses. Supplies of readily available crude petroleum and natural gas are being steadily depleted. While other fuels offer relief for some uses, the prospects for finding an adequate and economic substitute for petroleum are particularly poor in the area of transportation, which is so essential to our current style of life. Problems equally as perplexing exist in other segments of the economy, especially the petrochemical industry. Instantaneous adjustments to new energy sources, new living habits, and a new set of energy prices will be greater than some sectors of our economy will be able to accommodate. Furthermore, the lead times involved make instantaneous change impossible even when desirable. Government can also ameliorate the hardships imposed on lower and fixed income groups caused by rapidly increasing energy prices, changes in government regulation, and adoption of energy policy. But, since the pricing of energy is not an efficient mechanism for redress of income distribution distortions, such issues are better placed within the realm of tax and welfare reform and not within the pricing policy statements presented in this report.

The third principle involves an emphasis on comprehensiveness. The potential for conflicting, offsetting, and contradictory policy solutions is great since energy issues arise from the complete range of our institutional, economic, and legal activities. Piecemeal approaches will undoubtedly result in such problems. Vested interests are strong in many areas greatly affected by most of the important energy issues and this fact will increase the difficulty of formulating desirable legislation and implementing effective regulations.

Although the U.S. Congress has now passed the National Energy Act, there remain many issues which must be resolved. This paper represents an update to a prior attempt to formulate a reasonably comprehensive set of energy policy statements for Texas. The policy statements here are distinct, addressing each issue separately. Further work by the Texas Energy Advisory Council and other groups should be undertaken to weave these statements into a comprehensive whole which reconciles any conflicts and which provides a framework for recommending legislative and executive action and a base from which modifications can be made as changing circumstances demand.

State Role in National Energy Policy Formulation

It is recognized that national energy policy decisions have major and pervasive impacts on almost every sector of the economy, especially energy producers and energy consumers, geographical regions of the country, environmental, political, and social systems, international trade, and national security; it is further recognized that because of its powerful pervasiveness, energy policy is seen by special interest groups as a tool for social, political, and institutional change; and that because of this overall condition, a consensus of political opinions adequate to the problem is very difficult to achieve.

It is further recognized that because of the complexities of the energy problem, decision makers must rely more and more on expert opinion and sophisticated analyses to comprehend the magnitude of possible impacts of their actions; that in these particular circumstances, the availability of data, sophisticated models of the economy and the environment, and the expert caretakers of such information become powerful political tools; and that the value of accurate and reliable information is great.

It is further recognized that Texas must actively participate in this process in order to protect the state interest; that the national interest will be best served by deliberate and timely state participation; and that states have a direct interest and important input in areas of research, development, and demonstration (RD&D) policy, as well as regulatory policy.

It is, therefore, recommended that the federal government take a more active role in the encouragement of state input through the ready availability of data, analyses, and other information and specific opportunity for timely comment; that such data and information be made available before decisions are made rather than after; that Texas continue and improve its mechanisms for coordinating Texas informational and political input to the national energy debate through the actions of the Texas Energy Advisory Council and other coordinating activities, through input from the private sector including the Advisory Committee to the TEAC, through its individual membership, and through coordination with and support of regional and national groups such as the National Governor's Association, the National Council of State Legislatures, the Southwest Regional Energy Council, and the Southern Governor's Association. It is further recommended that Texas continue to use available legal and political means for ensuring the sharing of information by the federal government in a timely and efficient manner.

Demand Policy

A significant feature of the energy picture in the United States and in Texas is the continued growth in demand for energy at a time when traditional sources of energy supply are declining. Existing or potential state and federal policies affect the demand side of this picture in a very direct way. It is the purpose of the following section to identify those policy areas and to make constructive recommendations for potential resolution of the major demand problems.

Agriculture

It is recognized that Texas agriculture is a vital part of the Texas economy, providing jobs, food, and fiber for the state, nation, and world community; that Texas agricultural production contributes favorably to the U.S. balance of trade; that Texas agricultural production which is significantly impacted by the price of energy must compete at a relative economic disadvantage with other producing regions less influenced by rising energy prices; that the nature of agricultural production prevents passing on cost increases directly as is possible for other industries; that the energy needs for Texas agriculture are season oriented and require a reasonably certain fuel supply for successful production; that the state provided for relief from agricultural curtailment in legislation enacted by the 65th Legislature.

Therefore, it is recommended that the agriculture maintain a high priority in demand policy and regulatory considerations of the legislature.

Boiler Fuel Restrictions

It is recognized that oil and natural gas, our most heavily used and most valuable fuels, are in limited supply and are essential to the residential and commercial sectors as a source of heat and to industries for certain process and feedstock applications; that uranium, coal, and other alternate energy sources can provide a replacement for oil and gas to generate electricity and process steam; and that it is in the national and state interest to reduce the use of oil and gas in boilers.

It is also recognized that Texas, accounting for approximately 40 percent of the nation's total natural gas use in electric utility and large industrial boilers, has a pivotal role with regard to any national boiler conversion policy; that restricting the use of oil and gas as a boiler fuel will result in substantial requirements for new capital investment in boilers and environmental control equipment; that because the costs of conversion vary based on technical and environmental factors and are not uniform to all users, substantial economic hardship could occur for certain industries and consumers; that tax incentives such as accelerated depreciation and investment tax credits can effectively reduce the economic impact of conversion and may be desirable; and that mandatory restrictions, if not properly implemented, could produce overall economic disruptions and environmental degradation.

It is also recognized that boiler fuel restrictions on natural gas will increase its availability for other uses; but that overly stringent restrictions in the near term could reduce the total in-state demand for gas to the point that such restrictions would effectively flood the marketplace with an excess supply of natural gas, temporarily depress the price of natural gas below its long-term replacement value, result in gas conserved in Texas through boiler fuel restrictions being exported to other states for fuel uses not covered by mandatory restrictions in the rest of the nation, and curtail the development of natural gas resources at a time when the nation needs to increase its domestic fuel production. It is further recognized that a policy combining both stringent air quality standards and excessive restrictions on boiler fuel use may limit Texas' future economic growth and force industries and utilities to use foreign oil, raising serious questions of interregional and interindustry equity.

It is further recognized that the State of Texas, through Railroad Commission Docket 600, has taken a leading role in encouraging the conservation of natural gas used as a boiler fuel and is continuing to work closely with industry in an effort to achieve significant natural gas savings without placing unreasonable financial burdens on individual users.

Therefore, it is recommended that to the extent conversion is to be stimulated beyond that already occurring, tax incentives be used; that any boiler conversion policy balance the economic costs of conversion with the economic benefits of natural gas and oil conservation; that in determining the costs of such policies, explicit consideration be given to the differences in conversion economics for different classes of boiler users and the aggregate effects of overly rapid conversion on the stability of the natural gas market; that ceiling

levels established with regard to natural gas use allow for the trading of gas savings between individual users; that explicit consideration be given to the regional significance and equity of such policies; and that exceptions be judiciously granted in individual cases where unreasonable economic penalties would occur and in regions where natural gas use is essential for protecting environmental quality as established by National Ambient Air Quality Standards.

Conservation through Government Programs

It is recognized that the need exists for government efforts to help influence the efficient use of energy as well as the production of energy from renewable sources; that energy conservation can be most efficiently achieved through economic motivation in an unregulated energy market environment; that energy conservation will provide in some cases the most economical contributions as well as long-term solutions to the rising cost and finite supply of fossil fuels; that increased energy use efficiency and use of renewable resources will decrease our dependence on foreign crude oil; and that some product markets do not convey sufficient information to the consumer on the importance of energy conservation. It is further recognized that as large energy consumers, state and local governmental entities are in a position to employ extensive energy conservation measures, thereby demonstrating conservation potential and providing information and encouragement for conservation in other sectors; and that government interest in conservation can be further demonstrated through provision of appropriate tax incentives.

It is therefore recommended that state government continue to support those conservation plans aimed at reducing fossil energy consumption through construction, retrofit, and operation of all state-owned buildings; that the state support government purchasing programs which encourage the purchasing of more energy efficient products; that the state utilize appropriate energy efficient approaches to purchasing such as life cycle costing, value incentive clauses, performance specification, and multiple-year contracts. It is further recommended that Texas, rather than the federal government, implement the local conservation programs required by the National Energy Conservation Policy Act of 1978, that conservation and renewable resource tax incentives be continued and/or provided where appropriate, and that the state promote construction of energy-efficient buildings and encourage adoption of energy-efficient building codes in political subdivisions of the state.

Conservation through Public Awareness

It is recognized that energy conservation and the use of renewable resources are often immediate measures available to soften the impact of rising fuel costs and declining fossil fuel reserves; that the effects of energy conservation are both short- and long-term; that the short-range effects are primarily associated with retrofit of existing facilities while additional long-range effects can be accomplished by planning and implementing the use of energy saving materials and equipment; that much of the public is still unaware of conservation practices which can be implemented with minimal capital investments but with significant energy savings; that even more are unaware of new conservation measures that could be taken into consideration for expanding existing facilities, constructing new facilities, or purchasing materials or equipment; that this type of information can be

most effectively used if the data is well organized and targeted to the specific group of users who will benefit from it; and that the implementation of the state energy conservation program and energy extension service are significant existing efforts for this purpose.

Therefore, it is recommended that Texas continue to encourage dissemination of energy information designed to provide energy conservation assistance and technical information to the residential, commercial, industrial, and public sectors. It is further recommended that the state continue to make available to interested specific target groups current cost effective energy conservation data, being careful to avoid competition with services adequately provided by the private sector.

Energy Emergency Preparedness

It is recognized that energy emergencies, such as unusually cold winters and supply disruptions from embargoes or natural disasters, can have a debilitating effect on our economic and social well-being if government and industry are not prepared for such an event; that voluntary cooperation between industry and government have served to greatly mitigate much of the potential dislocation of past energy emergencies; and that many agencies of the state government have various authorities to cope with energy emergencies which need to be coordinated to prevent overlapping or counterproductive initiatives on the part of the separate agencies. It is also recognized that initial work for an emergency plan has already been accomplished.

Therefore, in order to facilitate a coordinated and timely response to any reasonably anticipated energy emergency, it is recommended that a long-term state energy emergency preparedness plan be formulated and adopted which recognizes the state as the primary coordinating authority and utilizes to the maximum extent possible, voluntary actions by industry.

Gas Purchase Contracts

It is recognized that past federal government actions related to natural gas pricing have significantly influenced current market distortions; and that expanded federal regulation in the area of gas purchase contracts, including extension to the intrastate market as well as the interstate market, has the potential to magnify market distortions in the near term.

It is also recognized that the Texas Railroad Commission is currently analyzing its gas proration and production allowable system to arrive at realistic allowables during a temporary period of oversupply; and that both consumers and producers could benefit from a new and realistic system to encourage setting allowables which would balance statewide production with statewide demand, with the allowable production to be fairly and ratably distributed to all producers.

It is recognized that "take-or-pay" provisions of gas purchase contracts are often necessary and efficient bargaining tools for incorporating risk factors and storage cost options into trading agreements between producers and pipelines; that "take-or-pay" provisions during times of unanticipated major supply surpluses or large excess demands can result in inefficient market conditions leading to higher consumer costs; that certain provisions of the new federal laws, embodied in the Natural Gas Policy Act of 1978, may make the question of "take-or-pay" contract clauses moot in Texas, without

damage to producers or consumers; that the act would permit the Texas Railroad Commission to determine if surplus natural gas exceeding the then current demands on a specific intrastate pipeline for natural gas exists; that upon an affirmative finding of surplus natural gas on a specific intrastate pipeline, such surplus may be sold by that intrastate pipeline to an interstate pipeline under such terms, conditions, and regulations as may be established by the Texas Railroad Commission and the Federal Energy Regulatory Commission; that such sales of surplus natural gas may create a controlled flow of intrastate gas into out-of-state markets without the producer being required to dedicate his gas to the interstate market; that this measure has the potential to protect Texas consumers by allowing producers to continue a high level of drilling activity, thereby assuring future supplies of gas for Texas consumers without having such supplies dedicated to consumers in other states.

It is therefore recommended that the State of Texas continue its strong resistance to federal encroachment in the intrastate natural gas market; that the Railroad Commission continue its efforts to balance statewide production with demand, with the allowable production to be fairly and ratably distributed among all producers; and that provision be made for further study of the effects of "take-or-pay" provisions of gas purchase contracts on the natural gas market; and, further, that provision be made for methods of mitigating adverse effects, if any, revealed by said study.

Industrial Energy Efficiency and Cogeneration

It is recognized that the industrial sector consumes the largest portion of energy in the Texas economy; that percentage improvements in the efficiency of energy use in the industrial sector will make the greatest contribution to energy conservation; and that substantial energy savings can be achieved by application of present day technology without affecting economic activity or decreasing industrial output. It is further recognized that, although free market forces provide the main impetus for energy conservation in industry, barriers such as lack of widely available information and uncertainties about fuel costs in a given process or about economic benefits of investments in efficiency improvements will slow the conversion to more efficient industrial operation.

It is also recognized that one of the major uses of energy in Texas is in the production of electricity from steam; that current power generation practices result in a thermal efficiency of electric power generation between 30 and 40 percent; that this efficiency is near the maximum achievable given the materials and thermodynamic constraints placed on current power generation practices; that alternate conversion processes are required to increase significantly the efficiency of fuel use; and that the combined generation of electricity and process steam (cogeneration) is a process which takes advantage of physical laws of thermodynamics to achieve greater conversion efficiencies in the use of fuels.

It is further recognized that institutional and technical changes are needed for better use of our energy resources; that cogeneration of electricity and steam is a well developed technology that has been utilized in industry for many years; that additional potential exists in Texas industry to increase the use of cogeneration technology; that the use of the cogeneration process to produce electricity and process steam

has been constrained by institutional barriers; and institutional/regulatory changes can eliminate barriers to the future development of cogeneration facilities.

Therefore, it is recommended that Texas assist its industry by supporting the dissemination of industrial processes information through a state conservation program, by supporting research development and demonstration projects in industrial energy efficiency, and by promoting recycling of used oil, containers, and other industrial wastes.

It is also recommended that, because of its conservation potential, cogeneration of process steam and electricity be encouraged; that barriers to cogeneration be identified and removed; and that the provision of incentives for cogeneration be investigated. It is further recommended that the Public Utility Regulatory Act be amended to facilitate the combining of utility and industrial interests in order to provide large scale energy production of mutual benefit to industry and utilities, to improve energy efficiency and reduce the aggregate thermal discharge, to protect and ensure the rights of industrial interests, and to exclude utility regulation of nonutility functions of industrial interests.

Petrochemical Feedstocks

It is recognized that the Texas petrochemical industry uses hydrocarbon feedstocks derived from oil and natural gas to produce a myriad of products essential to agriculture, construction, medicine, and other industries; that unique properties of petroleum make conversion from its use as feedstocks infeasible; and that in terms of "value added through manufacture" it is the largest industry in Texas. It is also recognized that growth of this industry offers Texans the opportunity to increase the market value of declining petroleum reserves and maintain the economic health of the state.

To ensure the continued economic health of the state through the upgrading of oil and natural gas hydrocarbons to the highest economic value, it is recommended that both state and federal policies support conversion of boilers from oil and gas fuel energy consuming systems to alternate fuels, conservation of existing resources, and free market pricing of hydrocarbon resources to encourage conservation of existing supplies and development of new supplies from both conventional and alternate sources.

Utility Rate Reform

It is recognized that in an era of diminishing critical energy resources, prudence mandates the recognition of the increasing importance of improved energy efficiency on the part of the utility industry. It is recognized that the movement in fuel prices and changing fuel mix requires flexible pricing to both intermediate and final customers on the part of gas utilities and cost of fuel adjustments on the part of electric utilities to guard their financial integrity.

In the case of electric utilities, it is recognized that the traditional method of using the average cost of all kilowatt hours by consumer classification as the basis for the rate structure does not require all customers to pay the full cost of the utility service that they receive. It is further recognized that drastic changes in the rate structure may be disruptive and that certain intermediate steps may be required for a smooth transition to full rate reform.

It is recognized that the most commonly used historical rate structure in Texas has been the "declining block" system but that recent regulation by the Public Utility Commission has established a policy of "flat" rates within user classes. It is recognized that there is a basis for a lower charge to some large users who do not contribute heavily to the utilities' distribution costs and who have less impact on peak-load requirements. It is also recognized that any lower charge for greater consumption for whatever reason must be cost justified; that is, the cost for providing those incremental units of consumption should be decreasing in order to justify declining block rates. It is further recognized that in economic theory marginal-cost pricing (pricing each unit of output on the basis of the actual cost of producing an additional unit of output), which would occur under free market competitive conditions, will result in the most efficient allocation of the resource; that practical application of this theory to electric utility rate structures presents some difficulties; and that additional research and analysis is needed to determine the extent to which such concepts should be implemented.

Therefore, it is recommended that utility rate structures encourage conservation and efficient use of all energy resources and discourage waste; that utility rate structures be cost-based so as to be equitable to all classes of customers and promote the most efficient allocation of scarce resources; that rate structures not be used for income redistribution or to provide subsidies for selected groups; that rate reforms imposed on energy utilities should be uniform, especially if incremental or marginal cost pricing is an ultimate goal, with the exact form of the rate structure being designed and implemented through the regulatory agency established by the legislature for that purpose; and that rates encourage efficient load management. It is also recommended that individual metering of apartments be encouraged so that each customer will have an incentive to conserve by being aware of the costs associated with his or her own use; that adequate information be provided in utility bills in order that customers may be aware of the various component costs of utility service; that marginal or incremental cost data be collected by electric and gas utilities on a regular basis; that public information and educational programs concerning efficient use of energy and energy conservation be promoted; that utilities be encouraged in their attempts to obtain maximum efficient utilization of their generating capacity; that fuel adjustment clauses be continued as an instrument to improve economic efficiency in the short-term; that regulated rate of return be considered as an instrument to improve system and/or power plant efficiency and therefore economic efficiency in the long-term; and that government should continue to cooperate with the utility industry in studying utility rate reform.

Supply Policy

A significant feature of the energy picture in the United States and in Texas is the declining supply of traditional sources of energy at a time when the demand for energy is continuing to grow. Existing or potential state and federal policies affect the supply side of this picture in a very direct way. It is the purpose of the following section to identify those policy areas and to make constructive recommendations for potential resolution of major supply problems.

Community Impacts of Energy Development

It is recognized that as reserves of oil and gas decline and energy consumption increases, demands for coal and uranium will increase; that the production and use of these solid fuels is physically different from the production and use of liquid and gaseous fuels; that these physical differences will result in community impacts which differ from those which have occurred with oil and gas development; and that these differences will require increased planning for and expansion of local and regional public services if adverse impacts are to be minimized.

It is also recognized that the benefits of energy development are shared by broad geographic regions and large groups of people while the costs sometimes fall primarily on the persons residing close to the development; that most of the energy development benefits to the local area occur over the lifetime of the project while costs are concentrated during the project's early years; that these imbalances can result in substantial and inequitable short-term burdens on local governments charged with providing public services; that limitations on taxing authority frequently inhibit the ability of local governments to respond quickly to growth-related needs; that inability to transfer funds between various local governments can further compound the problems of mitigating the impacts of development; and that in many instances these local governments do not have the financial, planning, or administrative resources to provide these needed services on a timely basis.

It is further recognized that higher levels of government and private developers have a responsibility to work with and assist local governments in mitigating the negative impacts of energy development; that the regional councils of governments, highway offices, education service centers, and other similar regional offices provide valuable planning and support assistance to local governments but do not have the financial resources to provide for much of the needed public sector expansion; that the federal programs which currently exist to provide assistance to local governments impacted by development are frequently administratively complex and cumbersome; that local governments, because of inability to satisfy rigid federal program requirements or lack of expertise in interfacing with federal agencies, frequently find such programs to be neither timely nor adequate; and that private developers, although having a substantial vested interest in mitigating adverse impacts of development and in establishing close rapport with the local community, are frequently restricted in their ability to do so by competitive, regulatory, and legal barriers.

It is therefore recommended that the costs of mitigating energy development impacts to local areas be paid in the long run by traditional revenue sources such as property and severance taxes; that the state study mechanisms by which to provide local governments with appropriate short-run, front-end assistance; that studied mechanisms include methods for enhancing the ability of local government to more rapidly meet front-end public service needs, for increasing local government administrative authority, and for using professional skills within state agencies and the state's universities and private firms; that, whenever possible, assistance be channeled into the local area through the state's regional planning agencies; that barriers to cooperation and assistance between various local governments, between local

and higher levels of government, and between local governments and private developers be reduced; that federal assistance programs become more accessible to local officials and unnecessary administrative restrictions be deleted; and that any proposed federal energy impact assistance legislation be directed primarily at strengthening existing regional assistance programs rather than establishing new programs.

Divestiture

It is recognized that federal legislation has been proposed to break up large integrated energy companies into separate production, transportation, processing, and marketing units (vertical divestiture), and to restrict the ability of major energy companies to own and develop alternate energy sources (horizontal divestiture). It is also recognized that while the energy industry is vertically and horizontally integrated, it is still less concentrated than most other major industries; that divestiture may reduce productive and distributive efficiency, limit the availability of capital for developing new energy resources and technologies, and slow the transfer of technological innovation; and that while reason for continued monitoring exists, evidence indicates that market conditions do not currently justify either vertical or horizontal divestiture.

It is recognized that vertical divestiture would likely weaken the nation's petroleum industry and thus reduce already declining supplies of domestically produced oil and gas; that horizontal divestiture would probably be counterproductive in the national effort to diversify our energy base through the development of alternate sources; that divestiture would adversely affect our balance of payments and weaken our economy; and that divestiture would result in years of litigation to determine ownership interests after fragmentation.

It is therefore recommended that the federal government emphasize enforcement of existing antitrust laws rather than divestiture as a remedy for alleged anticompetitive aspects of the petroleum industry, applying antitrust laws equitably to all U.S. industries.

Energy Production from Agricultural Products

It is recognized that the agricultural sector is vital to the Texas economy; that, while agriculture is currently a net consumer of energy, it holds the potential of becoming a significant producer of energy; that ethyl alcohol, methyl alcohol, and methane are already being produced from agricultural crops, crop residues, stressed grains (those not usable for food or feed), forestry residues and byproducts, and animal wastes; and that the direct combustion of certain agricultural and forestry resources for steam and electric power generation also has merit.

It is recognized that certain indigenous plant species and hybrid species can be produced in Texas for provision of hydrocarbon feedstocks for the chemical industry or replacement of synthetic materials such as rubber; that such crops can often be cultivated in previously unproductive land; and that such endeavors hold great promise for expansion and growth of the Texas agricultural industry.

It is further recognized that the federal government has appropriated a small amount of funds for the research, development, and demonstration of a wide variety of alternate sources of energy classed generally as biomass (and including municipal and industrial waste and sludge); that the Food

and Agriculture Act of 1978 allows for the use of set-aside lands for cultivation of energy crops without affecting farm subsidies; that production of agriculturally derived alcohol receives an entitlement under the federal entitlements program; that the Federal Energy Regulatory Commission has allowed for the pass-through of costs for alcohol as a gasoline additive; that the federal four cents excise tax on gasoline has been removed for alcohol-blended fuels from January 1, 1979, to September 30, 1984; and that a National Gasohol Commission has been created.

It is further recognized that the agriculture and forestry industries in Texas are already using available residues for energy to a limited extent; that the 65th Regular Session of the Texas Legislature acknowledged the potential of biomass resources and appropriated funds for development of such resources and related technologies; and that the opportunity to provide badly needed domestic sources of energy while simultaneously expanding agricultural production and markets is a rare opportunity for the State of Texas.

It is therefore recommended that the state expand its support and encouragement of the rapid development of this alternate source of renewable energy.

Federal Coal Leasing

It is recognized that the United States has large deposits of coal; that the federal government is the largest single holder of coal reserves in the nation; that most of these reserves are located in the western United States; and that western coal development will impact directly and significantly on the states in which resource production occurs.

It is also recognized that as a result of declining reserves of oil and natural gas and of government boiler conversion policies, a major market for western coal will develop in Texas and other states of the south central and southwestern United States which have historically been the nation's major producers and consumers of oil and natural gas; that failure to develop adequate supplies of western coal for use by electric utilities and industries in these states may have severe economic consequences on the region and the nation as a whole; and that as a result, less environmentally suitable fuels may be produced and used.

Therefore, it is recommended that the national program called for by the Coal Leasing Act Amendments of 1977 be expedited so as to ensure the timely and efficient development of federally owned coal. It is further recommended that explicit attention be given to the economic and environmental effects of delayed leasing of federal coal lands on energy consuming states as well as to the environmental impacts of mining on the states on which leasing will occur.

Interconnection of Utility Systems

It is recognized that 70 percent of the electric generating capacity in Texas is linked together in a wholly contained intrastate system within the boundaries of the State of Texas; that this system is not subject to federal control (Federal Energy Regulatory Commission) since it is solely an intrastate system; that this intrastate system has provided a superior level of reliability of supply; that the electric utilities within the intrastate system have aggressively diversified their mix of generating fuels in the face of uncertainties in the supply of natural gas; and that the electric utilities in the intrastate system have achieved the above free from federal regulation.

It is also recognized that the policy of Congress appears to be to extend the national grid to include the Texas intrastate system and its member electric utilities; that the State of Texas is the only state in the continental United States having such an intrastate system not interconnected across its boundaries; and that certain provisions of the Public Utilities Regulatory Policy Act of 1978 (PURPA) will give the Federal Energy Regulatory Commission the power to order interconnection of utility systems under certain specified conditions. It is also recognized that any electric utility, otherwise engaged solely in intrastate commerce, will not be subject to the jurisdiction of the Federal Energy Regulatory Commission solely by the fact that the utility is subject to such an interconnection order or connected to an electric utility interconnected by such an order.

It is recognized that the Justice Department is holding antitrust hearings on the proposed operation of the nuclear plants under construction in the state; that the operation of the Texas intrastate grid separately from interstate utilities, thereby denying the interstate utilities access to power from the nuclear plants, is the central issue of the antitrust hearings; that failure to resolve the legal proceedings in a timely fashion could delay the operation of one or more nuclear units; and that such a delay would create an economic hardship for consumers in Texas. It is further recognized that provisions of PURPA provide adequate remedies to resolve the antitrust issues in a regulatory rather than a judicial setting.

It is therefore recommended that the Public Utility Commission continue to maintain its position allowing a separate intrastate electric system in Texas; that the PUC press for continued minimum federal regulation of intrastate utilities; and that the PUC protect the interests of the consumers of Texas through active participation in any hearings held by the Federal Energy Regulatory Commission on interconnection of intrastate electric utilities under provisions of PURPA.

Interstate Utilities and System Reliability

It is recognized that electric utilities which operate in more than one state have rates set by at least two state public utility commissions and possibly the Federal Energy Regulatory Commission; that the financial health of such an electric utility depends upon adequate rates to cover costs and generate sufficient cash flow; that the negative rate actions of just one regulatory commission can offset the efforts of the other regulatory bodies; that future reliability and economic production of electricity can be disrupted by present inadequate rates; and that all the consumers of the electric utility will suffer regardless of which regulatory body fails to provide sufficient rates.

It is also recognized that reliability can be achieved but at some cost; that past methods dictated construction of additional generation capacity to provide reserve margins greater than 20 percent at the time of peak demand; that little analysis has actually been performed on the benefits of the last increment of reliability; that other methods of economically achieving system reliability, such as load shedding and remote load control, may be possible at reduced cost; and that interruptible rates if properly structured offer an alternative means of dealing with reliability and peak load problems.

In order that future reliability of service to east and south-east Texas consumers be assured, it is recommended that the idea of an interstate compact commission on electric rates between Texas and Louisiana be studied and that the state participate in rate cases before the Public Utility Commission of Louisiana which relate to electric utilities that also operate in Texas. It is further recommended that a study of methods of providing long-term system reliability be undertaken.

Nuclear Power

It is recognized that nuclear power from light water reactors (LWR) has in the past made significant energy contributions in a relatively safe, clean, and reliable manner and is expected in the future to provide expanding proportions of the nation's energy supply; that breeder technology is approaching the demonstration stage in the U.S. and is being demonstrated relatively successfully in other countries; that breeder technology and reprocessing offer the promise of greatly expanded energy supplies through more efficient use of uranium resources; that fear of nuclear proliferation has caused the U.S. to discourage breeder and reprocessing efforts at a time when other countries are moving forward more aggressively; and that the reduction in breeder and reprocessing activities has also resulted in termination of efforts to establish an appropriate regulatory framework for such activities.

It is further recognized that uranium mining is a growing industry in Texas; that conversion of boiler operation from diminishing natural gas supplies may in some cases be more acceptably accomplished through nuclear power than through other presently available alternatives; that additional nuclear technology development is needed; and that lengthy licensing procedures influenced by extensive expression of public concern over questions of the fuel cycle, nuclear waste management, nuclear proliferation, and reactor safety have significantly affected the rate of development of this resource.

It is therefore recommended that the development of nuclear power options including breeder and reprocessing efforts be pursued more positively; that efforts to establish a regulatory framework for breeder and reprocessing activities be continued; that the licensing process be streamlined to facilitate timely acceptable use of this resource; and that opportunity for informed public participation in the decision-making process be maintained within a time frame which is reasonable in the light of the total scope of energy, societal, and environmental concerns.

Outer Continental Shelf Development

It is recognized that U.S. oil producers are not finding and producing sufficient crude oil and natural gas to meet the nation's growing demands and that the nation's dependence on imported crude oil and refined products is increasing. The U.S. is now importing about 45 percent of its crude oil and refinery product needs and has become dependent on these imports to satisfy the growing demand for fuel and feedstocks.

It is also recognized that a major potential for new oil and gas supplies exists in the Outer Continental Shelf (OCS); that production from this area is expensive; and that unreasonable administrative, regulatory, and court delays, particularly in leasing, are very detrimental to the expedient and orderly development of these resources.

It is recommended that maximum effort be devoted to the environmentally safe development of all OCS areas, with no direct government participation in actual exploration, drilling, and production of the tracts.

Production and Pricing of Crude Oil and Refined Products

It is recognized that government-administered pricing systems imposed upon a free market economy are necessarily arbitrary and difficult to maintain; that the failure of government regulations to keep pace with changing domestic and world market conditions leads to inequities among owners of the price-administered resource; and that frequent changes in the federal regulatory programs have introduced great uncertainty into the crude oil market, thus diminishing the effort devoted to new exploration and adversely affecting the ability of producers to economically maintain production and increase recovery from existing reserves; that the present federal policy purporting to correct the inequities created by government-administered crude oil pricing is implemented in the form of the entitlements program; and that the original purpose of this program was to equalize the cost of crude oil to all U.S. refineries.

It is recognized that superimposing new regulations on top of old ones to correct their inequities can only distort the free market economy even further while deregulation of crude oil prices would stimulate a greater supply of total energy by encouraging increased domestic oil and gas exploration and development, by increasing production and recovery from existing reserves, and by hastening development of alternate fuels, and would lessen our national dependence on foreign sources of supply.

It is further recognized that crude oil production is steadily declining in the U.S.; that there is no inexpensive and readily available substitute for many uses of crude oil products; that a significant addition can be made to our crude oil reserves from enhanced recovery techniques; that prices controlled significantly below the current market level will retard the application of enhanced recovery techniques, thereby increasing our nation's vulnerability to OPEC embargoes; and that although prices for petroleum products will rise initially, in the long term consumers will benefit from increased domestic energy supplies and a reduced dependence on price-volatile foreign oil.

It is recognized that crude oil and refined product markets are interrelated; that those forces which distort the crude oil market also create parallel distortions in the refined product market; that contrary to the guidelines established in the Emergency Petroleum Allocation Act, the entitlements program now influences refined product markets directly as well as indirectly through distortions of the crude oil market; and that decontrol of prices of crude oil would help finance enhanced oil recovery projects and accelerate exploration and production of domestic crude oil.

Therefore, it is recommended that there be an orderly elimination of government imposed crude oil and refined product price and allocation controls along with the phasing out of the entitlements program (such controls become discretionary after May 31, 1979, under the provisions of ECPA); and that free market conditions be allowed to determine price levels.

It is also recommended that in lieu of a crude oil equalization tax or continuation of wellhead price controls and the entitlements program, free market conditions be allowed to prevail.

Production and Pricing of Natural Gas

It is recognized that natural gas resources in Texas can be most efficiently developed and utilized at prices that reflect true replacement costs; and that allowing the much more expensive liquefied and synthetic natural gas (LNG and SNG) costs to be averaged with conventional natural gas costs, hides them from the consumer and provides an indirect subsidy to the LNG and SNG industries for providing a product that could be supplied more inexpensively by natural gas producers.

It is recognized that the present system of federal price controls does not result in efficient development and utilization of this resource thereby adversely affecting the country's economic health; that the value of this resource will continue to increase as environmental quality becomes more difficult to maintain; and that it is imperative to find and produce new natural gas supplies to meet growing demands.

It is recognized that adjustments to free market prices from historically low prices will be painful but that even with increased natural gas prices, consumers will benefit in the long run because of the increased supplies that will result.

It is recognized that a phased deregulation process would serve to mitigate abrupt price increases to existing customers; that the deregulation of producers' prices for new natural gas would provide an incentive for exploration and would provide the nation's oil and gas operators with the ability to attract needed investment capital; and that expanded production would encourage sales in the interstate market and ease the specter of sharp curtailments in the many states relying on interstate supplies.

It is further recognized that the Southland Royalty decision requires that natural gas production from reserves dedicated to interstate commerce must be perpetually dedicated to interstate commerce and that the National Energy Act only partially corrects this problem by allowing interstate dedications never produced to be produced and sold into the intrastate market.

Therefore, it is recommended that policy positions on deregulation recognize impacts on certain classes of users during the adjustment to higher prices; and that federal legislation be enacted which would remove wellhead price restrictions from natural gas dedicated to interstate commerce for the first time, gas continued in interstate commerce after the expiration of existing contracts, and gas produced from wells commenced on or after the effective date of such legislation.

It is also recommended that Texas support federal legislation that would counteract the far-reaching implications of the recent Supreme Court decision in the Southland Royalty case. Federal legislation should be designed to prevent the forced rededication of a lease to interstate commerce after the expiration of an interstate lease contract.

It is further recommended that the state take all available legal means to prevent the further intrusion of the federal government into the intrastate natural gas market since such action is clearly a violation of state rights and will force the Texas intrastate market to subsidize the shortages in the interstate market caused by federal price ceilings.

Strategic Petroleum Reserves

It is recognized that increasing energy demands and decreasing domestic petroleum supplies have resulted in a continually expanding utilization of imported petroleum and refined petroleum products; that this dependence increases dramatically the potential impact of restrictive actions on the part of other nations which might limit the availability of such supplies; that in response to this concern the federal government has established under the Energy Policy and Conservation Act of 1975 a strategic petroleum reserve with anticipated 1985 volume of one billion barrels of which a significant portion is being stored in Texas where it is readily available to maximum refining and distribution capacity; and that in the absence of other adequate resources this reserve provides the most immediate protection against the potentially severe impacts of a supply interruption.

It is therefore recommended that the state support federal government efforts to fill existing storage facilities and to expand the Texas-based storage capacity; that the state give careful attention to the timely mitigation of potentially negative environmental and sociological impacts; and that private sector management expertise be appropriately utilized in the operation of the strategic petroleum reserves.

Unitization

It is recognized that both crude oil and natural gas production are declining in Texas; that as oil prices rise a significant potential for more efficient oil recovery from enhanced recovery techniques increases; that some producers stand to gain production and income at the expense of other producers in enhanced recovery operations unless unitization is instituted; that the difficulty encountered in unitizing a reservoir is a significant deterrent to the initiation of enhanced recovery operations; and that the opportunity currently exists for unitization of reservoirs on a voluntary basis.

It is also recognized that it is very difficult to determine the correlative ownership rights of the oil and gas in a reservoir within which the ownership of the mineral estate is fragmented upon the basis of the overlying surface acreage divisions; and that the potential exists for one or more of the mineral estates which enter a production unit to receive less from the proceeds of such unit than it would have received had it been produced separately from the production unit.

Therefore, it is recommended that the state place primary emphasis on maximizing the long-term recovery of oil and natural gas, encouraging the unitization of reservoirs as much as is practicable, while still protecting the correlative rights of all participating interests.

Uranium Processing

It is recognized that uranium production in South Texas has become a major industry; that in the uranium mining and milling (refining) process certain hazardous materials are left over as tails; and that the hazardous material should be isolated from the biosphere at the end of the mining and milling process.

It is also recognized that the Department of Health's Division of Occupational Health and Radiation Control, the Railroad Commission, and the Department of Water Resources presently regulate the uranium mining operations; and that such state regulation has adequately protected the environment and the health and safety of the citizens of Texas. It is further recognized that recently passed legislation requires the federal government to reassume responsibility for regulating uranium mining and milling unless states meet certain conditions.

Therefore, in order to assure a healthy uranium mining industry in Texas with a minimum of government interference, it is recommended that state legislation be developed to satisfy certain federal conditions which would allow state agencies to retain regulatory control of the licensing process in Texas.

Transportation Policy

The production, utilization, and distribution of energy requires a well developed transportation system including pipelines, transmission lines, railroads, motor vehicles, waterways, and port facilities. Energy is required not only to transport goods and people throughout our economic system but also to fuel our energy distribution network. State and federal policy decisions should help encourage a competitive transportation system and also take account of environmental considerations. The major transportation considerations are treated in this section.

Coal Transportation

It is recognized that the United States has large quantities of coal which can provide the nation with much of its future energy needs and which can assist in reducing the nation's dependence on foreign fuels; that much of this coal is located in western states far from the areas of the nation where much of the energy is needed; that declining reserves of oil and natural gas and government policies mandating boiler fuel conversion will force a rapid growth in coal demand; and that a viable transportation industry is essential if we are to move this coal to all areas of the nation where it is needed.

It is also recognized that railroads are currently the only available mode for long distance, overland transportation of coal; that the location of western coal supplies and of the service territories of western railroads are such that intramodal competition into the south central United States is limited; that slurry pipelines are an alternate transportation mode which may offer economic and environmental advantages in the long distance transportation of large quantities of coal; and that the availability of an alternate mode providing competition to the railroads would discourage the charging of excessive monopoly rates to coal consumers.

It is therefore recommended that the United States grant coal slurry pipelines the same rights of eminent domain as enjoyed by other modes of energy transportation and that the allocation of a state's water resources for use by a slurry pipeline continue to be controlled solely by the individual state.

Furthermore, it is recommended that the federal government review national transportation policies in order to encourage competition, ensure just and equitable cost-based tariffs for unit train movements of coal, and reduce market domination by individual carriers.

Transportation Fuel Consumption

It is recognized that transportation accounts for approximately 20 percent of the total energy use in the State of Texas; that 75 percent of transportation fuel usage is consumed by the private automobile; that transportation is vital to the economy; that the existing use of less efficient travel modes continues in spite of the 1973 embargo experience; and that long lead times are required before more efficient transportation modes can be put in place; and that mass transit technology offers the opportunity to increase the efficiency of intra- and inter-city transportation, but that both government and public support are required to implement or strengthen mass transit development.

Therefore, it is recommended that improving the fuel efficiency of the Texas transportation system be adopted as a state goal. In order to achieve this goal, it is recommended that immediate steps be taken to encourage the use of more fuel efficient automobiles and trucks, to provide incentives for car pooling, walking, and bicycling; to improve urban traffic flow, to upgrade and increase the availability of existing public transportation systems, to encourage shifts in travel and goods movement to more efficient transportation modes, and to require the state to purchase more fuel efficient vehicles for its specific needs. It is further recommended that the present statutory speed limit of 55 miles per hour be maintained and enforced.

Transportation of Petroleum and Petroleum Products

It is recognized that pipeline transportation is essential to the movement of crude oil, refinery products, and natural gas to provide energy products for Texas and the nation; that domestic tanker transportation is much less efficient than its foreign competitors; that the Jones Act which prevents foreign flag ships from transporting cargo between American ports acts to protect domestic ocean cargo lines from foreign competition; that flexibility should be provided wherever possible to ensure that gas and oil products can be transported to markets where and when they are needed; and that larger and more efficient port facilities are needed to receive the increased quantities of crude oil and refinery products from foreign sources.

Therefore, it is recommended that the coastal deep ports and offshore superport facilities proposed for the Texas coast be supported in order to expedite early completion and provide low cost transportation of foreign crude oil to Texas refineries.

It is also recommended that Texas support the repeal of the Jones Act so that Texas refineries will be better able to compete with imported refinery products and thus help reduce the United States' reliance on foreign sources of energy.

It is further recommended that Texas encourage the State of California to expedite approval of the proposal to bring Alaskan crude to Texas and the nation via the Sohio pipeline as the proposal is in the best interests of the nation as a whole so long as environmental restrictions on new Texas refinery capacity do not force shut-in of west Texas crude production in order to accommodate the refining of high sulfur Alaskan crude.

Technology Development Policy

Energy technology development potentially offers improved availability and utilization of energy resources, expansion of domestic energy supplies, reduction of domestic energy demand, and movement toward increased national energy independence. While it may result in impacts which require mitigation, such development can provide substantial benefits in the form of increased economic activity, employment, and income. It is therefore desirable to consider appropriate incentives and institutions for energy technology development and commercialization.

Incentives for Research, Development, and Demonstration

It is recognized that technology development is an expensive and risky activity; that energy research, development, and demonstration (RD&D) activities should remain primarily the responsibility of the private sector; that government's principal role should be to provide an economic and regulatory environment conducive to such private sector activities; that while precedent exists for government involvement in RD&D, such government support of energy RD&D is appropriate only in cases where there is clear public need and private sector incentives are inadequate; that major responsibility for government funding of RD&D lies with the federal government; that federal RD&D programs, however, often overlook projects of regional or state significance and often bypass competent local research facilities, industry, and manpower; that responsibility for RD&D of particular importance to Texas is shared by the state government; that effective and efficient technology development frequently requires major cooperation and coordination between federal, state, and local governments, universities, and industrial participants; and that the administration of the Texas Energy Development Fund seeks to support energy-related RD&D significant to Texas both through direct funding and through encouragement of other funding.

It is further recognized that Texas has considerable potential in the availability of solar radiation and wind energy and in the existence of known and likely yet to be discovered geothermal resources; that additional energy potential lies in the utilization of agricultural and forestry crops and residues and municipal wastes; that significant lignite and uranium resources have been identified and are being developed; that improved techniques offer the possibility of increased oil and gas recovery; and that conservation technology development has the potential for further reduction of energy demand.

It is further recognized that development of technologies for the economic use of lignite and lignite combustion products are frequently overlooked by national coal related programs; and, likewise, that the production of indigenous crops as energy resources and the use of available wind and solar energy present for subregions of the state a peculiar set of research, engineering, and development problems which are inadequately addressed by national programs reluctant to support programs of primary concern to Texas alone.

It is therefore recommended that the state encourage and support RD&D in these resource and technology areas where there are inadequate private sector incentives through specific state investment; that the state coordinate energy-

related technology development to maximize efficiency of efforts; and that the RD&D effort include the identification of potential economic/environmental and institutional impacts and restraints and the development of means to mitigate their negative aspects.

It is further recommended that the state support and encourage the development of these resources and technologies by federal programs in Texas; and that the state seek maximum participation in the allocation of federal funds for such programs, providing state funds in the form of matching or seed money to attract such programs.

Incentives for Commercialization

It is recognized that the function of the free marketplace is to determine the true value of products, to allocate scarce resources, and to provide private enterprise with the necessary incentives to take the risks associated with commercialization of new technologies; that governmental regulations designed to protect other interests significantly influence the operation of the marketplace; that under the combination of existing circumstances, including natural gas pricing regulations and environmental controls and the uncertainties resulting therefrom, price levels may not be adequate to ensure timely commercialization; and that in some cases after initially prohibitive startup costs there is great potential for unit costs to decline to competitive levels.

It is further recognized that present law does not deal adequately with property rights related to solar, wind, and geothermal energy; that residential or other use of certain dispersed renewable energy systems is presently classified as a public utility activity and subject to utility regulation; that passive solar energy use is presently excluded from state incentives by administrative interpretation; that multiple licensing requirements for installation of solar equipment increase the cost of such systems without commensurate benefits; and that no national industry or federal government standards have yet been developed for rating the performance, reliability, or safety of most of these new technologies.

It is therefore recommended that to the extent possible free market prices be allowed to provide the basic incentives for private sector commercialization of all alternate energy sources. It is further recommended, however, that both the federal and the state governments take positive action to remove undesirable institutional and regulatory barriers in order to facilitate commercialization while keeping in perspective the need for consumer protection; and that where temporary market conditions justify, the state provide appropriate tax incentives and support federal government provision of loan guarantees, cost sharing, appropriate tax incentives, or other reasonable programs to encourage timely commercialization.

Increased Incentives through Energy Development Banks

It is recognized that the allocation of resources to research and development activities is a significant concern for public policy, given the importance of these activities in expanding the resource base and bringing about changes in patterns of natural resource use; that in certain cases market forces operating through the private sector may fail to allocate resources in a socially optimal way; and that such market

failures may inhibit the development or the use of new techniques and retard the pace of innovation.

It is further recognized that mechanisms operating close to the user of the technology are usually more effective than mechanisms several steps removed; that mechanisms requiring minimum interference with market forces should generally be selected over those that involve long-term disruptions; that mechanisms which preserve and enhance competition between new and existing technologies, between segments of the energy system, or between individual firms generally produce positive results; and that because of the time involved in adapting technological innovations in energy such programs must have long-term stability.

It is further recognized that the National Congress is considering a bill to establish a regional development bank for the northeast, potentially creating a competitive disadvantage for other regions.

It is therefore recommended that further study be given to the feasibility and advisability of establishing a state and/or regional energy development bank in the event national legislation is adopted on this issue.

Energy Taxation Policy

Energy taxation can be used for raising public revenues, for selectively influencing the development of energy resources and technologies, and for dealing with questions of equity. A major objective of any such tax is to promote overall economic welfare without causing excessive injury to any individual producer or consumer. The selection of taxes should supplement economic decisions made by the marketplace and should not distort the marketplace through encouraging misallocation of resources. This section addresses the major energy taxation options open to federal and state government. It should be recognized, however, that energy tax policy must be considered in a much broader context than energy considerations, and therefore the following statements should be seen as input to broader considerations of tax policy.

Federal Energy Taxation

It is recognized that the existing system of federal price controls which maintains certain arbitrary classifications of crude oil at prices less than market value has created both economic and equity problems. These controls result in reduced economic incentives for producers as well as the existing situation where producers and royalty owners producing exactly the same quality crude oil from different properties in the same field may receive widely different prices.

It is recognized that the imposition of a crude oil equalization tax would deplete a substantial amount of the retained earnings of energy producers that should be reinvested by producers to augment traditional energy reserves and develop new ones; that such a tax, unless the proceeds are retained by producers for reinvestment in the development of energy-related resources, will cause misallocation of resources and impose hidden costs on consumers in future years; and that decontrol of prices will serve the objective of equity among refineries and better ensure long-term supply augmentation which is in the national interest. It is also recognized that the imposition of an oil and gas utilization tax would not be

needed to encourage conversion under a policy of price deregulation and would only serve to further misallocate resources.

It is therefore recommended that in lieu of a crude oil equalization tax or continuation of wellhead price controls and the entitlements program, free market conditions be allowed to prevail.

State Energy Taxation

It is recognized that the current state of affairs in Texas state government revenues and spending is producing a favorable revenue situation to which energy tax sources have made a substantial contribution. It is further recognized that recent growth in major tax sources has originated to a significant degree from energy taxes, primarily the natural gas severance tax, due to rapidly rising natural gas prices; that in spite of this growth, the portion of state revenues from energy sources has been a declining portion of total state revenues; that under the existing tax structure, the prospects in the future are for declining relative and absolute tax collections from energy sources as energy price increases subside and energy production from crude oil and natural gas declines; and that while the state has implemented a severance tax on its petroleum resources it has not implemented taxes on its other energy resources.

It is recognized that recent and expected future changes in the mix and prices of energy production, consumption, and imports and exports have distorted and will further distort the historical balance of energy taxes; that under the current tax structure, Texas consumers often pay higher taxes per unit of consumption for energy than do out-of-state consumers of Texas energy products; and that other states have recently increased taxes on their energy products now imported by Texas, distorting further the equitable distribution of energy tax burdens. It is also recognized that federal government policies of price controls on crude oil and natural gas as well as policies requiring the conversion of industry and utility uses of energy to coal create additional equity problems with regard to the distribution of energy tax burdens.

It is further recognized that state taxing authority is one of the state's most powerful constitutional policy tools not preempted by federal law; that increases and decreases in taxes influence the rate of development and use of the state's energy resources; that such taxing policies are one means of protecting the state's interest in national energy affairs; and that federal government crude oil and natural gas price control programs have the effect of partially preempting the state's energy taxing authority.

It is therefore recommended that Texas move to legally protect its rights to tax state resources on the basis of the state's legitimate and recognized interests and needs; that the state continue to study the long-term implications of maintaining the current energy tax structure compared to available alternatives in the light of requirements for state and local government services, in the light of the need for more equitable distribution of tax burdens, in the light of local impact problems related to energy resource development, and in the

light of the state's resource development goals; and that studies be continued to provide a long-term outlook for state taxes from energy sources.

Environmental Policy

This section is designed to address energy-related environmental policies of interest to Texas. It is neither an exhaustive statement of all natural resources and environmental issues, nor a detailed review of all energy-related environmental concerns. The following policy positions seek to address the major areas where the development, production, and use of energy resources have significant implications for the integrity of the human and natural environment. Whereas most discussions of energy and environmental issues are framed in terms of conflicts between competing goals, this section is presented on the premises that energy development can proceed in productive harmony with the environment subject to certain costs and that decisions on individual issues are reflections of priorities as perceived by the citizens of Texas.

Energy Facility Siting

It is recognized that the siting of energy facilities in Texas is an extremely important feature of the state's economy; that additional sites for energy facilities will be needed if our energy and economic goals are to be met; that there is no single agency or law which regulates the siting of energy facilities in Texas; that many uncertainties are encountered by industries selecting energy sites, especially the uncertainty of whether all the necessary permits can ultimately be obtained for a specific site; that sometimes local concerns about certain adverse impacts may conflict with national energy needs; and that conflicts between policies of different federal or state agencies sometimes occur.

It is also recognized that major energy developments may have effects on the natural and human environment; that such effects may be adverse and felt beyond the region in which the facility is located; that certain of these effects are of state or even national significance; and that local communities, which experience most directly the effects of any energy facility, are sometimes unaware of possible effects or unable to effectively manage impacts in a timely manner.

It is further recognized that the siting decisions with regard to nuclear and liquefied natural gas (LNG) facilities pose unique problems related to significant expressions of public concern, the high level of federal control, complexity and length of licensing procedures, and impacts on surrounding areas.

It is recommended that the present state government approach of regulating the impacts of energy activities rather than the activities themselves be continued; that the scope of review be allowed to evolve as potential problems become evident; and that the state encourage those efforts to produce greater certainty in the permitting process which do not require the development of a centralized siting authority.

It is also recommended that public participation procedures be reviewed to ensure adequate community understanding of energy facility effects and adequate public notice of state decisions regarding the siting of energy facilities; that efforts to increase communication between local officials, citizens, and industry representatives be encouraged; and that the

state seek ways to expedite the review of energy activities at all levels of government.

It is further recommended that in instances where local and state concerns over the possible effects of a project conflict with state or national energy objectives, the state exercise its legitimate interest in the resolution of such conflicts and maintain its position as the most appropriate level of government to reconcile such differences.

It is also recommended that the state's role in decision making with regard to siting of unique facilities such as nuclear and LNG be expanded and that determined efforts be made to develop more expeditious licensing procedures.

Air Quality

It is recognized that while the conversion of boilers from petroleum-based fuels to coal and lignite is a widely accepted objective, its potential air pollution and public health effects are not fully understood; and that existing state and federal air pollution policies are critically limiting on both increased coal use and new energy facility siting and construction.

It is recognized that rigid enforcement of national ambient air quality standards (NAAQS) may prevent boiler fuel conversion and restrict industrial expansion in metropolitan areas; that Texas' most widespread and perplexing air pollution problem is the presence of ozone which in part results from natural emissions; that there is lack of agreement over the validity and attainability of the NAAQS for ozone; and that efforts to reduce ozone levels by limiting hydrocarbon emissions may prove ineffective.

It is recognized that prevention of significant deterioration (PSD) policies raise difficult questions about expanded coal use, the allocation of allowable PSD increments, and the desirability of less restrictive PSD classifications in clean air areas (basically nonmetropolitan areas).

It is recognized that the proposed revision of New Source Performance Standards (NSPS) to require sulfur removal technology on all coal-fired generators will require large capital investments, will create sludge disposal problems, and will increase energy consumption.

It is recognized that proposed regulations under the Resource Conservation and Recovery Act with respect to the use and disposal of flyash, bottom ash, and scrubber sludge may significantly limit the recycling of these materials into commercial products.

It is therefore recommended that, with regard to the NAAQS, the revised State Implementation Plan (SIP) propose to demonstrate reasonable progress in attainment of air quality objectives in the light of economic costs and social impacts; that with regard to PSD policy, (1) the SIP be revised to allow Texas assumption of permitting authority, (2) the need for and desirability of classifying certain clean air areas be studied, and (3) alternate strategies for equitable allocation of PSD increments be developed; that with regard to NSPS, the ambient air quality objectives for pollutant removal and for protection of public health be upheld while giving consideration to coal characteristics, costs, fuel penalties, and effects on emerging coal treatment and burning technologies; and that with regard to the Resource Conservation and Recovery Act, regulations be encouraged which do not unnecessarily inhibit recycling of flyash, bottom ash, and scrubber sludge.

It is further recommended that extensive additional environmental research be supported including research into the effects of sulfates and fine particles on human health, the formation and effects of ozone in the Gulf coast region, and the potential impact of acid rain in Texas.

Water Quality and Supply

It is recognized that Texas has a comprehensive and effective water quality management program, that increased energy activity and the development of new energy sources may have adverse effects on water quality and supply; and that strong and effective efforts to maintain water quality and supply must be maintained as energy needs are met.

It is recognized that potential water quality problems may result from the following: (1) discharges and leaching from uranium and lignite mining operations, (2) discharges from geothermal wells, (3) brine disposal from the Strategic Petroleum Reserve and from enhanced oil and gas recovery operations, (4) discharges from electric power generation, (5) ash and sulfur residue disposal, (6) oil spills, and (7) increased water consumption resulting in reduced stream flows and thereby reduced pollution absorptive capacity.

It is therefore recommended that primary responsibility in addressing energy-related water quality issues rest with the state; that the state study the water supply needs and the potential water quality effects of energy development; that the state provide appropriate monitoring and regulation at points of potential water pollution; and that efforts to obtain state authority to issue National Pollutant Discharge Elimination System (NPDES) permits be continued.

It is also recommended that federal oil and gas injection well requirements be commensurate with demonstrated water quality problems, be consistent with the national goal of increased energy production, and be equitable in their application; that revised national standards for thermal discharges from electric power plants under the Clean Water Act of 1977 continue to allow for maximum engineering flexibility in designing cooling systems which provide both adequate environmental protection and minimum water consumption; and that requirements for documenting the effects of thermal discharges on receiving waters take into consideration regional climatic and environmental variations in determining the amount and nature of documentation required.

Surface Mining Regulation

It is recognized that the passage of a national strip-mining law in 1977 has shifted the focus of debate from the need for federal legislation to the administrative implementation of federal controls; and that the issue of continued state regulation of surface mining operations in Texas is now a major concern to the state.

It is also recognized that Texas has abundant lignite and uranium resources which can be extracted by surface mining; that exploration and development activity for both lignite and uranium in Texas is intense; that lignite production is expected to more than double between 1979 and 1985; and that Texas has developed an effective and responsible surface mining regulatory program covering coal, lignite, and uranium, whereas the federal law covers only coal and lignite.

It is recognized that regulations for a permanent regulatory program have recently been issued by the Department of the Interior; that these regulations set out the conditions under which Texas could assume full jurisdiction for implementing federal surface mining requirements; that state assumption of jurisdiction over surface mining controls in Texas with respect to lignite would be in the public interest; and that qualification may require certain amendments to the Texas law and program.

It is therefore recommended that Texas seek federal approval of the state's surface mining regulatory program pursuant to the Federal Surface Mining Control and Reclamation Act of 1977; that the general compatibility of the Texas law and program with federal requirements as it now stands be called to the attention of appropriate federal officials; and that the legislature give due consideration to statutory amendments deemed necessary to gain federal approval of the Texas program.

It is also recommended that federal regulations which do not adequately recognize geologic, climatic, social, and other conditions existing in Texas be discouraged at the federal level; and that the jurisdiction of state and federal agencies pertaining to the water quality aspects of lignite mining be examined to minimize duplication of regulatory review.

Nuclear Waste Disposal

It is recognized that radioactive wastes are a byproduct of the nuclear fission process; that only a small percentage of the byproducts are highly radioactive and require isolation from the biosphere; that significant public concern exists over health and safety aspects of nuclear waste transportation and disposal; and that additional nuclear wastes will continue to be generated in the future by the Navy nuclear propulsion and military weapons program and an expanding commercial nuclear power plant program.

It is further recognized that large volumes of low level radioactive wastes which are not associated with the spent fuel are generated at nuclear power plants; that additional low level waste results from activities at medical facilities and industrial facilities; that the number of licensed surface burial sites available for disposal of low level waste generated in Texas has decreased; and that low level wastes can be adequately disposed of in surface burial facilities which provide for containment of the wastes for several hundred years—a period sufficient for decay of such wastes.

It is further recognized that 35 years of experience has shown that radioactive waste can be safely handled and temporarily stored but that a more permanent disposal method is required; that underground containment of radioactive wastes in stable geologic formations may offer a more permanent solution to the waste disposal problem; and that Texas contains several geologic formations presently under review by the federal government as sites to store the nation's radioactive wastes.

It is also recognized that reprocessing of spent nuclear fuel will reduce the volume of radioactive waste material to be disposed of; that unprocessed spent fuel remains hazardous for a much longer period of time than the reprocessed radioactive waste; that transmutation of longer lived radioactive isotopes contained in the spent fuel is possible only if nuclear fuel is reprocessed; and that reprocessing spent

nuclear fuel assemblies to recover the remaining useful nuclear fuel will help reduce the environmental damage associated with uranium mining.

Therefore, it is recommended that the State of Texas and its citizens work with the federal government to determine whether or not geologic formations in Texas would be suitable for use as underground containment facilities; that Texas seek power of approval over the location in Texas of any waste disposal site, either demonstration or permanent, as well as the transportation of nuclear wastes through the state; that the legislature determine appropriate state charges for any disposal of radioactive waste which might occur in Texas; and that the State of Texas support reprocessing of spent nuclear fuel and urge the federal government to reconsider its policies which restrict the implementation of reprocessing. It is further recommended that a burial facility for low level radioactive wastes be developed in Texas for wastes produced in Texas.

Conclusions and Future Directions

Texas and the nation have entered a period of transition in the history of energy resource production and utilization. Private enterprise and a free market system provide the most efficient framework for spanning this period. However, both the state and federal governments have a role in ensuring an orderly transition through a time of change which threatens to impact major segments of our society by changing our dependence on basic energy sources and by altering the living standards to which we have become accustomed.

The set of recommended policy positions outlined in this paper is an attempt to address most of the major policy questions facing our state and nation. These statements are certainly not the last word on the issues and new issues will undoubtedly appear in the future, requiring new considerations and updates. There are also certain areas of interrelationships among issue areas not addressed herein, and these will need further work and investigation.

It is our opinion, however, that the above statements provide a guide to policy which, if implemented, would serve to: (1) promote increased domestic energy supplies from new and old sources; (2) encourage a slower growth in energy consumption; (3) provide adequate and reasonable environmental protection during the change to new energy sources; (4) provide for a smooth transition from an oil and gas-based economy to higher cost energy sources without excessive economic disruption; and (5) provide access to energy in the transition period at the lower practical price.

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Doc. No. 788351 Milton L. Holloway
 Executive Director
 Texas Energy Advisory Council

Filed: December 20, 1978, 11:53 a.m.

For further information, please call (512) 475-5588.

We also had ~~several~~ ^{LWT} meetings w/ Laura Kerve,
at that time Energy Chair & ~~still~~ a member of the
TENC - now ~~TEWAC~~ ^{claiming the} and with other ~~related~~ ^{a number of} interests
local State Leaguers, particularly June Naylor -
Midland-Odessa.

~~As we were leaving~~
After developing 7 script outlines & 4 unsuccessful
script starts, the project ~~came to a stand~~ ^{momentum}
was interrupted by a series of unrelated events.

The 3-mile Island accident suddenly ^{gripped} public
& governmental ^{attention} ~~statements~~ leaving future sentiments
uncertain. While this was ^{initially} seen as a
disadvantage to our purposes, ~~it~~ ^{statutory} ~~personal~~ ^{commitment}
~~it~~ ~~gone~~ ~~it~~ ~~provided~~ ~~a~~ ~~time~~ ~~frame~~
However ~~both~~ ^{both} Pat Nichell ~~and I~~ ^{needed}
~~a~~ ~~time~~ ~~for~~ ~~personal~~ ~~commitments~~ ^{got} sidetracked with
personal commitments.

She began the process of buying, selling & moving
household. I ~~took~~ ^{accepted} full-time employment.

In addition, our camera technician ^{Victor} with the
KLBK-TV ^{left} ~~left~~ ^{accepted} employment in Kansas City.
the project ^{long}

Needless to say, the project went on "hold" for
over 3 months with ~~only~~ ^{continued} the exception of reading &
keeping current on events affecting ~~the~~ waste issue.

Pat Nichell attended the Wyoming LWT-Chronica
Mining & Melt Conference in Saratoga from June 12-16.

On June 9 a Public Hearing ~~it~~ was conducted by
DOE in Carlsbad N.M. on the Draft Env. Impact Statement ^{WIPP}.

We were able to

Rent a equipment and Cameraman for the local
PBC affiliate to attend ~~these~~ this meeting.

Here we were able to interview Carlebo's ^{citizen & objectors}
Mago Gervel and other business interest, as well
as anti ^{WIPP} ~~take~~ demonstrators, including Roxanne

Kirschner a resident and SWRIC speaker.

During these months ~~the~~ KLBK-TV ~~was~~ underwent
FCC re-licensing and sale ~~leaving~~ which resulted

in ~~many~~ changes in personnel and policy. ~~Because~~

Cal 13 is still under the same management, but was

willing ~~as a result of~~ ^{This created} ~~Because~~ of difficulties for us

in getting available equipment, staff and production

time. ^{we now have an informal understanding}
with Cal. 13 that ~~allow~~ ^{encourages} us to use whatever

production facilities we can arrange with the \$300

balance of ~~300~~ ^{& funds} ~~now~~ committed to KLBK.

At one point during the summer, I had arranged
for ^{later} ~~the~~ use of the M. Mass Communications facilities

~~for~~ at ~~\$~~ 12. per hour. This was later foiled by
new department access regulations.

By September ~~we were eager to~~ it was clear
we would need further ~~help~~ ^{with TV} to complete the project.
so we began a search for a writer/production
experience.

~~to the~~
~~with~~ I met
Bill Blair
and mgr
and discussed
our needs
as a result

more
convenient

on Sept 7 Pat Nickell attended a Lubbock
Memorable ~~action~~ ~~draft~~ that T. Eddy Adl. Council's PBC
~~held a~~ ^{conducted hearing on a draft} general environ report statement in Lubbock
hearing on state waste management policies. This was
poorly attended ^{or participated} by the community and ~~was~~ ^{seemed} ~~as~~
~~that~~ ^{we} ~~settled~~ no new information or material from it.
Although many Leaguers did attend including June
Nagler of LWV - midland - Odessa. She spoke & presented her
maps challenging the WIPPA based on concerns for
the integrity of the S. Rose underground water supply
against possible contamination. We are ~~further~~
checking her ~~information~~ ^{information} and ~~materials~~ ^{materials} for validity.
~~to document~~

By the end of September we had found Wanda Walser
^{experienced, published local} ~~on~~ ^{creature} ~~with~~ ^{10 years experience}
~~experience and her own business~~ ^{freelance} ~~she~~ ¹⁵
~~also employed full time~~ ^{just accepted a public relations position}
~~as Director and is reliable~~ ^{as Director and is reliable} ^{hospital}

Because of her ~~past~~ ^{more} interest & enthusiasm for the project
we ~~came~~ in spite of the limited ~~time~~ ^{hours} available
she has agreed to work with us to completion of the
project as writer, ~~and~~ ^{however needed} production consultant, and generally
~~We have established~~ ^{Our agreement}
Which ^{also} depends the balance of ^{provides her} ^{equip} ^{other} ^{expenses}
grant funds. ^{and fees} ^{a \$1200}

since Sept.

Arrangements have been made with - KMC-TV

(Cape) for production time during weeks of Nov 29 -

This is a heavy commercial load production time and we are

Dec 7. The time & use of equipment will ^{be} ~~be~~ ^{for} ~~be~~ ^{to} ~~be~~ ^{have} ~~be~~ ^{time} ~~be~~ ^{reserved}

~~Fortunately~~ ^{also} ~~be~~ ^{at} no charge as public affairs products ^{are} ~~be~~ ^{reserved}

Time

currently. First edit

I am arranging production time & facilities

with a local video distributor who has an editing show room & rental equipment

I am optimistic that ^{as} ~~the~~ local league can ^{persuade} we will have access to the equipment for a few ^{thousand} ~~hundred~~ dollars which the National League ^{will be} ~~is~~ able to provide.

Script Review & revision time allowed is 2 weeks including comments received. This may be

extended if a ^{revised} 3rd script is necessary & appropriate. Realistically, ^{unproductive} ~~many~~ ^{past} ~~delays~~, I am willing to

consider a ^{production} ~~delay~~ ^{sacrifice} ~~to~~ ^{this} ~~firm~~ ^{deadline} ~~at the expense~~ ^{otherwise} ~~of an excellent show~~ ^{production} ~~quality of this show.~~ ^{I diminish the}

Should the deadline be extended at all, a revised schedule would demand completing the project in January since the Holiday will seriously curtail production. Since ~~from~~ will be ~~out~~ ~~out~~ out of the Country from Dec 20 - Jan 5 and because TV production time will be much more abundant in Jan. after the Christmas commercial season.

(4)

Several groups & individuals, some
already expressed a desire to purchase copies
of the documentary - including
Batelle N.W. TUC. de Alame and Joun.
and ^{OTA} NRC's ^{Dr.} Leachman - if he's still there.

~~we~~ ~~will~~ attempt to
We will send letters announcing its
completion & availability ~~to~~ through the
state or Nat'l League and DOE (?)
We will verify whether it must be
rented, may be loaned,
or can be purchased for price of
tape & dubbing.

All Texas & N.M. LUV's will also be
~~notified~~ advised.

We have ~~been~~ repeatedly talked with
PBS affiliates in Lubbock, Dallas &
Austin who suggest we present a general
print for possible ^{broadcasting} regional ~~thing~~ - if not
at least local ~~when the project is completed~~ ~~broadcasting~~ ~~thing~~.

① ^{contact} This will be our ~~last~~ ^{3 final} attempt at
distribution effort and ~~all~~ copies & a 2" original
tape will become the property of the LUV-T or OS ED -
② One copy will remain in the possession of the Lubbock League.

Dates Set

Oct 12 - transcript

Oct 20 - ^{finished} Rough Outline script.

[Nov 1 First true script draft.

[Nov 16 2nd script final

- Nov 19 - production
27 start

Nov 29 - TV-slates

Dec 7 - Products

Distribution 15 - Distribution

765-9381 #115

Dates

in Houston
Oct 1-5

THE Duplicator

QUICK PRINTING

Meet Again Lunch

Thurs - Sept. 27

(806) 744-2602 • 1108 AVE. J • LUBBOCK, TEXAS 79401

- Monday → ① KLBK (Carolyn) ✓ check ³⁰⁰ - all Balance Budget
- Tues → ② KMCC = after (Wanda) 4:30
- Woodie & David Coombie → ③ VSI how long take: (week) when.
Nov. 17th

④ Andie Clear-Up

Pat - By Oct. 12

I - dub - rest -

transcribe Oct 12th

- Prelim draft - Book - 1 pg, EIS



MEMO to Betty Anderson

October 25, 1978

From: Pat Bruno and Pat Nickell

Re: Nuclear Waste Disposal Project, Washington D.C. Energy Conference

Copies: Marjorie Burr, President, New Mexico League of Women Voters

Laura Keever, Energy Chairman, LWV of Texas

Marianne Thealer, Energy Chairman, LWV of New Mexico

Mary Reynolds, Project Manager, LWV of New Mexico

KLBK-TV in Lubbock

PROJECT INTERVIEWS

We went to the office of Natural Resources Defense Council on Monday, October 16, and interviewed Tom Cochran, Ph.D. and staff scientist, and Richard Pollock, Director of Critical Mass Energy Project. We taped the interview and will transcribe two hours of tape. This interview dealt with the major political and legislative issues which affect waste management policy at the Washington level. We also were given names and organizations to contact in Washington; Palo Alto, Calif.; and Albuquerque, N.M.

During the conference, the Department of Energy conducted a press conference to release an Interagency Review Group (IRG) Report to the President on Nuclear Waste Management, with the introduction by John Deutch of DOE, Chairman of IRG. These reports, in three volumes, presents the findings, policy considerations, and tentative recommendations reached by the IRG in its deliberations and study which began last March at the direction of the President. We were given copies of the three volumes.

Laura Keever was in Washington to attend the press conference and we met and visited with her briefly.

The National League staff had arranged for Texas and New Mexico project managers to interview Sheldon Myers, Director of Waste Management for the Department of Energy on Thursday, Oct. 19. During this hour-long discussion, Mr. Myers also offered to be of help in any way possible, including conference participation or televised interviews at our convenience.

LWVUS EF ENERGY CONFERENCE

The conference began October 18, 1978. The major outcome was that we agreed to work with the New Mexico League of Women Voters in conjunction with their project, which is a 25-page booklet and an early spring conference in Eastern New Mexico. Mary Reynolds of Las Cruces is the project director and Dr. Alex Burr of Las Cruces is her assistant.

We recommend to the two states that they accept the project as a joint venture. The extent of cooperation logistically possible can be discussed, but we anticipate that both states might share resources and acknowledgements on our final products.

We are enclosing a copy of the conference agenda, most of which did not deal specifically with nuclear waste, per se, but did concern itself with guidelines and grant administration.

We did encounter interest in both the New Mexico project and ours from conference delegates from Wyoming, Illinois, Ohio, Florida, Pennsylvania, New York, and other states. They requested an opportunity to view the videotape once it was completed and asked to be kept informed of progress on the projects.

GRANT FUNDS

As far as the Exxon funds are concerned, to our knowledge the LWVUS position suggests the funds are forthcoming to us. They required no further justification of the budget, which includes the additional \$1500. A final budget and outline of the project is due in the national office November 10. However, the National League staff suggested and we concur that perhaps our state board might wish to apply for matching funds. We will contact Carole Shlipak on this. Enclosed is our first revised tentative proposed budget (by no means final), which does not reflect a number of items indicated during the conference. Further details on the budget will be forthcoming soon (before November 10). Linda Archer of the Lubbock League has agreed to act as Project Accountant.

COMMUNICATION

To maintain communication among all participants in both states, we plan to send a bi-weekly memo to you, with copies as indicated.

We look forward to a further visit with Laura Keever on November 3 in Lubbock. The Lubbock League Board plans a salad luncheon at 11:30 a.m. Friday, Nov. 3, in the home of Carolyn Lanier at 4803 W. 16th St., in honor of Laura and Rachel Gooch, Consultant to the League, who will also be visiting in Lubbock at that time.



League of Women Voters of Lubbock

Lubbock, Texas

November 10, 1978

TO: Bill Blann, Channel 13

FROM: Pats Bruno & Nickell (PB 793-0553 and PN 793-0003)
B.C. Betty Anderson and Laura Keever

RE: Taping in Austin--Nuclear waste disposal project

We have recently met with Laura Keever, League of Women Voters of Texas State Board Director of Energy. She advised us of the following seminar dates in Austin and Houston, which we are planning to attend:

November 16-17 Austin

Energy Advisory Committee of Texas--Public Hearing ✓

December 15 Austin

Energy Advisory Council Senate Floor Meeting to adopt revised nuclear policy document

January 29-30 Houston

Nuclear Energy Symposium sponsored by the League

Please make a note of these dates to arrange for a camera person. We will notify you again nearer the dates for the December and January trips.

Concerning our first out-of-town shooting on November 16-17 (Thursday and Friday), we have arranged interviews with:

Susan Reed, nuclear resource person, The Texas Observer

Bill Fisher, Bureau of Economic Geology, UT Austin
(attended all state public hearings held by DOE on nuclear waste)

Martin Woucash, Radiation Control, Texas Health Department

We plan to see these people before the public committee hearings and to review a number of documentary films at the University of Texas before Friday.

Although we have not yet received an advance on the grant funds, we will cover expenses for air fare, hotel accommodations, and meals for Victor for the two days.

We anticipate the cost of car rental in Austin to be beyond our budget, and with the equipment requirements, we are considering driving to Austin.

An LWV-Education Fund committee will meet Monday, Nov. 13, in Washington, D.C. to review our project outline and budget, and then, half the grant funds should be immediately forthcoming.

FYI: A copy of the AJ article (11-9) is enclosed.

- Austin - numerous interviews w/ State legislators sponsoring bills
promoting & or preventing
waste disposal

TEACouncil
members, staff
- an Anti nuclear group: Mobilization for Survival
LWV-Wy.

- June 12-16 - Laramie - Wyoming = Uranium Mining & Milling
Conference.

Aug / July June

EIS Workshop

Sept. 7

- Hearing on Nuclear Policy

June Nator
w/ maps

Texas
Energy

LT Beerman
Basin

Adviser
Committee

Oct 1

w/ Catherine Perrine

Trying to gather up her info -

To see how valid

Contact Contact w/ Atomic Industrial Forum

Love

Utilities Company - Dallas
Texas Energy Commission

- Received approx 8 16mm films on

nuclear & waste issues

IRG, numerous
- EIS- - Battelle N.W. Ohio
- Richland
- Barnwell

2 3/4" videotapes: - DOE
- PBS
slides, STILL photographs

Hand
Files or display
Salvage



League of Women Voters of Lubbock

Lubbock, Texas

January 6, 1979

Mrs. Isabelle P. Weber,
Energy Department Coordinator
LWV-US Education Fund
1730 M Street NW
Washington, D. C. 20036

Dear Isabelle:

Enclosed is an interim report of the progress to date of the Texas League of Women Voters Energy Education Project, Phase II: A Nuclear Waste Disposal Documentary. As described, the raw material for the documentary is abundant, including 10 hours of raw footage, audio tapes, and additional video material sources. The timetable allows for another month and a half to gather footage, of which we particularly need "descriptive" video, cover footage, and aesthetic shots, such as the file film we anticipate from the commercial networks and the trips to Carlsbad and Amarillo where we will seek more "anti-nuke" sentiments.

A new development, not included in the interim report is a January 18-19 trip to Dallas for a two-day PBS writers'/producers' conference sponsored by the Corporation for Public Broadcasting as a resource, information, and seminar panel session for a selected audience of women script writers. It is being produced by KCET-TV in Los Angeles for closed circuit feed to four regional PBS conference hosts. The conference will provide valuable assistance for scriptwriting techniques, production outlets, and public relations techniques for "selling" the script, and "how-tos" on marketing our video idea and package. Additionally, of course, it will offer us an opportunity to make contacts for offering the documentary to the PBS network.

We will also take the opportunity while in Dallas to visit the Regional DOE Field Office Representative and take a side trip to Glen Rose, construction site for the Dallas Power and Light Co. nuclear plant.

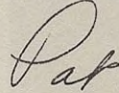
As you see from the budget report, we have spent all the \$2000 grant funds advanced to date. We have incurred additional expenses yet to be reimbursed and we are in immediate need of additional money for proposed and pending travel. In addition, our agreement with KLBK-TV requires a total of \$1400 advanced to them at regular intervals of approximately \$200. Please consider and let us know immediately if you can forward immediately an additional \$2000 for these costs and expenses. The first grant advance mailed took 20 days to reach us and we were forced to make an urgent request to the state League for an advance in good faith. We hope to "do better next time".



Of concern to us is the realization that nowhere have we received any written confirmation of the total dollar amount of the grant. We presume it to be \$5500 and to include the Exxon grant, but we just don't know that to be a fact. Betty Anderson could not confirm this for us, either, and is therefore concerned since she has already sent Exxon a formal thank you letter. Please clarify this oversight for us immediately.

We look forward to hearing from you.

Sincerely yours,



Mrs. Pat Bruno
Project Director

PB/pn

CC: Betty Anderson

Laura Keever

Mary Reynolds



The Texas Observer. Mrs. Reid has written articles on nuclear waste and is very knowledgeable on the subject. She offered us her own insights and copies of her background material.

The hearing proved to be a disappointment as it concerned energy policy recommendation and had little of nothing to do with nuclear waste. Chairman of the TEAC is former Texas Senator Max Sherman, however, and we hope to interview him later. He is president of West Texas State University in Canyon, Texas (near Palo Duro Canyon).

We contacted the office of Dr. Lynn Draper, director of the Nuclear Reactor Teaching Lab at UT. Dr. Draper was out-of-town, but his assistant talked to us and showed us video material prepared by Dr. Draper on reactor processes and nuclear energy. We also toured the reactor lab.

Dr. Draper's assistant arranged for us to interview Dr. Draper at a later date, and we hope to return to Austin later to interview him and Dr. Sally Lopreato, a sociologist at UT who has done studies of public reaction to nuclear energy and waste sites.

I found a "nuclear map" of the United States in a bookstore in Austin. It is 1972 vintage, and may not prove too useful, but it does have areas marked where exist nuclear power plants, nuclear weapons facilities, nuclear targets, and miscellaneous facilities such as uranium mining and milling, nuclear fuel processing, reprocessing, waste storage/burial sites, and reactor research and development.

Albuquerque/Los Alamos trip, December 10-12, 1978

We met Mrs. Marianne Thaeler, energy chairman for the LWV of New Mexico in Albuquerque, N.M. for joint interviews with officials and scientist at Sandia Laboratories, prime contractor for DOE's New Mexico studies. Mrs. Thaeler is the author of the booklet on nuclear waste, part of the NM-LWV energy education project.

We interviewed Don Schueller, acting manager for the Waste Isolation Pilot Plant (WIPP) project; Dr. Wendell Weart, Sandia's manager of the Nuclear Waste Technology Department; and Robert M. Jefferson, manager of the Nuclear Materials Transportation Department, who provided us with film footage of transportation accidents designed to test containers, such as one called the *Super Tiger*.

We visited and shot footage in several laboratories at the Sandia complex, where experiments are conducted to test various geological characteristics of the WIPP site. One lab is testing the corrosive damage of salt on various metals and substances; another tests well core salt samples after heat and pressure application; and another is conducting tests to determine possible migration of encapsulated water (in salt deposits) toward a heat source.

An interesting sidelight at Sandia: Victor is an Indian citizen and was unable to obtain security clearance at Sandia because India has nuclear technology. We were accompanied at all times by an armed guard, and signs had to be posted whenever we were in a building that an "uncleared" person was inside. We were also accompanied on our tour by Rod Geer, public information officer at Sandia.

Following the tour at Sandia, we went to the office of the Southwest Research and Information Center (SWRIC) and interviewed Jeffrey Nathanson, communications director, who screened an anti-nuclear waste commercial for us and offered a copy. It was filmed in California by a group called C.A.R.D. which I think is *Citizens for Alternate Resource Development* (but I am not sure.) The commercial was well done technically, but ethically questionable, in our opinion.

We all then travelled to Los Alamos where we visited with scientists at Los Alamos Scientific Laboratories (LASL). John T. Ahearne, Jr., public information specialist, accompanied us on a day-long tour in which we taped material on several experiments: a solid waste facility (open pit); a liquid waste treatment plant; and an incinerator to turn radwastes into tablet form.

While at LASL, we taped interviews with Dr. Lee Borduin at the incinerator plant; Dr. John L. Warren, in charge of solid waste; and Dr. Thomas L. Keenan, group leader for waste management.

We were treated to lunch in the home of a NM-LWV Board member and there did an interview with Dr. Graham Foster, a nuclear physicist at LASL.

Denver trip, December 19-21, 1978

Victor and I flew to Denver to attend an NRC conference on High-Level Radioactive Solid Waste Forms. We met Mrs. Thaeler there, and Pat Bruno joined us Dec. 20.

We taped interviews with Dr. Cochran, NRDC-Washington office; and with Dr. Terry Lash, NRDC, California office. Drs. Cochran and Lash are highly respected anti-nuclear voices. We also taped an interview with Dr. Robert O. Pohl, a Cornell scientist who is anti-WIPP.

We taped the keynote address at the banquet, delivered by Senator Harrison Schmitt, R-New Mexico, and then did an interview with him. Sen. Schmitt is a Harvard-trained geologist and former astronaut. We also taped interviews with NRC Commissioner Thomas P. Kennedy (described as a nuclear "hawk"); Ms. Leslie Casey (NRC conference coordinator); and Dr. Robert Leachman, on loan to NRC from the Office of Technology Assessment for the U.S. Congress (OTA).

In addition to these interviews, we taped portions of two pro-con panel discussions conducted by the NRC, in which participants from all over the U.S. and from many foreign countries pointed out nuclear waste problems, such as limitations in predicting long-term behavior of waste or host rock; political and ethical considerations; and reprocessing research.

We met with many representatives from private energy interests, most of whom promised to send us reading material, and we talked with scientists from everywhere. Nearly everyone expressed an interest in seeing the show when completed and several offered technical assistance.

The conference was highly technical, but thanks to our study and reading on nuclear waste, we were able to grasp the general idea, if not the basic chemical formulas.

Hobbs trip--Canceled, January 4, 1979

We had intended to attend a DOE public hearing on the WIPP site in

Hobbs, N.M. (about 120 miles from Lubbock) but because of icy road conditions, we were not able to go. We heard that League members from Odessa, Texas, made a statement. We hope to attend future hearings and expect more to be scheduled, at which we can gather video material.

Current Project Status, Jan. 5, 1979

We now have about ten hours of "raw footage" which awaits our editing efforts. We have gathered prodigious amounts of material for reading and studying, and are deeply indebted to Mrs. Thaeler for her help with possible questions. She has given us an advance copy of her booklet, although we expect minor changes in the final product.

Future Plans

The Texas Legislature convenes Jan. 9, 1979. We plan to carefully monitor legislation which is proposed and/or passed in regard to nuclear waste, uranium, or energy.

The League will travel to Austin Feb. 28 for Lobby Day. We plan to go then and interview legislators who have sponsored legislation relating to our project subject.

We will also try to interview Dr. Draper and Dr. Lopreato on that trip.

We plan to travel to Canyon to interview Max Sherman. We also hope to interview residents in the Palo Duro Canyon area (about 10 miles from Canyon) about the waste site study being done there.

We will travel to Carlsbad, N.M. to do on-site filming of the WIPP site, interview Carlsbad mayor Walter Gerrels and Mrs. Roxanne Kirschner, a Carlsbad resident who is a SWRIC spokesman in that area.

We will begin to edit tape in a few days, condensing a monumental amount of information into an hour-long television script. We have verbal agreement with an Austin composer for an original musical score.

As indicated in the project timetable, periodic consultant review will be established for technical and script clarification and language weight and balance assessment. Selected scientists and officials from DOE and NRC with whom we have arranged for review include the Radiation Control Director for the Texas Health Department (Wukasch's successor); Dr. Keenan at LASL; Dr. Leachman from OTA/NRC; Schueller in Albuquerque; Dr. Harry Parker, chemical engineer at Texas Tech University in Lubbock; and Dr. Bill Davis of Lawrence Livermore Labs in California who will visit Lubbock in February to consult with us.

Additional sources of video material available to us are cassettes from DOE Consumer Affairs; a transcript and video tape of a December debate on licensing of nuclear waste sites on PBS and file film from previous DOE hearings in Texas and New Mexico.

We are ahead of schedule in video taping, and are very excited by the quality of our material. We believe the show will be very interesting, as well as informative. Channel 13 has been most helpful and cooperative, and they are quite clear that the final product will be the sole property of the LWV.



League of Women Voters of Lubbock

Lubbock, Texas

League of Women Voters of Texas
Education Fund
Energy Education Project, Phase II
Route 4, Box 162S5
Lubbock, Texas 79413
January 6, 1979

Florence Chichester, Manager
LWVEF Energy Education Project
1730 M Street, NW
Washington, D. C. 20036

Dear Ms. Chichester:

Enclosed are the first ten vouchers for the Texas Energy Education Project, Phase II. I hope all the papers are filled out correctly. Please let me know if there are any problems.

I already have about \$180 worth of vouchers that I don't have cash to pay, so I would appreciate the next check as soon as possible. You can reach me at the above address, or call me at (806) 792-8224.

Sincerely yours,

Linda Archer

Linda Archer
Project Treasurer

LA/pn



INTERIM REPORT FOR NUCLEAR WASTE DISPOSAL DOCUMENTARY

JANUARY 5, 1979

	BUDGETED	EXPENDED	
STIPENDS	\$ 550.00	\$ 275.00	
TRAVEL			
AUSTIN	330.00	417.25	
ALBUQUERQUE, N.M.	410.00	218.65	
WASHINGTON, D.C. # 1	110.00	91.23	
DENVER	-	576.14	
OTHER TRIPS	1935.00		
	<u>2785.00</u>		
STATION EXPENSES	1400.00	500.00	
TWO INCH TAPE	190.00	-	
POSTAGE	25.00	-	
XEROX	25.00	7.42	
TELEPHONE	500.00	46.16	
SUPPLIES	25.00	30.64	
	<u>5500.00</u>		
CASH ON HAND		18.80	
VOUCHERS PAYABLE			\$ 181.29
CASH RECEIVED FROM NATIONAL TO DATE		<u>2181.29</u>	<u>2000.00</u>
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STAFF DIRECTOR
Martha T. Mills

July 24, 1979

Pat Nickell

Pat Bruno

Dear Pat and Pat:

This is to confirm my phone conversation with Pat Nickell on Tuesday, July 24. I understand the difficulties you both have been having in completing the project. The LWVEF energy education program has received tentative extension of the grant until October 31st, 1979. Any DOE monies to be spent on the project must be spent or obligated by that date. You may have time beyond that date to finish up but you cannot spend or obligate DOE funds after that date.

We are eager to assist you with the project in any way that we can. Probably the main obstacle to overcome right away is to put together an outline of what you hope to accomplish or say in the film. If you can come up with even a rough outline and send it to us, we will try to provide some helpful comments or suggestions.

In the meantime, please discuss and decide upon a workable schedule and send a written copy of it to me. As I told Pat Nickell, the DOE office from which we received our grant is very interested in your project and Mr. Joseph Carvajal, Chief of Public Programs, would like to attend when you do the interlock print. Let me know when that might be. (Thanks, Pat N., for calling and reassuring the DOE region VI Director.)

I know, Pat B. that starting a new job is not easy and demands a lot of extra time in the beginning. And I do sympathize, Pat N., with your house problems. I am sure, however, that you'd both like to bring this project to a successful conclusion, and as soon as possible.

So keep in touch and let me know how we can help you. I look forward to receiving the schedule and the tentative outline in the near future.

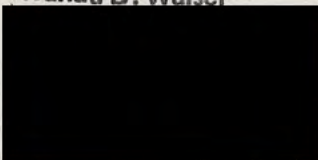
Regards to both your families.

Sincerely,

cc: Pres., LWVTX

Contributions to the Fund are deductible for income tax purposes.
Florence Chichester, Manager

Wanda D. Walser



Qualifications

Sixteen years experience and education in mass communications, all media, as well as coordination of public relations, public service and advertising campaigns and audiovisuals on a local, regional, and in the case of print media, national and international levels. Proved ability in writing and research: published educational filmstrip writer, published fiction and non-fiction writer on regional, national levels. Well-honed interpersonal skills in many facets of communications area, including working with people on levels from top management to custodians. Experienced in coordination of people, props, locations and true elements for production of television commercials and special presentations. Experience in client presentations, as well as public speaking. Have served on several occasions as guest speaker in advertising classes at Texas Tech University and for two years consecutively as judge at the annual university copywriting competition.

Writing & Production

Began as a copywriter during days of live television and telops at KGNC-TV (now KAMR) Amarillo. Wrote, produced and directed commercials; did on-the-air work, client contact.

Became continuity director in charge of all commercial writing and production at KVII-TV, Amarillo. Supervised copy-concept and production; copy-contact duties and on-air work. Acted as liason between station production and ad agency copy.

Next served as continuity director for KGNC Radio, Amarillo, as copywriter, creative, client-contact. Supervised radio copy production. Liason between station personnel and ad agency creative, agency creative.

Worked with Monte Resenwald and Associated Advertising Agency, Amarillo, as copywriter, client-contact, creative on such accounts as Amarillo National Bank and Piggly Wiggly.

Jan., 1967 — Oct., 1974: Webster/Harris/Welborn Advertising Agency, Lubbock, Began as copywriter, advanced to creative director. Supervised copy, radio, television and print production. Served as client-contact in cases where either Mr. Webster, Mr. Harris or both were out of town. Worked in all areas of public relations and advertising with such clients as Plains National Bank, Underwood's Barbeque Cafeterias and Lubbock Power and Light. Created and produced award-winning advertising and public relations campaigns during this time.

Oct., 1974—June, 1975: Buckner/Craig/Armstrong wrote and supervised copy and production for all accounts. Coordinated technical on-camera personnel for accounts. Implemented and produced new campaign for Gebo's stores during this time. Client contact, creative.

June, 1975 — Aug., 1976: Free-lanced from my home. Accounts included N. Armstrong Advertising Agency, for whom I wrote, designed and produced mixed media campaigns for such clients as Gebo's, Plains Cotton Growers, Inc., HPC Pump Company, Plains Cooperative Oil Mill and numerous others. During this time, also worked part-time as public information assistant to Walt Olivo at Plains Cooperative Oil Mill, where I wrote news releases, conducted oil mill tours.

Aug., 1976 — Present: Work in my own writing/production business, Ideas UnLtd., where I write design and produce everything from PR campaigns to brochures, audiovisuals, product news stories and direct mail for my various clients, among whom are N. Armstrong Advertising, Lokey Animal Research Center, Automated Food Systems, Inc., the City of Lubbock, Nutrition Management Consultants, Frymaster Corporation of Louisiana, and others.



Wanda Walser
Page 3

Publications

1975 – Present:

A series of filmstrips for grades seven--12, now being distributed on an international level.

My fiction has appeared in **CONNECT** (formerly **TEEN POWER**), **THE WAR CRY** of the Salvation Army; **ST. ANTHONY MESSENGER** and **TEXAS FARM AND RANCH JOURNAL**.

Non-fiction has appeared in **FARMLAND NEWS**, **HOME LIFE**, **TEXAS FARM AND RANCH JOURNAL**, **SOUTHWEST AIRLINES MAGAZINE**, **THE BRANGUS JOURNAL**.

My news releases, print ads and news stories have appeared in such publications as **PROGRESSIVE FARMER** and **COTTON INTERNATIONAL**.

My writing in such varied fields has necessitated extensive research in many areas, including agriculture, genetics, food processing, psychology, municipal operations and nutrition.

Public Relations

While living in Hereford, Texas, I worked for a brief period as an M.D.'s receptionist-bookkeeper. Skills developed here: patience in working with people not at their best because of ill health; took opportunity to learn as much as possible about medicine and the medical field.

Education

Associate B.S. in Drama/Radio/Television, Amarillo Junior College, Amarillo, Texas, 1962. Freshman year, recipient of The Drama Award for best-written and produced closed-circuit television play.

B.S. in Journalism; minor in telecommunications, Texas Tech University, 1971 (under name Wanda DeHart Turner). Dean's list, 1970.

Professional Organizations

Women In Communications, Inc.
National Federation of Independent Business
Associated Business Writers of America
National Association of Female Executives

References

Age: 36

TEXAS UTILITIES SERVICES INC.

2001 BRYAN TOWER • DALLAS, TEXAS 75201

August 23, 1979

Ms. Patricia E. Bruno
[REDACTED]

Dear Pat:

Hi! I hope all is well with you, Robert, your home-under-construction and your job. I haven't heard from you— and how your nuclear waste project is coming along— for awhile; so I have to guess things are progressing (Marge mentioned that Robert was in Washington several months ago and she was hoping to get the chance to say hello).

Perhaps you are aware that the Texas Energy Advisory Council is holding public meetings on various nuclear issues. They are to be in Lubbock on September 7. I notice that nuclear waste (costs and disposal) are included on the list along with some background information and a recommended policy statement. If you don't already have this sheet I thought you'd be interested in both the information contained within and the public meeting to be held in Lubbock coming up on September 7.

Best wishes,

Frank

Frank B. Shants

jlb
Enclosure



(1) Identify all agencies that provide adult services and to organize these agency listings into regional documents and one statewide document. The documents would include the name of one contact person at each agency.

(2) Identify the unique informational needs of adults and determine priorities for meeting these needs.

(3) Develop recommendations for a referral method to and between the providers of adult services; a communications network for maintaining contacts with and between providers of adult services; and an outreach/publicity program for the adult model.

(4) Explore the feasibility of a computerized data base for storage and retrieval of this information.

Offers of consulting services are invited. Offers may be submitted through August 23, 1979, by writing to Kenneth H. Ashworth, commissioner of higher education, Coordinating Board, Texas College and University System, P.O. Box 12788, Austin, Texas 78711.

The contract for this consulting service will be awarded on the basis of applicants qualifications and the ability to comply with criteria outlined for the study. A 20-member technical review panel, appointed by the chairman of the 1202 Commission Advisory Committee, will assist the staff in selection of the consultant. The consultant must: (1) be able to complete the study and have all documentation in final form by June 3, 1980; (2) be able to contribute matching funds (cash or in kind) in the amount of 1/3 of the contract; (3) have experience in or a thorough working knowledge of state agencies and educational institutions; (4) have a background in research; (5) produce for review results from at least two recent studies conducted by the contractor; (6) be able to submit periodic progress reports to the coordinating board upon request; and (7) be able to demonstrate a commitment to an educational clearinghouse concept for information and referral services.

Issued in Austin, Texas, on July 23, 1979.

Doc. No. 794643 Kenneth H. Ashworth
Commissioner of Higher Education

Filed: July 25, 1979, 9:42 a.m.

For further information, please call (512) 475-4361.

Texas Energy Advisory Council

Advisory Committee on Nuclear Energy's Recommended Policy Statements on Selected Nuclear Issues

Notice of Public Meeting

The Advisory Committee on Nuclear Energy of the Texas Energy Advisory Council will conduct four public meetings on recommended policy statements on selected nuclear issues as prepared by the Advisory Committee. The recommended policy statements are published at the end of this notice and cover the subjects listed below:

- Transportation of Radioactive Material in Texas
- Severance Tax on Uranium Mining
- Financing Nuclear Plant Construction—
Construction Work in Progress
- Alternate Reactor Designs and Fuel Cycles

- Costs of Disposing of Nuclear Wastes and
Decommissioning Nuclear Plants
- Disposal of High-Level Nuclear Waste
- Low-Level Waste
- Uranium Mining and Milling
- Commercial Spent Nuclear Fuel Reprocessing
- Biological Effects of Radiation
- Transmutation of Radioactive Wastes

The public is invited to present testimony on these issues to the chairman and subcommittee chairmen of the Advisory Committee. The public meetings will be held at four separate locations:

Friday, September 7

Meeting Room 107
Lubbock Memorial Civic Center
1506 Sixth Street
Lubbock

Saturday, September 8

Room 118 (Auditorium)
Thompson Conference Center
University of Texas
Red River at 26th Street
Austin

Monday, September 10

Tanglewood Room
Holiday Inn—Medical Center
6701 South Main
Houston

Tuesday, September 11

Mezzanine Meeting Room
Dallas Convention Center
650 South Griffin
Dallas

Testimony will be received from 9 a.m. to noon and from 1 p.m. to 4 p.m. each day. Those individuals or organizations wishing to present oral testimony should submit in writing to John B. Gordon, P.E., Texas Energy Advisory Council, 7703 North Lamar, Austin, Texas 78752, their request to speak along with an estimate of the length of time needed to make their presentation. The name and telephone number of the individual or organization making the request should be included so that times for presentation can be scheduled. Any remaining presentation time will be assigned on a sign-in basis starting at 8:45 a.m. each day with the period of presentation being limited to 10 minutes. Each person making an oral presentation should bring six copies of their presentation. Those individuals or organizations who prefer to present only written testimony should submit six copies to John Gordon at the above address.

The purpose of the public meetings is to receive specific comments on the recommended policy statements and to receive additional specific policy recommendations. For further information, please contact either John B. Gordon or Tana Osgood at (512) 475-5588.

Transportation of Radioactive Material in Texas

Problem Statement. The transportation of radioactive material in Texas can adversely impact the public health and safety during a shipping accident or some other abnormal oc-

currence. Although container designs appear to have sufficient shielding and integrity to prevent undue exposure to Texas citizens when properly used to transport radioactive materials, the improper use of such containers could expose the population along the route to significant cumulative levels of radiation over a period of time. Additionally, if a container were breached as the result of an accident during shipment, Texas citizens in the immediate vicinity could receive dangerous levels of radiation, and economic activities in the area surrounding the accident could be disrupted for extended periods of time.

As is the case with shipment of any potentially hazardous material, adequate planning is required. There is a need for uniform transportation policies, definition of the responsibilities assigned to the various state agencies, and contingency plans for abnormal conditions.

Background Information. The present uses of radioactive materials in Texas cover a wide range of applications such as oil well logging, industrial radiography, radio pharmaceutical applications, tracer technology in scientific research, military weaponry, uranium production, research reactors, and others. Shipments involving quantities of radioactive material ranging from millicuries to kilocuries occur frequently in support of the above applications. Recently, the Radiation Control Group of the Texas Department of Health (DOH) estimated that the number of shipments of radioactive material in Texas containing 20 or more curies exceeds 2,000 per day.

At present, most shipments involve amounts of radioactivity that do not require extraordinary precautions. Many transfers and shipments, by both common carriers and private vehicles, occur daily without incident. The occasional chance discovery of a discarded container marked "radiation" or "radioactive material" is investigated and ordinarily is found to be free of radioactivity. Slight leakage, the largest of which was less than 10 curies on an air-shipped package, has occurred on a limited number of occasions during transit by common carrier or along a public roadway, but the amounts of radiation measured have not been dangerous to human health and the leakages have been cleaned up. Overall, the present system of control seems to have been effective.

Since the end of World War II, the Department of Transportation (DOT) and the Nuclear Regulatory Commission (NRC) and NRC's predecessor agencies have developed comprehensive regulations which control the transportation of radioactive materials with certain exceptions, such as materials that are used or generated by military operations. These regulations detail the requirements for packaging, labeling, marking of vehicles, traffic control procedures for large shipments, licensing and permitting of carriers, and other aspects. The equipment and container designs are required by the NRC and DOT to be certified through a comprehensive set of tests and computer analyses prior to their actual use in transporting radioactive materials.

Under the Hazardous Materials Transportation Act, the Department of Transportation has authority to pass regulations to control all aspects of the movement of radioactive materials. The Act, however, does not preclude states from establishing regulations unless DOT has already established a specific rule covering the area of concern. For example, New York City has legally established a ban on certain ship-

ments of radioactive material through the city. Since DOT has no rule or guidelines specifically applicable to this area, the ban has been allowed to stand. Presently, DOT is considering expanding the scope of regulations which apply uniformly throughout the United States; however, states can, for example, still pass restrictions on routing and require prior notification of shipment under their general authority and responsibility to protect the health and safety of the public.

A multiplicity of overlapping rules and regulations by state, local, national, and international control agencies would tend to increase the cost of shipping radioactive materials with little increase in the effective protection of the public. To eliminate some areas of conflict, the NRC and DOT recently proposed several minor changes to bring the national regulations into conformity with the requirements of the International Atomic Energy Agency (*Federal Register*, January 8, 1979, pages 1952-1885). Other federal agencies concerned with transportation utilize the national regulations and issue additional rules pertaining to their areas of interest; examples include the Interstate Commerce Commission, the Federal Aviation Administration, the U.S. Coast Guard, and the U.S. Postal Service.

In the past, federal regulatory agencies have not required transporters to provide prior notification for shipments of radioactive material, the general premise being that notification would not materially increase the safety of shipment. However, to be prepared, state and local public safety organizations must have some idea of the radioactive materials transportation activities in their area. Therefore, the NRC recently promulgated regulations which address this issue.

The Nuclear Regulatory Commission has preemptive responsibility under the Atomic Energy Act to establish requirements for shipping spent nuclear fuel. The NRC now requires that routes be approved, that urban areas be avoided where possible, and that mobile communications be established with local and other law enforcement agencies during shipment of spent fuel. The new regulations just published by the NRC require that the spent fuel shipment be accompanied by armed guards (private or police) if the shipment moves through urban areas. The regulations also require shipping trucks to be equipped with an immobilization device.

The Texas Department of Public Safety (DPS) has signed an agreement with the U.S. Department of Transportation to enforce the DOT transportation regulations in intrastate commerce. Since Texas is also an "agreement state," any organization in Texas receiving, possessing, using, or packaging for shipment radioactive materials (with the exception of reactor materials which are controlled by the Nuclear Regulatory Commission and military-associated radioactive materials which are controlled by the Department of Defense) is licensed by the Texas Department of Health. The Texas DOH licenses and inspects packaging activities for interstate shipments originating from Texas; however, the DPS and DOH are less effective in regulating purely interstate shipments passing through Texas because of the difficulties involved in locating and inspecting shipments.

Texas licensees or transporters voluntarily notify the Texas DOH about occasional intrastate, interstate, and international shipments involving large quantities of radioactive

material. The DOH subsequently notifies the DPS so that police escorts and other traffic control measures can be carried out if necessary. Local health departments will be notified by the DOH if local radiation monitoring assistance is available so that such assistance can be obtained on short notice if needed. The DPS notifies local law enforcement and public safety agencies along the route of travel about the shipment, its approximate time of movement, and the types and quantities of radioactive materials involved.

During any transportation incident or accidental release involving radioactive material in Texas, the DOH Radiation Control Group under the State Disaster Plan assumes primary responsibility for protecting the public health and safety. The Radiation Control Group will analyze and interpret the nature and severity of the release of radioactive material. The DPS and local law enforcement agencies will assist the DOH by securing the release site and taking necessary precautions. "The State of Texas Disaster Plan, Annex L. Appendix 12, Tab 1: Peacetime Radiological Incidents" specifies the appropriate procedures and responsibilities for the DOH. A similar appendix describes the DPS procedures and responsibilities. Within the Disaster Plan, however, there is no designated lead agency for coordinating actions concerned with transportation (radiological) incidents. Final authority at present rests with the governor.

In Houston, The City Health Department is available to make an on-the-scene investigation of any incident or vehicle accident involving radioactive materials and immediately reports the facts of the incident or accident to the State Radiation Control Program. The local program also keeps in close communication with local police, fire, aviation, and civil defense agencies for greater control of radioactive materials shipped or used within jurisdiction of local agencies. Houston is the only local governmental unit which has this capability.

The transportation of radioactive material in Texas has been performed in an adequate manner. However, increasing amounts of radioactive material will be transported in association with possible activities at the Waste Isolation Pilot Project, increased uranium mining, future commercial nuclear plants, possible low-level waste burial facilities, and possible high-level waste repositories. The additional radioactive materials shipped will increase the potential for accidents with some of the material being very hazardous. Additional monitoring and preparedness by the state appears justified.

Recommended Policy Statement. It is recognized that federal regulatory agencies have promulgated comprehensive regulations governing the transportation of radioactive materials with the exception of military-related radioactive materials and that a complete set of state regulations separate and apart from the federal regulations would not seem to be appropriate. It is also recognized that state and local governmental agencies can require prior notification of shipment of radioactive materials and can establish routes and traffic control procedures; that the Texas Department of Health and Department of Public Safety enforce federal regulations on transportation of radioactive materials in Texas; and that these state agencies are responsible for responding to vehicle accidents and other emergency situations relating to the transportation of radioactive materials in Texas.

Therefore, it is recommended that the Texas Department of Health continue to review federal regulations and that it petition the appropriate federal agency to revise any regulation that does not provide adequate protection for the people of Texas.

It is also recommended that the Texas Department of Health (1) require prior notification of shipments of radioactive materials, which if accidentally released, could harm the public or cause widespread contamination, (2) establish preferred routes and traffic controls for major shipments, and (3) develop a program of surveillance and enforcement of applicable regulations regarding transportation of major shipments.

It is further recommended that the state develop and implement an emergency action plan to respond to vehicle accidents or other emergencies, that this emergency action plan be made a part of the State Emergency Plan now being developed, that in conjunction with local law enforcement agencies the Department of Public Safety be designated the lead agency to direct and control the response actions, that a radiation accident response team be established with equipment and trained personnel adequate to cope with hazards of any probable accident, and that the emergency response plans and teams be tested periodically.

It is finally recommended that the state increase its efforts to achieve consistency, particularly among the southwestern states, in the various state laws and regulations relating to the transportation of nuclear materials.

Severance Tax on Uranium Mining

Problem Statement. Uranium production in Texas has increased by over 200% in the last several years; however, unlike the other major uranium-producing states, Texas does not collect a severance tax on the uranium. If a severance tax were placed on uranium production, small and marginal producers might be forced to delay or cancel development projects, and low-grade uranium ores might be bypassed permanently. Any severance tax imposed would decrease the economic activity of the uranium mining industry in the south Texas production area but would provide an increase in the general revenue to the state.

Background Information. In 1977, about 1.9 million pounds of uranium were produced in Texas; by 1980, total production is estimated to be approximately six million pounds. This uranium is being produced in an area primarily south and southeast of San Antonio. An increase in conventional strip mining/milling operations and the introduction of in situ solution mining operations account for the additional uranium production.

At present, the state does not impose a severance tax on uranium production; however, all other major producing states do impose a severance-type tax:

New Mexico—Nearly 50% of domestic uranium production occurs in New Mexico. The state applies a progressive tax which has an increasing tax rate for each additional increment of price. The tax has an effective rate of 5.0% at a price of \$40 per pound of U_3O_8 .

Wyoming—About 1/3 of domestic uranium production occurs in Wyoming where the severance tax is 5.5% of gross income from uranium sales.

Colorado—No tax is imposed on the first \$11,000,000 of sales income; uranium sales income above that amount is taxed at the rate of 2.25%.

Utah—Gross income from uranium sales is taxed at a rate of 1.0%.

Since all uranium must be slightly enriched in federal enrichment plants in the east central area of the United States before use as nuclear fuel, there is no relationship between the area where the uranium is produced and the area where it is consumed. Previous market conditions have led utilities in Texas to purchase uranium for their needs in the 1980's from out-of-state sources. Thus, Texas consumers will pay a portion of the severance taxes imposed by other states on uranium production. Because the uranium production in Texas will exceed the in-state demand by a factor of three and because utilities in Texas are purchasing uranium from other sources anyway, a major portion of any severance tax imposed by the state would be exported to consumers in other states or countries, at least for the next several years.

A severance tax of about 7.5% of wellhead price is imposed on natural gas production in Texas at present and a 4.6% tax is imposed on oil production. If a uranium severance tax were imposed and its effective rate were 5.0% of sales price, then the state could expect an additional \$12,000,000 of revenue in 1980 and a cumulative amount of at least \$200,000,000 during the 1980's. Such a tax, which would be similar to those of other producing states, would have a minimum effect on consumers. The average ratepayer would have his bill raised by less than \$.05 per month to pay for such a severance tax, based on a personal consumption rate of 1,000 kilowatt-hours per month, on production of 20% of the state's electricity by nuclear plants, on a price of \$50 per pound U_3O_8 , and on a tax rate of 5.0%.

Much of the uranium production in Texas comes from marginal, low-grade ore bodies when compared with production from other states, Canada, and Australia. Any severance tax which might be imposed would decrease the revenue of the producer. As a "cost" of production, the severance tax would raise the ore grade cutoff level—that point at which the variable cost-to-produce equals or exceeds the revenue from the production. For a given ore body, that portion of the ore body with grades below the grade cutoff would be left in place. Since the richest portion of an ore body would have been removed, the lower grade ores left behind would not be recovered unless the economics of uranium production changed by an order of magnitude. Any severance tax would, therefore, tend to decrease the amount of uranium that would be recovered under the presently known economic conditions—the greater the severance tax, the higher the grade cutoff level.

For strip mining under normal conditions, Conquista project management has stated that a severance tax of around \$2.00 per pound U_3O_8 would raise their cutoff grade by .003%. Such an increase in ore grade cutoff level might eliminate as much as five million pounds of production over the lifetime of the south Texas producing region, based on Department of Energy estimates of ore reserves by grade.

The uranium severance tax in other states is based on the gross income from uranium sales. One of the taxes is progressive while the others are straight percentage. The problem with these taxes is that they fail to adjust for marginal producers or for producers tied to old contracts at depressed price levels. A tax based on the ore grade would not correct this deficiency since ore grade is only one of several variables which determine the cost of production. A tax based on net proceeds is actually an income-type tax although it would address the problem of production from marginal deposits. A grandfather clause to reduce the tax rate on old, low-price contracts would alleviate one problem. However, no one tax method will avoid all the problems of equity which would tend to discourage production.

The above-listed negative aspects of a severance tax on uranium would occur with the imposition of a severance tax on the production of any mineral resource; yet Texas has already chosen to place a severance tax on oil and natural gas production. The negative aspects of the severance tax must be weighed against the benefits of increased state revenues from the tax.

Recommended Policy Statement. It is recognized that the developing uranium mining industry provides an important economic stimulus to south Texas; that a severance tax on uranium production would somewhat reduce producer's income and delay or eliminate uranium production from some lower-grade deposits in the area; and that a large severance tax might slow the industry's growth. However, it is also recognized that other states have placed a severance tax on their uranium production; that Texas has severance taxes on the production of other energy resources; that a severance tax on uranium would produce additional state revenue; and that most of the uranium produced in Texas will be consumed outside of the state.

It is therefore recommended that a severance tax be placed on uranium production and that the tax contain special provisions to minimize the impacts related to operating under old contracts and to developing marginal ore bodies.

Financing Nuclear Plant Construction— Construction Work in Progress

Problem Statement. The nuclear plants in Texas will require about 10 years of licensing and construction work prior to their start-up. During this period of time, funds will be expended as various licensing and construction activities are completed. Utilities must pay the interest and return-on-equity-type costs of the funds used for Construction Work in Progress (CWIP) even though the facility under construction is not operational and will not generate any revenue to cover such costs. Failure to adequately cover these costs would impede the utility's ability to raise additional funds to complete the project.

Background Information. The extent to which Construction Work in Progress (CWIP) is included in the rate base is a question of some current interest to regulatory agencies. Obviously, there is a cost associated with raising the capital for a construction program. To the extent that CWIP is placed in the rate base, the cost of construction capital is recovered through current rates. The cost of construction capital on that portion of CWIP excluded from the rate base is reflected as noncash income on the income statement and capitalized

on the balance sheet as a part of the total plant. This capitalization increases the final cost of the plant; the costs require a yearly return to investors and delayed recovery over the life of the plant. The basic question is whether it is preferable to recover the cost of construction capital on a current basis or defer the recovery over the life of the plant.

In considering this matter, virtually all agree that assuming a stable economy and constant cost of capital, the dollars recovered from the customer are nearly the same under either approach. However, proponents of including CWIP in the rate base make the point that this results in an improvement in quality of earnings and that the cost of capital, and thus the cost to the customer, will in all probability be lower.

Those who oppose including CWIP in the rate base generally rely on two arguments. A somewhat technical argument is that CWIP should not be included in the rate base because it is not "used and useful" in rendering service currently. The other argument concerns the idea that current customers should not pay for benefits which will be conferred upon future customers. Proponents respond that kilowatt-hour sales growth is more the result of increasing customer consumption than of customer immigration. Past electrical consumption growth in Texas for 1970 to 1976 has averaged 6.6% per year; total population growth in Texas including immigration in the same period has averaged 1.8% per year leaving a 4.7% per year per capita consumption growth.

It is important to remember also that much of the construction of new generating plants in Texas is attributable to the need to convert from oil and natural gas fuels to less costly, more readily available lignite, coal, and nuclear fuels. This construction is directly related to serving existing customers and thus provides even greater justification for including CWIP in the rate base in this state.

The pricing of electric energy is a matter of growing interest and the related effects of the inclusion of CWIP in the rate base should be considered. It is generally recognized that by including CWIP in the rate base, future rate increases will be more gradual. If the cost of construction capital is capitalized, it not only increases the cost of the plant but also has a large impact on rates when the total plant cost is added to the rate base the day the plant goes into service.

Recommended Policy Statement. It is recognized that the financial health of utilities must be maintained if the major power plant construction programs now in progress, including several nuclear plants, are to be successfully completed; that incorporating Construction Work in Progress (CWIP) in the rate base is one method of maintaining a utility's financial integrity; and that the Public Utility Commission makes decisions about CWIP on a case-by-case basis, considering each time the many factors which shape this complex issue.

Therefore, it is recommended that the Public Utility Commission continue to consider on a case-by-case basis the inclusion of Construction Work in Progress in the rate base.

Alternate Reactor Designs and Fuel Cycles

Problem Statement. The predominant type of nuclear plant used in the United States today is the light water reactor (LWR). The LWR is but one of numerous nuclear plant designs which use various combinations of fissile and fertile materials as nuclear fuel. Depending upon the type of

nuclear fuel cycle employed, several other reactor designs may offer greater economic benefit than the LWR. Several of the alternate reactor designs are either in operation elsewhere or are under development within this country. The degree to which the Nuclear Regulatory Commission addresses the licensability of these designs and the level of support which the Department of Energy provides will influence whether or not any of the alternate reactor designs will be used by the electric utility industry.

Background Information. The peacetime development of nuclear energy has included the development of numerous reactor designs and fuel cycles. Some of the more practical designs which have resulted in operating nuclear plants are the gas cooled reactor (Magnox), advanced gas cooled reactor (AGR), light water reactor (LWR), Candium pressurized heavy water reactor (CANDU), high temperature gas cooled reactor (HTGR), and the liquid metal fast breeder reactor (LMFBR).

The Magnox reactor was introduced for commercial use in Great Britain and has been used also in France and Spain. The reactor, named Magnox for the type metal cladding of its fuel, utilizes unenriched uranium metal as its fuel. The use of uranium metal limits the temperature of the CO₂ coolant and thus holds the thermodynamic efficiency of the heat-to-electricity process to less than 30%. Evaluations of the economics of Magnox-type reactors by the British and French in the late 1960's led those two countries to base their nuclear programs on other nuclear reactor designs.

The AGR was developed by the British as a follow-on to their Magnox-type reactors. The AGR like the Magnox uses CO₂ as a coolant but differs in the nature of its fuel. The AGR uses a uranium oxide fuel which is slightly enriched and encased in a graphite matrix/moderator. The uranium oxide can withstand much higher temperatures than uranium metal; therefore, the coolant is operated at a high temperature and a higher thermodynamic efficiency (41%). The AGR program has been delayed because of unexpected problems with a reaction between the CO₂ coolant and the graphite fuel assemblies and because of construction problems associated with the prestressed concrete reactor vessel designs. At present, the British have not marketed their system against the other major technologies. Further, there has been considerable debate within Britain about dropping the AGR in favor of the LWR.

The LWR has captured approximately 90% of the worldwide market since the early 1970's. In the United States, 69 LWRs are in commercial operation with about 90 more under construction. Worldwide, well over 500 reactor years of operating experience have been accrued with the LWR. The LWR uses a slightly enriched uranium oxide fuel pellet encased in zirconium or stainless steel fuel rods; water is used as both a moderator and a coolant. The temperature of the water is limited to about 600°F. because of its interaction with the metal fuel rods at higher temperatures; thus, the thermodynamic efficiency is limited to about 32%. The extensive worldwide use (France, West Germany, Sweden, Switzerland, Italy, Spain, Belgium, Russia, Japan, and others) of LWR technology has led to the development of a large body of knowledge on the integrity of the nuclear fuel, the operating characteristics of the plants, the design and economics of the complete LWR nuclear plant, and the licensing process for assuring safe operation. Further, the purchasing of large

numbers of LWR's has led to the development of a large number of research and manufacturing facilities capable of supporting the technology.

The LWR utilizes the uranium fuel in an inefficient manner, deriving only 160 million Btu's on average from each pound of U_3O_8 mined. A closed fuel cycle, incorporating reprocessing of the spent fuel, could increase the energy capture efficiency to about 250 million Btu's per pound. Other improvements in uranium fuel utilization of the LWR are being researched; in addition, a U_{233} - Th_{232} fueled LWR which may breed more fuel than it consumes, has been tested at Shippingport, Pennsylvania. If these improvements in fuel use meet certain economic, reliability, and safety considerations, then the LWR technology period of usefulness could be extended by up to at least 200 years. However, based on today's knowledge of the geologic occurrence of uranium ores, enough reserves exist to economically fuel a major worldwide LWR program for only the next 30 to 50 years.

The Canadians have developed a reactor technology (CANDU) similar to that of the LWR except that the moderator and coolant are heavy water (D_2O). The use of heavy water (deuterium) instead of regular water (hydrogen) allows natural (unenriched) uranium to be used. The deuterium "steals" fewer neutrons in the fission process; therefore, the fission process is more efficient as it allows the U_{235} fissile material to be utilized at its naturally occurring percentage. The CANDU reactors operate at a thermodynamic efficiency of 30%, nearly the same as the LWR but produce 210,000,000 Btu's from each pound of U_3O_8 —about 33% more energy than a conventional LWR. The Canadian reactor has provided the LWR with its greatest competition in the world marketplace with CANDU's being built in Argentina and Rumania as well as in Canada. The major impediment to the use of CANDU's in the U.S. arises in the licensing process which has yet to be developed. In addition, the initial capital cost of CANDU, including its heavy water inventory, is about 10% to 20% higher than that of the LWR.

The HTGR is similar to the AGR except that helium is used as the coolant and a highly enriched fuel is required; the HTGR is also suited for using a U_{233} - Th fuel cycle. The HTGR operates at a high thermodynamic efficiency (41%) and utilizes uranium as efficiently as the CANDU. The combination of high thermal efficiency and good uranium utilization makes the HTGR the most efficient reactor design for consuming nuclear fuel with the exception of a true breeder-type reactor. The HTGR has been handicapped by lack of commercial operating experience. The use of helium as a coolant, a prestressed concrete reactor vessel system, and a different type nuclear fuel all have added to the lengthy development period of the HTGR technology. At present, there is no industrial group developing the manufacturing facilities and maintaining sufficient staff to market the HTGR technology.

The LMFBR was the reactor type to first generate electric power (1950). However, because the technology requires the use of sodium as a coolant, the LMFBR has required considerable development work in the area of heat transfer and operational control. Thus, the nuclear plant technology first to produce electricity has lagged behind the water-cooled and CO_2 -cooled technologies in terms of commercial service. At present, commercial demonstration LMFBR's are being operated in Britain, France, and Russia while full scale plants are

being constructed in Russia and France. The LMFBR uses moderately enriched uranium oxide/plutonium oxide fuel technology similar to that of the LWR, CANDU, and AGR. Significant research facilities for perfecting LMFBR technology exist in Russia, France, Britain, Japan, and the U.S., which has almost completed a 350 Mw LMFBR research facility, the Fast Flux Test Facility.

For the last two years, the administration has attempted to slow down the development of the LMFBR based on concerns over nuclear proliferation and over the lack of need for a breeder because of plentiful supplies of uranium. Congress has, however, continued funding of the LMFBR demonstration program, the Clinch River breeder reactor. The administration has persuaded the NRC not to continue its licensing efforts; thus, firm licensing criteria are not being promulgated.

Based on the most recent design information, the capital cost of a LMFBR appears to be about 10% to 30% higher than that of a LWR. Counterbalancing the higher capital cost is the fact that a LMFBR can extract 50 times more energy from uranium than can a LWR, thus reducing the cost of fuel. In fact, since a LMFBR extracts up to 8,000,000,000 Btu's from a pound of U_3O_8 , the uranium tails stored at the federal enrichment plants are sufficient to fuel 300 large LMFBRs for several hundred years.

Recommended Policy Statement. It is recognized that the light water reactor technology currently in use has been developed over a period of a quarter century; that 500 reactor years of operating experience over a period of two decades have been accumulated on LWR plants and the low-enriched uranium oxide fuel; and that this experience provides a sufficient base to estimate the economics, operation characteristics, and safety of the LWR-type nuclear plant. It is also recognized that significant research and operating experience have been accumulated on heavy water reactors, liquid metal fast breeder reactors, and high temperature gas reactors; that these systems offer certain advantages in fuel economy and/or alternate fuel cycle utilization over that of the LWR; and that breeder reactors could extend the nuclear fuel supply for a millenium.

It is therefore recommended that the federal government continue to support research and development of alternate reactor technologies along with the advanced technologies for the light water reactor and that the federal government allow the development of licensing procedures to facilitate the demonstration of advanced reactor and fuel cycle technologies.

Disposal of High-Level Nuclear Waste

Problem Statement. One legacy of the United States nuclear weapons program is an evergrowing inventory of radioactive waste material placed into temporary storage tanks. At the same time, the commercial nuclear power program has increased from a few experimental plants to a vital component of the near term national supply of energy. With similarity to the weapons program, an evergrowing inventory of highly radioactive wastes, in the form of spent fuel, is being accumulated in spent fuel pools. The federal government has retained responsibility for developing and approving a satisfactory method of permanently disposing of high-level waste generated by both military and commercial

activities; yet, the federal effort has failed to provide an acceptable solution.

Widespread public concern is now being expressed over the federal government's or any other organization's ability to safely dispose of high-level waste; the need to directly address and resolve the waste disposal problem is imperative. Under these conditions, the federal government could decide to hastily select a location without investigating significant potential sites around the country. Clearly, the process by which the federal government does select one or several sites involves the issue of equity. It is not reasonable to expect a locality or state to accept an activity with potential hazard to benefit the nation unless it is clear that the site possesses characteristics that make it superior from a localized health and safety point of view and from the national interest point of view to a number of alternative sites.

If the selected disposal method fails to maintain long-term isolation of the high-level wastes, then future generations in that area could be exposed to the radioactive materials. Further, since high-level wastes remain extremely hazardous for at least hundreds of years, the stability of social and political systems cannot be counted on as a favorable factor in maintaining isolation. Yet, since the present system of storing high-level waste can only be considered as a temporary method, some more permanent method must be implemented. As the federal effort evolves to solve the disposal problem, a state agency should be designated to evaluate and respond to federal waste disposal program activities which could affect the health and safety of Texas citizens.

Background Information. High-level radioactive wastes are generated as a by-product of the fission process with most of the high-level waste being made up of fission fragments from the splitting of fissile atoms. The U.S. military weapons program, for example, uses a fission chain reaction to breed bomb-grade plutonium. After the plutonium has been chemically separated, liquid effluent containing fission fragments remains. Tens of millions of gallons of high-level waste in this liquid effluent form are presently stored on government reservations such as those at Richland, Washington and Aiken, South Carolina. Even today large quantities of plutonium are still being produced in the plutonium production reactors at the Savannah River government reservation; thus, more high-level waste is being created.

The use of nuclear reactors to propel the U.S. Navy's submarine fleet and some of its major surface warships will result in a continuing increase in high-level waste in the form of spent nuclear fuel. In addition, the large commercial power plant program is generating in excess of 1,000 tons of spent fuel each year. The 50,000 Mw(e) of nuclear plants already operating will be increased by 100,000 Mw(e) upon completion of over 90 nuclear plants which are already under construction. These units are reducing the electric utility industry's need for fuel oil by about 1.5 million barrels per day. Because vast quantities of high-level nuclear waste already exist and since the nuclear weapons program, the Navy nuclear propulsion program, and the commercial nuclear power industry will continue into the foreseeable future, a high-level waste disposal need will develop which must be adequately addressed.

The high-level wastes consist of a large spectrum of isotopes ranging from such moderately heavy atoms as zirconium to atoms heavier than cesium. Only a few of the by-product fission fragments initially produced are stable isotopes; most of the initial isotopes produced in the fission process are unstable and go through a series of decay processes before reaching a stable state. During the decay process, the primary radiation emitted by the unstable elements is highly penetrating gamma and moderately penetrating beta radiation.

The most important aspect of high-level nuclear waste is that it will remain hazardous for at least several hundred years before eventually reaching a stable, benign (from a radiation standpoint) state. The main criteria for protecting the public health and safety are, therefore, adequate shielding and containment for an appropriate period of time. The length of time is determined by the decay rate of the various isotopes. For high-level nuclear wastes which have been chemically separated and contain only fission fragments and species heavier than plutonium, the spectrum of isotopes decays within 600 years to a level of radioactivity equal to that of ore bodies of uranium commonly found around the world. For unprocessed high-level wastes, such as spent fuel, which contain uranium and plutonium as well as fission products and species heavier than plutonium (created by neutron capture during the fission reaction), the period of time to reach naturally occurring radiation levels may be extended to several thousand years.

The present method of handling weapons-production high-level waste consists of storing the wastes as liquid effluent, sludge, or damp salt cake in steel tanks sunk in the ground. This method has been used for three decades and, while there have been leaks, no serious health hazards have been known to accrue to either the public or the employees from such storage operations. The waste from the naval propulsion program is stored as calcined solids in stainless steel bins. With the exception of a small quantity of commercial spent fuel that was reprocessed in the late 1960's and early 1970's, the spent fuel from nuclear plants has been stored in pools at the plant site in the form of intact assemblies awaiting a more permanent disposal facility. In each situation, the isolation of high-level waste has been successful. However, because governments may be unstable, but more importantly, societies have been known to break down over periods of hundreds or thousands of years—the hazardous lifetime of high-level waste—and because present methods require trained personnel for monitoring, operation, maintenance, and protection of the storage site, an alternate method of disposing of high-level waste, which would not require long-term care by society, is of the essence.

There are several alternative methods proposed for the disposing of high-level waste which might provide adequate shielding and containment over a period of thousands of years without any periodic monitoring. Geologic formations which have extensive geologic history of stability, deep ocean trenches, the ice caps of Antarctica, and deep space all remain options which may meet the criteria for long-term disposal of high-level waste. Of the above alternatives, permanent disposal of waste in geologic formations has received the greatest amount of attention. The data developed from intensive research programs on migration of radioactive material, on stability of materials in geologic formations, and on the formation and deformation of geologic structures suggest

that successful isolation for periods of hundreds to thousands of years can be achieved.

Under a major contract with DOE, the Office of Nuclear Waste Isolation (ONWI) at Battelle Memorial Institute, Columbus, Ohio, is evaluating several salt formations in the country as potential underground sites for permanent isolation of high-level wastes from commercial power plants. Geological and environmental tests are under way by ONWI in salt basins in the states of Mississippi, Louisiana, Texas, and Utah, and existing data are being collected for salt basins in portions of Ohio, New York, and Michigan. ONWI has narrowed from 263 to eight the salt domes in the interior Gulf Coast for further study. The eight include the Cypress Creek, Richton, and Lampton domes near Hattiesburg, Mississippi; Vacherie and Rayburns domes in northwest Louisiana; and the Keechi, Palestine, and Oakwood domes in East Texas. Salt formations in the Permian Basin near Amarillo, Texas, and in the Paradox Basin in southeast Utah are also under study. Preliminary existing data have been compiled on the Salina salt basin in New York, Ohio, and Michigan. However, no field investigations are currently under way in these latter states due to their refusal to allow DOE to proceed. Nonsalt rocks also are under preliminary study as possible repositories. Geologic formations to be investigated in several states include argillaceous rocks, crystalline rocks, anhydrite deposits, and closed hydrologic basins. The potential of disposing of wastes in various formations underlying existing DOE sites, the Nevada Test Site and the Hanford (Washington) Reservation, is also under study.

At present, Texas does not have an agency designated to coordinate the monitoring of the federal high-level waste disposal program. The Texas Department of Health's Radiation Control Branch has been the lead agency for problems associated with low-level radiation. Because Texas is an agreement state, the Radiation Control Branch licenses all activities in Texas involving low-level radiation, except military and commercial nuclear programs, and would be the most logical agency to represent the state should licensing of a high-level waste disposal site in Texas be proposed.

Recommended Policy Statement. It is recognized that radioactive wastes are a by-product of the nuclear fission process; that the by-products are highly radioactive and require isolation from the biosphere; that significant public concern exists over health and safety aspects of nuclear waste disposal; and that additional nuclear wastes will continue to be generated in the foreseeable future by the Navy nuclear propulsion program, the military weapons program, and an expanding commercial nuclear power plant program.

It is further recognized that, while 35 years of experience have shown that radioactive waste can be safely handled and temporarily stored, a permanent disposal method is required; that underground containment of radioactive wastes in stable geologic formations may offer a more permanent solution to the waste disposal problem; and that Texas contains several geologic formations presently under review by the federal government as sites to store the nation's radioactive wastes.

Therefore, it is recommended that the State of Texas and its citizens work with the federal government to determine whether or not geologic formations in Texas would be suitable

for use as underground containment facilities; that Texas encourage the implementation of one or more demonstration sites; that Texas seek the right of concurrence over the location in Texas of any waste disposal site, either demonstration or permanent; that any nuclear waste disposal site be located in Texas only when a determination has been made that it serves the best national interest of the United States after adequate survey and evaluation of alternate sites throughout the nation; that any such site be designed and operated to protect public health and safety and to avoid hazards to the people of Texas; that during the federal site evaluation process, Texas' interests be protected by a group with technical and policy expertise such as the Texas Energy and Natural Resources Advisory Council; and that the Radiation Control Branch of the Texas Department of Health shall be responsible for consultation with the federal government regarding licensing of nuclear waste disposal in Texas and for recommending either concurrence or nonconcurrence with regard to specific federal siting decisions to the Texas Energy and Natural Resources Advisory Council.

Transmutation of Radioactive Wastes

Problem Statement. Some of the radioactive wastes from the fission process will remain hazardous for thousands of years. If isolation is the method of eliminating the hazard, then extremely demanding criteria would be required to assure that the method of isolation will retain sufficient integrity for the thousands of years required for the radioactive material to decay to a harmless state. However, if an economic method of neutron bombardment could be developed, then the specific long-lived radioactive isotopes could be separated and transmuted into a more benign form.

Background Information. In principle, the fission products produced by nuclear reactors can be transmuted into different isotopes having short half-lives or very low radiation levels or into isotopes which are stable. However, not all isotopes produced during the fission process need to be transmuted, since many of the isotopes are stable from the beginning while others already have extremely short half-lives or very low levels of radiation. Thus, only a few isotopes out of the many produced in the fission process are hazardous for long periods of time. To transmute these specific isotopes, sophisticated separation processes and a source of large quantities of high energy neutrons will be required, neither of which is at present available on a practical basis for this use. To supply the large number of neutrons needed, fusion reactors may be useful; however, a controlled fusion reaction capable of supplying large quantities of neutrons for the transmutation of wastes has yet to be demonstrated.

It is clear that transmutation as a solution to the waste problem is decades away and should not be viewed as an alternative to isolation and storage systems currently being evaluated. As a long-range solution, it is a worthy research goal which has not received sufficient support in the federal programs. Because of its relationship to fusion, transmutation has been studied in Texas in connection with fusion research supported by the Texas power companies.

Recommended Policy Statement. It is recognized that certain radioactive isotopes from the fission process remain hazardous for thousands of years; that transmutation through neutron bombardment could transform the hazardous isotopes into a more benign form; that the process of

transmutation requires the use of sophisticated separation technology and large quantities of high energy neutrons; and that fusion reactors might be able to supply the large volume of neutrons necessary.

It is therefore recommended that Texas encourage research aimed at the eventual development of a feasible method of separating and transmuting nuclear wastes into less harmful forms and that a portion of the Energy Development Fund be used in support of such studies in Texas.

Commercial Spent Nuclear Fuel Reprocessing

Problem Statement. High-level wastes produced by the operation of commercial nuclear plants must be isolated from the biosphere for hundreds to thousands of years. The form of the waste can reasonably be expected to be either unprocessed spent fuel or a solidified product made from the liquid effluent of a spent nuclear fuel reprocessing plant. Such a solid might be glass, ceramic, metal matrix, synthetic rock, or other highly insoluble material.

The design of a federal repository for waste disposal is dependent on the choice of waste form. Spent fuel is more voluminous, longer-lived, and more chemically active than most other candidate waste forms. In addition, spent fuel contains recoverable fuel values which make it economically attractive in the short term and a potential attraction in the long term should it be placed in a disposal site. Balanced against these motivations to reprocess is the fact that reprocessing is likely to generate both highly toxic materials and materials which could be fabricated into a nuclear explosive. There is a difference of opinion on how difficult the development of weapons technology would be, but reprocessing capability could facilitate weapons manufacture.

A firm decision should be made on the desirability of reprocessing as it relates to the deployment of an adequate waste disposal facility.

Background Information. Nuclear fuel for light water reactors of current design consists of uranium dioxide pellets encased in metal tubes 12 to 15 feet in length. The uranium is a mixture of uranium-235 and uranium-238. Naturally occurring uranium contains these species with an abundance of 99.3% uranium-238 and 0.7% uranium-235. In order for a light water nuclear plant to function, the uranium must be enriched in the isotope uranium-235. Typical enrichments of fresh fuel are about 3.0% uranium-235.

The normal pattern of reactor operation consists of loading about 100 tons of fuel in the reactor vessel. Annually about one-third of the fuel is removed and replaced by fresh material. The average fuel rod therefore has a residence time in the reactor of three years. During this time, the fission process, which generates heat in the reactor, converts some of the uranium-235 to radioactive fission products. Neutrons which are present in the reactor convert a small amount of the uranium-238 to plutonium. At the end of three years, the fuel composition is about 3.5% fission products, 0.9% uranium-235, 0.7% plutonium, and 94.9% uranium-238.

Two options exist for handling the spent fuel at this point. Either the entire spent fuel assembly could be declared waste or the spent fuel could be chemically reprocessed for recovery of all constituents except the fission products and small quantities of materials heavier than plutonium. If the latter

course of action were followed, the waste material would be converted from the liquid form in which it was separated from the uranium and plutonium to a solid.

Until 1977, it had always been assumed that the benefits of waste volume and hazard reduction and fuel conservation which would accrue from reprocessing would be sufficient incentive to develop a commercial fuel reprocessing industry. In fact, commercial fuel reprocessing did take place in the United States from 1966 to 1972 on a small scale.

In April 1977, President Carter announced a policy of indefinite deferral of commercial reprocessing. The motivation was to provide an example to other nations and dissuade them from an activity which could produce material (plutonium) which could be used for weapons manufacture. The example has not as yet been followed. Nations which have or are planning significant reprocessing facilities include France, United Kingdom, Japan, the Soviet Union, India, China, and West Germany, with Pakistan and Brazil having expressed interest in such activities.

The resource saving and consequent economic motivation for reprocessing are significant. About 40% less uranium ore is required and 30% less enrichment capability is needed if the decision is made to reprocess. These savings are important to nations without indigenous supplies of fossil or nuclear fuels.

The volume of reprocessed high-level solid waste is about one-ninth that of the equivalent spent fuel. While geologic repositories may, upon demonstration prove to be capable of containing high-level waste with confidence regardless of its form, the spent fuel repository design is volumetrically, thermally, and chemically much more demanding.

Recommended Policy Statement. It is recognized that other nations continue to utilize commercial spent fuel reprocessing regardless of the United States decision on this issue; that if the U.S. were an active supplier of reprocessing service, it is less likely that countries with small nuclear programs would develop their own reprocessing capability; and that the development of an aggressive United States reprocessing effort might reduce the potential for weapons manufacture by nations not already possessing weapons technology.

It is also recognized that a United States reprocessing industry would more efficiently utilize United States uranium resources and would relax the waste disposal repository design requirements.

For these reasons, it is recommended that the State of Texas encourage the United States government to reinstitute a federal policy encouraging commercial nuclear fuel reprocessing.

Uranium Mining and Milling—Majority

Problem Statement. The mining and milling of uranium in Texas is subject to comprehensive regulation by state government. The Texas Railroad Commission regulates uranium mining generally, as well as reclamation of depleted mines and mill tailings disposal. The Texas Department of Health regulates the disposal of all radioactive material in Texas, including mill tailings and other uranium mining by-products. The Texas Department of Water Resources regulates the

effect of uranium mining and milling on surface water and groundwater quality. Finally, the Texas Air Control Board regulates the effect of uranium mining and milling on air quality.

This policy statement discusses whether modification of the current system of regulation of uranium mining and milling is required.

Background Information. Uranium can be mined by either strip mining or in situ solution mining. Strip mining is suitable for shallow, relatively low-quality ore bodies. The topsoil and overburden are removed from the mine pit, exposing the ore. Using conventional strip mining technology, the ore is removed from the mine pit.

In situ solution mining is suitable only for deep, high-quality ore bodies located between impervious strata. A chemical solution, commonly referred to as lixiviate, is injected into the ore body through injection wells. The lixiviate reacts with and dissolves the ore, which is then recovered through production wells. The environmental impacts of strip mining and in situ solution mining are comparable.

Both strip-mined uranium ore and leached uranium solution require milling, the process of chemically separating concentrated uranium in the form of U_3O_8 , commonly referred to as "yellowcake." Milling is conducted at a milling plant which must be located a short distance from the mine since transportation costs are prohibitive. The milling process utilizes a cascade of chemical separation basins in which the uranium is separated from the by-product, commonly referred to as "mill tailings." Proper disposal of mill tailings is necessary due to the presence of minute but measurable quantities of uranium daughters. The regulations of the Texas Department of Health require adequate mill tailings disposal.

The regulations of the Railroad Commission, Surface Mining Division, are adequate to insure that the environmental damage of strip mining is minimized. In some cases, the Railroad Commission has allowed mine pits to be used as ponds, stocked with channel catfish and bass. The Railroad Commission continually monitors water quality in these ponds; to date, no measurable heavy metal or uranium contamination has occurred. The Railroad Commission should continue to monitor these areas, but in the absence of any measurable contamination, the Railroad Commission should not prohibit the use of mine pits as ponds. The Railroad Commission commonly requires replacement of topsoil in reclaimed mine pits. However, the Railroad Commission should retain the authority to allow mixing of soils, as opposed to segregation of topsoil. Finally, the regulations of the Surface Mining Division insure safe disposal of heavy metals, mill tailings, and other potentially hazardous residue.

The Railroad Commission routinely collects water samples from mine sites to establish baseline data. Water monitoring is continued throughout and after mining to insure that unsafe concentrations of heavy metals do not accumulate in ground water. The Texas Department of Water Resources also conducts monitoring of this kind. Although the monitoring programs of these agencies would appear duplicative, these programs provide additional assurance that groundwater contamination will be detected.

No scientific evidence exists demonstrating any health hazard of exposure to extremely low levels of radioactivity, such as that encountered at uranium strip mines or milling plants. While low-level radiation above background may increase the incidence of cancer and mutagenic defects, until definitive data is available demonstrating the health effect of extremely low-level radiation, restriction of uranium mining to prevent exposure to this radiation is unwarranted.

The federal Uranium Mill Tailings Radiation Control Act of 1978 provides for regulation by the Nuclear Regulatory Commission of radioactive "by-products," including materials resulting from mining and milling of uranium. This Act allows the states to implement regulations through agreements with the Nuclear Regulatory Commission. The Texas Department of Health presently licenses the production, use, and disposal of radioactive materials, including mill tailings. However, if the Texas Department of Health is to continue this regulation, Texas must enact the following statutory changes:

- (1) allow the state to accept title to mill tailings disposal areas;
- (2) require bonding of licensees; and
- (3) establish a dedicated fund for long-term maintenance and monitoring of mill tailings disposal areas.

Recommended Policy Statement. It is recognized that mining and milling of uranium in Texas is subject to comprehensive regulation by the Texas Railroad Commission (mining and land reclamation, mill tailings disposal), by the Texas Department of Health (disposal of radioactive materials), by the Texas Department of Water Resources (ground and surface water), and by the Texas Air Control Board (air quality); that regulations of these agencies provide adequate safeguards to protect the environment, as well as the health and safety of Texans; and that no change in the present regulation of uranium mining and milling appears necessary at this time.

It is also recognized that in the absence of firm scientific data demonstrating adverse health effects of low-level radioactivity, restriction of uranium mining and milling is unwarranted.

It is therefore recommended that the state legislature pass legislation which, under the federal Uranium Mill Tailings Radiation Control Act of 1978, will allow the Texas Department of Health to continue to license and regulate the uranium mining and milling industry in Texas.

Uranium Mining and Milling—Minority Position

Problem Statement. Uranium mining poses some hazard to public safety and the environment. To minimize this hazard, the Texas Department of Health has authority to license and regulate the production of radioactive materials and by-products. The Texas Railroad Commission has authority to regulate surface mining operations and prescribe reclamation standards. Air quality problems and water quality problems stemming from uranium mining and milling are under the jurisdiction of the Texas Air Control Board and Department of Water Resources. These regulatory efforts can be enhanced by additional legislation, regulations, and information.

Specific problems addressed are: whether informal licensing practices of the Texas Department of Health regarding min-

ing and milling activities should be adopted as law in legislation or substantive agency rules; whether actions should be taken pending studies which will resolve inconclusive or insufficient data concerning the biological impact of (a) using old strip mining pits for aquaculture ponds and (b) exposing individuals to low levels of radiation; whether existing land reclamation practices should be modified; and whether Texas should enact legislation which will allow the Texas Department of Health to retain regulatory authority over the possession, transportation, and use of radioactive materials and by-products. Such legislation would be in response to the federal Uranium Mill Tailings Radiation Control Act of 1978.

Background Information.

Mining. Most uranium ore is obtained by one of two different systems: strip mining or in situ solution mining. Strip mining obtains ore from shallow sites, whereas in situ solution mining obtains ore from deeper deposits located between two impervious strata. Strip mining tends to utilize deposits spread over a large area, whereas solution mining can be done on deposits located within a relatively small area. The two types of mining present distinctly different environmental problems because they involve quite different extraction techniques. Both approaches involve milling to concentrate the ore.

We recognize two major categories of environmental impacts caused by uranium strip mining: (1) the primary impact of increased levels of radioactivity and (2) the secondary impacts, including changes in topography, changes in the relative abundance of heavy metals, changes in surface water runoff, etc.

Uranium mining, like any other developmental activity, causes environmental perturbations that can have numerous secondary and tertiary impacts on the affected ecosystem. A single perturbation can have a "beneficial" impact on one part of the ecosystem and a "negative" impact on another part of the ecosystem. Strip mining provides an excellent example. The removed overburden can be used either to create topographic features, such as hills and valleys not previously present, or to restore approximately the original ground contours. Evaluation of the relative merits of the two approaches is partly influenced by different individual preferences for particular topographic features. We point out, however, that any change from pre-existing conditions has a negative impact on the indigenous biota because those organisms are adapted to the prior conditions. Even a relatively minor change can have a substantial ecological impact if it permits survival of an exotic organism that in turn "swamps" indigenous organisms. For example, the heat released into reservoirs by Texas electric generating stations may not actually kill the indigenous fishes, but it often permits survival of tropical fishes of the genus *Scortherodon* (African mouth brooders) which in turn may alter the trophic dynamics of the reservoir to exclude several native fish species.

The strip mining operation involves removing the overburden and setting it aside to expose the ore. That overburden is not fully returned to the mine pit in current operations. We think that restoration of the natural surface configuration is essential to avoid substantial disruption to the native biota and possible adverse impacts on human health. Our conclusion is reinforced by the unavailability of data on the biological impacts in the presently used ponds within the old mining

pits. These ponds are typically used for aquaculture (the production of channel catfish and bass). The mine operators have very limited knowledge of the trophic dynamics of this type of ecosystem. Furthermore, our efforts to obtain data on the biological magnification of potentially harmful materials in these potential foods were unsuccessful. Consequently, we recommend that the practice of establishing aquacultural ponds in old strip mining pits be discontinued immediately and that resumption not be considered until sufficient supporting data have been obtained. We repeat that restoration of the original topography is the preferred procedure.

The return of the overburden to the pits should be done with care. Topsoil should be set aside before the pits are excavated. After the rest of the overburden has been returned to the pits, the topsoil should be placed on top of the site (as existing legislation presently requires). Displaced heavy metals and radioactive material should be safely disposed of. On occasion, the overburden may emit radiation levels that are well above natural background levels. Overburden piles should be monitored, and any "hot spots" should be returned to the bottom of the pit from which they presumably came.

Solution mining seems to have far fewer impacts on the surface environment. The topography is little changed except for the presence of numerous drill holes and the effects of machinery. The desired minerals are removed by dissolution in an appropriate fluid. Solution mining requires an ore deposit located between two impervious layers of rock. As long as the solution fluids and their solutes (which constitute the desired valuable products) are removed, environmental problems should be minimal. Low-level increases in the ground water concentration of some heavy metals will occur, but these are not metals prone to biological magnification.

The federal Uranium Mill Tailings Radiation Control Act of 1978 provides for regulation by the U.S. Nuclear Regulatory Commission of radioactive "by-product material" which includes materials resulting from extraction or concentration of uranium or thorium. The states are provided an opportunity to implement these regulations through an agreement. At present, the Department of Health licenses the production, use, and disposal of radioactive materials and by-products. If the Texas Department of Health is to continue this regulation under the federal act, then Texas must enact the following statutory changes: (1) allow the state to accept title for the mill tailings areas, (2) require bonding of licensees, and (3) establish a dedicated fund for long-term maintenance and monitoring of mill tailings areas.

Milling. The milling of strip mined uranium ore involves the transportation of the ore to the milling plant where the ore is stored in uncovered piles. At a milling plant, the uranium ore is graded and crushed into a fine powder and then transferred to a water solution. Through a multiphase chemical process, uranium is extracted from this solution in the form of yellowcake. The liquid waste is deposited in a mill tailings pond.

In situ solution mining extracts uranium from deep deposits in a relatively small area. The uranium ore is perforated by drilling, and uranium is leached from the deposit by pumping an acid solution through the deposit. At a milling plant, uranium is extracted from this solution in the form of yellowcake through a multiphase chemical process. The acid solution is recycled.

At one of the millsites, a basin has been constructed to collect rainfall and runoff. That basin is, however, expected to overflow during floods. This situation should be corrected.

Recommended Policy Statement. It is recognized that uranium strip mining causes two major categories of environmental impacts, namely: (1) the primary impact of increased levels of radioactivity and (2) the secondary impacts, including changes in topography, changes in the relative abundance of heavy metals, and changes in surface water runoff; that data are unavailable on the biological impacts of using old mining pits for aquaculture; that understanding the biological effects of ionizing radiation on human health and of increased genetic hazards is hampered by the unavailability of definitive data; that ionizing radiation causes cancer and other health problems; and that ionizing radiation probably causes genetic mutations in humans. However, it is further recognized that the dosage level considered to be "safe" or "acceptable" is in dispute.

It is also recognized that the radiation exposure of Texas citizens should be kept as low as practical and that uranium mining by any method involves bringing radioactive materials from an underground environment to the surface, thus raising the possibility of radioisotopes entering the biosphere.

It is therefore recommended that the Texas Department of Health take appropriate steps to assure that Texas citizens do not receive radiation doses from uranium mining activities in excess of those permitted by 10 Code of Federal Regulations 20.

It is also recommended that the Railroad Commission immediately order the practice of establishing aquacultural ponds in old strip mining pits be discontinued and that resumption not be considered until sufficient supporting data have been obtained on the biological effects; that the Texas Uranium Mining and Reclamation Act be amended to require restoration of abandoned strip mining pits to the original topography and to prohibit mixing of the topsoil with other strata; that overburden piles be monitored by the Texas Department of Health; that "hot spots" be returned to the bottom of the pit; and that the Texas Department of Health regulations assure safe disposal of displaced heavy metals.

In addition, it is recommended that the Texas Department of Water Resources initiate ground water monitoring before mining begins in order to collect base line data and that monitoring be continued during and after mining.

It is recommended that in situ solution mining for uranium instead of strip mining be encouraged by the Texas Department of Health and the Texas Railroad Commission where the geological conditions are favorable.

It is recommended that the Texas Department of Health rules be amended to require the following procedures in the milling process: (1) liquid products should be kept in leak-proof containers; (2) areas where dry ore concentrates are handled should be kept under negative air pressure with filtered exhaust systems; (3) isolated collected basins adequate to collect all rainfall and runoff should be provided at the milling sites with any collected water being pumped from the collection basins into the mine tailings storage area and the pump transfer system being safeguarded by a duplicate back-up system; and (4) mine tailings should be contained in

a pit lined with clay with sufficient free board to withstand a 100-year flood; when a pit has been filled, it should be covered by a clay cap of sufficient thickness to prevent the rise of its contents into the biosphere; subsequent treatment of the pit area should involve a consideration of the possible transmission of undesired components to the surface via the activities of plant roots; and emphasis should be placed on the use of short-rooted plants in the area.

It is recommended that the Texas Air Control Board rules be amended to safeguard against the emission to the atmosphere as dust of those solid particles resulting from the milling process.

It is recommended that the state legislature pass legislation which, under the federal Uranium Mill Tailings Radiation Control Act of 1978, will allow the Texas Department of Health to continue to license and regulate the uranium mining industry in Texas.

Biological Effects of Radiation

Problem Statement. The health effects of radiation have been studied for over half a century. At high dose levels, the adverse health effects can easily be detected; however, most exposure to workers and the general public occur at much lower levels. Even after extensive investigation over a period of decades, there is still considerable difference of opinion as to whether any significant health problems are created by low levels of radiation. The scientific committee which recently reported on the biological effects of ionizing radiation (BIER Report) failed to develop a consensus on predicting effects of radiation. This disagreement might impact the setting of radiation exposure standards for workers dealing with radioactive materials and the general public. Standards which are unnecessarily strict would restrict the beneficial use of radioactive materials and drive up costs in other ongoing activities, while standards which are too permissive could cause health problems which might not appear until several decades after the exposure.

Background Information and Recommended Policy Statement. At the time of publication, the Advisory Committee on Nuclear Energy has not developed these sections. However, the public is urged to present information and propose policy statements on this topic.

Low-Level Waste

Problem Statement. Texas industries and institutions, both academic and medical, are producing increasing amounts of low-level radioactive waste. As the state economy expands and as the nuclear reactors now under construction start up, the yearly production of low-level waste will accelerate significantly. Unfortunately, the three licensed low-level waste disposal facilities in the United States present difficulties for disposing of low-level wastes from Texas. Two of the facilities are located west of the Rocky Mountains, thus making the transportation costs overly expensive. The third facility is located in South Carolina, and Chem Nuclear, the operator of the facility, is now required to restrict the volume and type of waste it receives. In addition to the above, all of these facilities are rapidly approaching their storage limit and are having their storage fees sharply increased, due mostly to higher state and local taxes. Consequently, Texas industries and institutions have no safe and economic dis-

posal facility available for the increasingly large amounts of low-level waste being produced.

Background Information. According to the Nuclear Regulatory Commission definitions, low-level radioactive waste (LLW) is all radioactive waste other than irradiated nuclear fuel and the solvent extracted from fuel reprocessing. LLW therefore consists of a wide variety of waste materials varying from contaminated syringes, wash water, and paper booties to discarded control (rods) generated by many producers (such as well logging companies, hospitals, research labs, and nuclear reactors).¹ These materials are contaminated by, or contain, different radioactive elements, and their radiation levels range from nearly undetectable to dangerously high.

Despite its heterogeneity LLW can be classified according to the relative biological hazard due to its radioactive nature.² LLW poses a small biological hazard if its contaminants exhibit one of three characteristics: (1) a short half-life, (2) a low specific activity, or (3) a relatively low-level of radiotoxicity. All other LLW poses a larger hazard.

Most LLW presents a small hazard. Contaminants with a short half-life quickly decay to insignificant levels of radioactivity while contaminants with low specific activity are already only slightly above normal background levels. For example, one decay standard could be that after 150 years of isolation the contaminants emit the same level of radiation per milliliter as that emitted by the granite in the Texas capitol building. Contaminants with a low or low medium level of radiotoxicity are least likely to cause injury even if incorporated by the body.

Texas can develop a program for disposal of all LLW. Both the technology for safe disposal and the administration to regulate disposal operations exist. LLW that poses a small hazard can be adequately isolated from the environment by relatively shallow earth burial. All three of the currently licensed out-of-state disposal facilities use this technology. Waste, along with various monitoring devices, can be buried in pits 20 to 30 feet deep. These pits can be designed and located according to hydrologic and demographic considerations.

LLW that poses a larger hazard can be adequately isolated from the environment by burial in sites that will remain remote for a long period of time (e.g., mined repositories). The waste can be retrieved, if necessary, for relocation or reprocessing.

To establish an effective administration to regulate low-level waste disposal operations, the state legislature has only to enact legislation which allows the state to comply with 10 CFR 20.302(b). The Texas Department of Health already licenses and regulates the production, possession, use, and transportation of radioactive materials and by-products. 10 CFR 20.302(b) requires that the state take title to the land on which the disposal site is located. The state legislature can also enact legislation which requires that licensees be bonded and that a dedicated fund be established for the decommissioning and long-term maintenance and monitoring of disposal sites. Once this legislation is enacted, the Department of Health can adopt regulations to ensure the stability and financial integrity of disposal operations and protect public safety.

LLW disposal facility located in Texas offers considerable savings in the cost of LLW disposal. Out-of-state disposal of LLW is expensive. In 1978, 10 state-supported institutions spent \$115,000 to dispose of their LLW. Texas industries are affected by these costs also. Costs will increase dramatically over the next two years.

In 1978, virtually all LLW from Texas was disposed of at the Chem Nuclear waste facility near Barnwell, South Carolina, the only disposal facility east of the Rocky Mountains. Chem Nuclear is now restricting the type and amount of waste it receives each year and gives preference to regionally and locally generated waste. Texas is not within the preferential area; thus, the state's industries and institutions will soon be forced to dispose of their waste in facilities west of the Rocky Mountains which will greatly increase the transportation portion of the disposal cost.

Since transportation costs today account for 60% of the total cost of disposal, shifting to burial in Beatty, Nevada, would increase the overall cost by up to 50%, and shifting to Richland, Washington, would increase the cost by 100%. The transportation costs are expected to continue to increase with rising fuel costs.

Another cost is the disposal fee charged by the licensed disposal facilities. State and local taxes are increasing these fees. The taxes are frequently higher than societal costs require because nonlocal institutions pay the tax (e.g., host states are using disposal taxes as a means of shifting the tax burden to out-of-state entities).

The total cost of LLW disposal will increase over the next two years simply because more LLW will be generated.

Texas has an obligation to provide LLW disposal facilities for waste generated in the state. Texas citizens enjoy the benefits from the constructive use of radioactive elements (e.g., better medical technologies and safer pipelines). Consequently, Texas should assume the responsibility for disposing of the LLW it generates.

¹LLW associated with uranium mining presents a specific problem which is discussed in a separate subcommittee report.

²Chemical toxicity must also be considered, but that consideration is beyond the scope of this committee's assignment.

Recommended Policy Statement. It is recognized that Texas industries and institutions will continue to produce large amounts of LLW and that a safe and economic method of disposal of LLW must be available to Texas users. It is also recognized that current technology provides a safe method of disposal for LLW and that a LLW disposal facility located in Texas offers Texas users several advantages. It is further recognized that if a LLW disposal facility is located in Texas, enforcement of regulations by the State of Texas is preferable to enforcement of regulations by the federal government.

Therefore, it is recommended that the state legislature pass legislation which would recognize the public need for a low-level waste disposal site located in Texas, which would allow the Texas Department of Health as the lead agency to license and regulate a low-level waste disposal facility in accordance with state and federal law, and which would ensure adequate

user funding of operating, decommissioning, and long-term monitoring costs.

It is also recommended that the Texas Department of Health, as lead agency: (1) develop and bring together all the specifications and regulations necessary to build and license a low-level waste disposal facility, (2) review federal regulations concerning LLW and coordinate the implementation of federal and state regulations, (3) develop and present to the legislature an estimate of the resources necessary to implement a program of licensing and regulation of a low-level waste disposal facility, and (4) petition the Nuclear Regulatory Commission to expressly define its specifications and regulations concerning low-level waste, to subdivide low-level waste into categories which will allow separate disposal of waste with low potential biological hazard, and to expand its low-level waste geologic containment research program

Costs of Disposing of Nuclear Wastes and Decommissioning Nuclear Plants

Problem Statement. Both spent nuclear fuel and retired nuclear plants contain radioactive material which must be disposed of; however, the disposal activities may be delayed for several decades. If a reserve fund to cover the future disposal costs is not accrued while the plant or fuel is being used, then those who benefit from the use of the plant or fuel may not be the ones who pay for the associated costs of disposal. Yet, the costs of waste disposal and decommissioning are not well established, thus creating problems for regulators attempting to establish reasonable rates to cover the full cost of service. There is also some question as to whether the IRS will tax a reserve fund as income or recognize the future expense as being accrued at the time of use of the plant or fuel. If the IRS taxes the reserve fund, then the effective cost of disposal on today's ratepayers is nearly doubled.

Background Information. Nuclear plants are licensed for a 40-year period starting at the beginning of construction; thus, most nuclear plants will have, assuming no major deficiencies are found in the operating systems during this period, a 30-year licensed operating lifetime. Since no commercial nuclear plant has reached the end of its licensed lifetime, there is uncertainty as to how the owning electric utilities will proceed.

If the nuclear plant, upon the completion of a thorough examination/inspection, were found to be sound, then after minor replacements and modifications it could be relicensed for an additional period of operation. If the nuclear plant were sound but technologically obsolete, the utility could implement major modifications to upgrade the plant. Under this situation, the utility would probably file an application for construction permit to make the modifications and thus build a "new" nuclear unit. If the plant were obsolete or unsound and could not be modified or if fuel were not available, the utility would proceed to retire the facility from system use.

Since it will contain radioactive material activated by the radiation from the nuclear chain reaction even after the radioactive fuel has been removed, a retired nuclear plant must be "decommissioned" to isolate any remaining radiation from the public. Several dozen nuclear power reactors have been decommissioned in the past. The list of decommissioning alternatives that have been used includes immediate total dismantlement, entombment followed by delayed dis-

mantlement, permanent entombment, partial dismantlement, and simple mothballing. Based on these experiences and experience with decommissioning hazardous chemical plants, reasonable estimates of the cost to decommission a large nuclear plant in the various modes can be and have been developed.

The general consensus in the electric industry appears to be that plans should be made for decommissioning rather than assuming continued operation or modification at the end of the licensed period of operation. At present, however, the Nuclear Regulatory Commission (NRC) has not specified any specific mode as being the preferred mode of decommissioning. Thus, the major task as seen by the NRC, electric utilities, and public utility regulators is the selection of reasonable decommissioning alternatives and then the development of a financial plan to assure that sufficient funds will be available to cover the project expenses.

Past experience has indicated that the cost of most methods of decommissioning nuclear plants will exceed the salvage value of the facility (although the plant site and cooling water facilities may retain their full or increased value). One method of generating funds to cover decommissioning costs would be to place a negative value on the plant at the end of its life and include depreciation of the plant to this negative value in the rate base. The additional funds would theoretically financially strengthen the electric utility which would, at a later date, decommission the plant. The utility could also pay all the costs of decommissioning the plant out of funds from the operating budget at the time of decommissioning. However, those consumers who received the output of the nuclear plant might not be the consumers who would pay for the decommissioning.

Another method would be to treat the decommissioning costs as a separate future expense. Funds would be accrued out of revenue from the plant and placed in a separate trust account. The rate of accrual of funds could be periodically adjusted (e.g., every five years) to reflect better estimates of the projected cost of decommissioning. The funds would be dedicated under this method to the expense of decommissioning, and those consumers who receive output from the nuclear plant would pay for the associated future expense of decommissioning.

Disposing of nuclear wastes from spent fuel is complicated by the involvement of the federal government. At present, the federal government has preemptive responsibility for disposing of the spent fuel; yet, no decision has been made on how to accomplish the task and certainly no facility has been developed for that purpose. It appears certain that one of two methods will be used.

Under either situation, the electric utility will store spent fuel onsite in storage pools for a period of 10 to 20 years. Under one method, the federal government will then take title to the spent fuel assembly, possibly store it for an additional period of time, further package the spent fuel, and finally store it in a semi-retrievable mode. Under the other method, the federal government will receive the spent fuel assembly, chemically process the fuel assembly, return or credit the recovered uranium and plutonium to the utility's account, process the waste, and finally bury the waste.

The expense associated with the utility's storing the fuel is already accounted for as part of the plant capital charge.

However, there is great uncertainty concerning what the expense of the government controlled effort will be and how to treat that expense. One solution would be for the federal government to develop a conservative (high) estimate of the maximum charge for either and determine a maximum period of storage at the utility after which the government would take title and responsibility for the spent fuel. Utility regulators could then factor the charge into the rates associated with the nuclear fuel. After the fuel has been removed from the reactor but before the end of the pool storage time, the charges could be paid to the federal government to assist them in developing the necessary facilities without resorting to deficit financing. Once again by placing the charges in the rate base at the time of fuel use, the customers who receive the benefits of use would also pay the associated waste disposal costs.

The policies of the Internal Revenue Service work against accruing funds for future expenses. Unless changes are made in the federal tax codes, funds accrued to pay for future decommissioning and disposal costs would be considered as taxable income in the years in which the funds were accrued even if they are subsequently placed in a trust. If the funds were taxed as income, the utility would have to increase its charges by well over 70% in order to provide the same final level of funds to cover decommissioning and disposal costs.

Recommended Policy Statement. It is recognized that nuclear plant decommissioning costs and high-level waste (spent fuel) disposal costs are subject to considerable uncertainty; that the decommissioning and disposal will occur some period of years after consumers have received the benefits; that several methods of accomplishing the decommissioning and waste disposal exist; and that the method chosen will influence the final cost. It is also recognized that the costs could be large, thus requiring a reserve fund, and that under present law such accruals are treated by the Internal Revenue Service as "income" subject to taxation since there is no immediate "expense" offsetting the collected revenue.

It is therefore recommended that billing rates for consumers, at the time they benefit from the output of nuclear plants, include an assessment payable into a trust sufficient to cover the anticipated future decommissioning and waste disposal costs; that the federal government establish a length of time after which it will relieve utilities of the physical possession and responsibility for the spent fuel; and that the trust funds be paid by an electric utility to the trust to defray all costs of eventual disposal of the utility-produced spent fuel and decommissioning costs of nuclear plants based on any reasonable method accepted by the NRC.

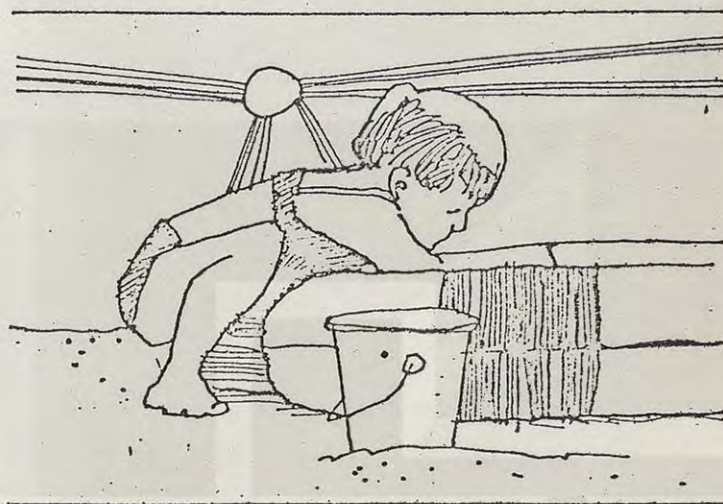
It is also recommended that the state encourage the federal government to revise the Internal Revenue Code of 1954 to permit electric utilities to establish such a trust without such funds being treated by the Internal Revenue Service as current taxable utility income.

Issued in Austin, Texas, on July 23, 1979.

Doc. No. 794683 Milton L. Holloway
Executive Director
Texas Energy Advisory Council

Filed: July 25, 1979, 3:49 p.m.

For further information, please call (512) 475-5588.



Texas Department of Health Railroad Commission of Texas Texas Department of Water Resources

Joint Public Hearing

(Editor's note: The notice of public hearing appearing below represents an expanded version of a notice published in the July 3, 1979, issue (4 TexReg 2393). The notice below also corrects the impression that the hearing will be conducted solely by the Texas Department of Water Resources.)

Wednesday, August 15, 1979, 9:30 a.m. A public hearing will be conducted jointly by the Texas Department of Health, Texas Department of Water Resources, and the Railroad Commission of Texas in the auditorium at the Texas Department of Health, 1100 West 49th Street, Austin, in order to receive testimony concerning the State of Texas Water and Waste Management Strategy and the State/EPA Agreement. These documents have been prepared in response to a guidance document and policy statement prepared by the United States Environmental Protection Agency and published in the *Federal Register* March 21, 1979, under the authority of the Federal Clean Water Act, the Federal Safe Drinking Water Act, and the Federal Resource Conservation and Recovery Act.

The State/EPA Agreement has been prepared through a cooperative effort of the Texas Department of Health, the Texas Department of Water Resources, and the Railroad Commission of Texas as a mechanism to coordinate response to health and environmental problems relating to water supply, solid waste, and water pollution control. The agreement integrates environmental programs conducted under the Federal Safe Drinking Water Act, the Federal Clean Water Act, and the Federal Resource Conservation and Recovery Act.

Preparation of the agreement has been preceded by and closely linked to preparation of a strategy document which establishes goals for addressing problems over a multiyear period. The agreement translates the strategy into a management work program for fiscal year 1980.

November 1977

JUL 29 1978

copy for Laura

LEAGUE OF WOMEN VOTERS EDUCATION FUND
ENERGY EDUCATION PROGRAM

Florence Chichester, Manager, LWVEF Energy Education Project
Isabelle P. Weber, LWVEF Energy Coordinator
Betty N. MacDonald, Chairman, LWVUS Energy Committee

Guidelines for Administering the
State League Energy Education Projects

I. General Instructions

A. Project Manager

By agreeing to and signing the letter of agreement sent to you by the LWVEF, you become the official Project Manager for your state League Energy Education Project. Unless a project treasurer is appointed by the League or yourself, you will personally receive and administer all funds. In any case, the project manager bears the ultimate responsibility to the LWVEF for the proper safekeeping, distribution and use of those funds. We will correspond directly with you on all project matters from now on; copies of our correspondence will be sent to your state League president. Be sure that you keep your president informed of all project activities and that you consult with your president on policy decisions.

Stipend

To compensate you for your duties and responsibilities, you will receive a stipend in the amount specified in your project budget. Although the stipend is a line item in your budget, the two payments will come directly from the LWVEF on December 1, 1977 and April 1, 1978.

Reports

You will be responsible for submitting three project reports, the last of which will be your final report. These are due January 15, 1978, April 1, 1978, and May 30, 1978. (Note: This is a slightly different reporting schedule than previously outlined in the letters of agreement sent to project managers.) Please submit your reports on time because we need your information in order to complete our reports to the Department of Energy (DOE.) The January and April reports should include: 1) a description of the activities your League has carried out during the reporting period; 2) a detailed outline of the upcoming period's planned activities; 3) your assessment of the effectiveness of the activities to date; and 4) a brief accounting of grant funds spent to date. Also include samples of media coverage and other information produced for or pertinent to the energy education project. (See Section on Printed and Visual Materials.)

The final report must be submitted no later than May 30, 1978, earlier if possible. This must include an overall description and evaluation of the project. As soon as possible following the end of the project, but no later than July 31st, please send in a final financial report on the use of your project funds.

B. Permissible Use of Project Funds

FIRST AND FOREMOST: UNDER IRS REGULATIONS, ANY GRANT COMING THROUGH THE LWVEF MUST BE USED FOR EDUCATION PURPOSES ONLY. You cannot spend money for legislative action--lobbying or urging support for or against a particular program or bill. Nor can grant money be used to reach positions upon which action will be based (that is, not for an energy consensus meeting!). LWVEF money can be used, however, for explaining the differences among bills or issues raised by a bill, if handled in a careful and impartial way.

The federal government has strict guidelines on use of federal funds. These are spelled out in detail in the DOE grant for energy education to the LWVEF, but we are outlining pertinent information here. In general, all reasonable costs for planning or carrying out the grant activity are allowable, including the following:

- project planning costs
- actual project costs
- rental of office space, typewriter, etc. (NOTE: you cannot purchase a typewriter or other office equipment. Technically, anything purchased with federal funds belongs to the federal government.)
- supplies (e.g., paper, typewriter ribbons)
- duplicating, postage, telephone
- printing (see below)
- kit materials
- personnel expenses (including stipend for grant manager, secretarial services, speakers' fees)
- arranging tours or field trips
- travel-related expenses including transportation (tourist or coach class if available,) food and lodging. Room service, phone calls and other personal business conducted while on travel cannot be reimbursed, however. Single room accommodations are not allowed for persons other than speakers. Any other person desiring a single room must pay the difference in rate.
- expenses related to a meeting, including meeting space and equipment rental. Food served at a meeting may only be charged to the project if business is conducted during the snack or meal. Alcoholic beverages cannot be purchased with grant funds.
- promotion for grant activity (e.g., advertising, press releases)

Prizes

Several of the Leagues are planning to award prizes in connection with poster or other contests. Unfortunately, the federal government considers a prize to be a gift, and gifts are not allowable expenses. Therefore, if you are planning to award prizes, they must either be donated (under other grants Leagues have had good luck in finding local businesses willing to donate prizes,) or paid for with other funds (see "Advances" below.)

C. Printed and Visual Materials

Before printing any publication with grant funds, please send us a copy for review. Due to IRS tax regulations, WE MUST REVIEW YOUR DRAFT PUBLICATIONS PRIOR TO PRINTING. We also need to review draft slide-tape show scripts, agendas for public meetings, information on talks or speeches, and, if you have it, an outline of the remarks. We will notify you within 2 weeks of receipt of your draft whether or not you can go to print, or production. Be sure to visibly identify your publication and/or slide-tape show as a publication of your League. Various LWVEF publications from the national office can provide a guide as to the most appropriate space and emphasis for the League identification.

Credit to the LWVEF and the DOE should appear on material produced with federal grant funds. The following wording is recommended: *This publication/film/ slide show has been financed (in part/entirely) with funds from the League of Women Voters Education Fund and the U.S. Department of Energy (DOE) under contract EC-77-G-01-6097. The contents do not necessarily reflect the views and policies of the DOE nor does mention of trade names or commercial products constitute endorsement or recommendation for use.*

Government regulations place a maximum limit upon the number of copies of a publication you may print without becoming subject to government printing requirements. To avoid these requirements you may not print more than 5,000 copies of any single page and the number of pages in the publication times the number of copies of the publication cannot exceed 25,000 pages. (A page is one side of a sheet of paper.)

For example, you may print 4,000 copies of a six-page publication, because there will be only 4,000 copies of any one page and a total of 24,000 printed pages in total (4,000 copies x 6 pages.) However, you may not print 4,000 copies of an eight-page publication since there would be 32,000 printed pages (4,000 copies x 8 pages.) This would exceed the 25,000 printed page limit. Similarly, you may not print 6,000 copies of any publication regardless of its length since that would exceed the 5,000 copy per page limit. Please include with your final report to the LWVEF or with the interim project reports, if finished, three copies of any publication you have produced with federal grant funds.

D. Media Coverage

The public relations component of your project may vary with the needs of the various activities. However, you are encouraged to include either your League public relations person, or another person with public relations skills on the project's planning committee. Good publicity and good public relations in connection with your grant activities should be pursued whenever possible. With your letter of approval, each project manager was sent a set of 5 public relations factsheets published by the LWVUS to assist you in this aspect of your project. If you would like more factsheets, let Florence know and she can send you a limited quantity.

When you send us your project reports, please include samples of press releases, flyers, publications, newspaper or magazine articles, conference or meeting agendas, and any other materials produced for or information pertinent to the energy education project.

League of Women Voters Education Fund
1730 M Street, N.W.
Washington, D.C. 20036

TEXAS

(state)

PRELIMINARY PROPOSAL FOR A STATE LEAGUE
ENERGY EDUCATION OUTREACH PROJECT
(PHASE II)

Date: September 15, 1978

State President: Betty Anderson

League: LWV-Texas

Address & Phone:

Address & Phone: 1212 Guadalupe, #109
Austin, TX 78701
(512) 472-1100

1. Workshop Participant (project manager):

Patricia Bruno

Address & Phone:

2. Workshop Participant:

Pat L. Nickell

Address & Phone:

Evaluation of Phase I

1. Briefly, what were the objectives of the first state League energy education project?

The primary objectives of the first energy project were to: (1) hold three energy conferences in various locations in Texas; (2) provide information on both energy production and conservation, though emphasizing conservation -- a need in a producer state such as Texas; (3) reach expected audiences of 50-75 participants at each conference including League members, legislators, and the general public; (4) videotape the Austin conference for distribution to other local League areas.

2. From the state League's point of view, was the project successful in meeting those objectives?

Yes. The project was successful from the point of view of the LWV-Texas in that the conferences were informative and the desired number of individuals were reached. We

~~a. -- If yes, what aspects contributed significantly to its success? --~~

were not as successful in reaching legislators in the first two conferences, however the one held in Austin achieved this goal. This was due to location as well as emphasis on a legislative response panel in Austin. The videotape has been ordered for showing in Amarillo, Corpus Christi, San Marcos, Harlingen, and Abilene. It was shown in Austin initially.

b. If no, why not? What, if anything, do you think should have been done differently or should be done differently in another project?

®

Description of Phase II

Describe your overall proposed project, including your plans to make full use of effective materials developed in the first phase and to increase your audience or to target certain groups. (Attach an additional sheet, if necessary.)

The purpose of this project is to produce a 30- or 60-minute video tape documentary in cooperation with KTXN-TV, Lubbock's public television station, in order to regionally examine the questions and controversies surrounding nuclear waste disposal.

This documentary will examine three prongs of the nuclear waste issue: public fears, emerging policy and legislation, and proposed methods and costs of waste disposal/storage.

Program format will include interviews with Carter nuclear policy architects, regional nuclear energy advocates, environmentalists, and area consumer protest groups.

It would also include a brief review of recent proceedings from public hearings conducted in Midland, Amarillo, and El Paso, Texas over proposed nuclear disposal sites.

The documentary will further include an explanation of major risks and safeguards, existing, and proposed, for the transportation, storage and disposal of nuclear waste material.

Production will be under the supervision of Production Manager George Warmingham, and the program will air on Channel 5, KTXN in the spring of 1979. Video copies will be made available for use by local Leagues through the state office. Information on the documentary will be available to the West Texas local Leagues in Abilene, El Paso, Amarillo, Midland, and Odessa for local TV promotion. Copies of the tape will be offered to the Public Broadcast Service with its 200+ stations in a national network, a print of the program will also be available to any broadcast station to air on a non-commercial basis, and to educational and cultural institutions within the state.

Timetable Give a brief outline of goals or activities you would plan to accomplish in each time period.

Nov--Dec Begin research; complete interviews in Washington, D.C. and Austin, Texas; begin reviews of public hearings, and finish on-site filming and interviews in Carlsbad, N.C.; initiate project grant publicity.

Jan--Feb Complete interviews in Midland, Amarillo, Albuquerque, and Los Alamos; complete research and hearing reviews; transfer video cassette to two-inch tape; begin editing.

March--April Complete editing and production; finish promotional material for publicity.

May--June Dubbing and distributing four tapes for airing; make material available for air.

Budget Attach a general, proposed project budget

SEND THIS PROPOSAL BY SEPTEMBER 20, 1978 TO THE ENERGY DEPARTMENT, LEAGUE OF WOMEN VOTERS EDUCATION FUND, 1730 M ST., N.W., WASHINGTON, D.C. 20036.

League of Women Voters Education Fund
1730 M Street, N.W.
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When you send us your project reports, please include samples of press releases, flyers, publications, newspaper or magazine articles, conference or meeting agendas, and any other materials produced for or information pertinent to the energy education project.



memorandum

JUL 29 1978

11:15 AM 8-9-78

July 1978

TO: State League Presidents cc: Jan W., Laura R. (proj. September)

FROM: Dotty Powers, Chair, National Energy Committee

RE: Energy Education Outreach Program--Phase II

I am pleased to announce that the Department of Energy (DOE) has awarded the League of Women Voters Education Fund (LWVEF) a grant of \$183,775 to continue our energy education outreach program. As we stated in our proposal to DOE, "The League firmly believes that the understanding, support and cooperation of the American people are essential in dealing with the energy dilemmas that face us and that a public energy education program is the first step to achieving that goal." The aim of the first phase of the LWVEF energy education program was to inform as many League members and as much of the general public as possible about basic energy problems, the nation's energy outlook, and the energy alternatives or options that should be considered. That aim remains the same but the objective in the second year will be to reach a greater number and/or different groups of people.

PROJECT PROPOSALS DUE SEPTEMBER 20, 1978

Included in the new grant are funds for twenty state League energy education projects at about \$4000 each and a project workshop here in Washington, D.C. for representatives of those Leagues. WE ASK THAT INTERESTED STATE LEAGUES SUBMIT A PRELIMINARY PROPOSAL FOR AN ENERGY EDUCATION OUTREACH PROJECT TO THE LWVEF BY SEPTEMBER 20, 1978. Using the attached proposal form, briefly describe your League's plan for an energy education project and include a general budget. We know that you will plan to take advantage of the momentum and interest developed during the first year's efforts and that you will build on the programs and the materials such as conferences, slide shows, publications, brochures, etc., that were developed under the previous project. For example, were the programs and materials effective in design? Were they advertised and distributed as fully as possible? If not, how can you increase their impact and audience?

An integral part of the project proposal is a brief evaluation of the previous state League project under the LWVEF Energy Education Program. Consider the objectives established for that project and its relation to other state League energy education objectives. Was it successful? If not, what things do you think should be done differently in another project? We hope this evaluation will be your starting point in planning a project for the second phase.

In planning, you might want to consider using the print or broadcast media-- } short energy programs or films for TV, TV/radio public service announcements (PSAs), newspaper ads, articles or energy supplements. Conferences or meetings can be good ways to inform and educate but also consider what interesting things you can do to attract enough people to make them really

July 25, 1978

effective. You are certainly not limited to any of the above suggestions. Be imaginative! Remember, however, that as we read your proposals we will be looking for three major points--1) that you have carefully considered the first project and have decided "where you should go from there"; 2) that the proposal includes plans to reach a larger or different audience from that which was reached before; and 3) that you consider the best and widest possible distribution of effective audio-visual or printed materials produced for the first project.

To help you in thinking about and planning your project, refer to the February 1978 Report of the L'VEF Energy Education Program, sent to all state Leagues in March. You may also find the enclosed copies of the final report of the L'VEF's Energy Conservation Technology Education Project and the November 1977 Energy Education Project Guidelines useful. (Updated guidelines will be sent when the project is approved.)

A CAVEAT: Remember that any grant coming from the L'VEF must be used for educational purposes only. You may not spend money for legislative action. In other words, L'VEF money cannot be used for lobbying or urging support for or opposition to particular bills.

SELECTION OF STATES

Details of your proposed project need not be worked out in this preliminary proposal. Since, however, these proposals will be the basis for the selection of the 20 state Leagues to receive grants, you will want to provide as clear an overall plan as possible. The 20 Leagues selected will be asked to send two representatives to the project workshop in mid-October at which time they will receive guidance and information that will enable you with their assistance to refine the proposal for final submission to the L'VEF.

THE FINAL PROJECT PROPOSALS FROM THE 20 SELECTED STATE LEAGUES WILL BE DUE IN THE L'VEF ON NOVEMBER 10, 1978. The proposals will be reviewed by the national energy committee at its November meeting and the committee's comments and suggestions will be sent to you shortly afterward. If at that time the state League and the L'VEF are in agreement, a check for half of the project funds and detailed project guidelines and accounting procedures will be sent to the state League and the project may begin. See the attached tentative project schedule for further project dates.

PROJECT WORKSHOP

The L'VEF will pay all expenses for two representatives of each selected state League to attend the above mentioned energy education outreach workshop, tentatively scheduled to take place October 18-20 here in Washington. Full details of the workshop have not yet been settled but further information will be sent to the selected Leagues and their representatives when arrangements are complete. Among other things, we do plan to discuss outreach methods and grant procedures. The workshop will be similar to others conducted here in October 1977 and January 1978 as part of the L'VEF's Solid Waste and Section 208 Water Quality Management Planning grants. Many of the League members who attended those work-

November 1977

JUL 29 1978

copy for Laura

LEAGUE OF WOMEN VOTERS EDUCATION FUND
ENERGY EDUCATION PROGRAM

Florence Chichester, Manager, LWVEF Energy Education Project
Isabelle P. Weber, LWVEF Energy Coordinator
Betty N. MacDonald, Chairman, LWVUS Energy Committee

Guidelines for Administering the
State League Energy Education Projects

I. General Instructions

A. Project Manager

By agreeing to and signing the letter of agreement sent to you by the LWVEF, you become the official Project Manager for your state League Energy Education Project. Unless a project treasurer is appointed by the League or yourself, you will personally receive and administer all funds. In any case, the project manager bears the ultimate responsibility to the LWVEF for the proper safekeeping, distribution and use of those funds. We will correspond directly with you on all project matters from now on; copies of our correspondence will be sent to your state League president. Be sure that you keep your president informed of all project activities and that you consult with your president on policy decisions.

Stipend

To compensate you for your duties and responsibilities, you will receive a stipend in the amount specified in your project budget. Although the stipend is a line item in your budget, the two payments will come directly from the LWVEF on December 1, 1977 and April 1, 1978.

Reports

You will be responsible for submitting three project reports, the last of which will be your final report. These are due January 15, 1978, April 1, 1978, and May 30, 1978. (Note: This is a slightly different reporting schedule than previously outlined in the letters of agreement sent to project managers.) Please submit your reports on time because we need your information in order to complete our reports to the Department of Energy (DOE.) The January and April reports should include: 1) a description of the activities your League has carried out during the reporting period; 2) a detailed outline of the upcoming period's planned activities; 3) your assessment of the effectiveness of the activities to date; and 4) a brief accounting of grant funds spent to date. Also include samples of media coverage and other information produced for or pertinent to the energy education project. (See Section on Printed and Visual Materials.)

The final report must be submitted no later than May 30, 1978, earlier if possible. This must include an overall description and evaluation of the project. As soon as possible following the end of the project, but no later than July 31st, please send in a final financial report on the use of your project funds.



B. Permissible Use of Project Funds

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- travel-related expenses including transportation (tourist or coach class if available,) food and lodging. Room service, phone calls and other personal business conducted while on travel cannot be reimbursed, however. Single room accommodations are not allowed for persons other than speakers. Any other person desiring a single room must pay the difference in rate.
- expenses related to a meeting, including meeting space and equipment rental. Food served at a meeting may only be charged to the project if business is conducted during the snack or meal. Alcoholic beverages cannot be purchased with grant funds.
- promotion for grant activity (e.g., advertising, press releases)

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Several of the Leagues are planning to award prizes in connection with poster or other contests. Unfortunately, the federal government considers a prize to be a gift, and gifts are not allowable expenses. Therefore, if you are planning to award prizes, they must either be donated (under other grants Leagues have had good luck in finding local businesses willing to donate prizes,) or paid for with other funds (see "Advances" below.)

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When you send us your project reports, please include samples of press releases, flyers, publications, newspaper or magazine articles, conference or meeting agendas, and any other materials produced for or information pertinent to the energy education project.

August 10

to Betty and Laura

From Donna Green via Joann and the phone

A couple of things Donna wanted the writer of the energy videotaping proposal to be aware of:

1. Put into the budget an amount for transferring the end product taping (which will PROBABLY be on 2" video tape) to 3/4" tape. (videotape).
2. This amount probably will not be much. Check with TV station & George Warmingham.
2. Put into the budget an amount (about \$30.00) to buy another tape -- this will add to the LWV tape library at the grant's expense -- and probably fit easily into the \$4000.

The original tape (the 2" one) will probably belong to the TV station, so League will need to plan for purchase of one.

3. Put into budget an amount to pay travel expenses for the TV crew if this is a regional project.
4. Put into budget an amount for LD phone calls ~~X~~ if this is a regional project.

After Donna talked with both of you here on Wednesday, she spoke with George and he'll be glad to work with you in Lubbock. He'll get in touch with someone in Lubbock after Aug. 28. That's when he goes to Lubbock

documentary -

NO

- storage of nuclear
waste

3x 3 trips / 2 days + 10% proj. mgr.

-1835 travel

#150 - phone

580 - tape

- production

150 = graphics

160 - dub

320 - 2" copies for distrib.

(21 cassettes, \$25. each
7-1/2 hr)

+140 - dub 2"

Sept 10

(included 2500 salaries)
3155 - overhead

done mid feb

Proj Mgr 400

Travel Wash 520

Albuquerque 348?

Carlsbad 297

indend 135

ama - 135

-1835 travel

300
-125 publicity log

November 1977

JUL 28 1978

copy for Laura

LEAGUE OF WOMEN VOTERS EDUCATION FUND
ENERGY EDUCATION PROGRAM

Florence Chichester, Manager, LWVEF Energy Education Project
Isabelle P. Weber, LWVEF Energy Coordinator
Betty N. MacDonald, Chairman, LWVUS Energy Committee

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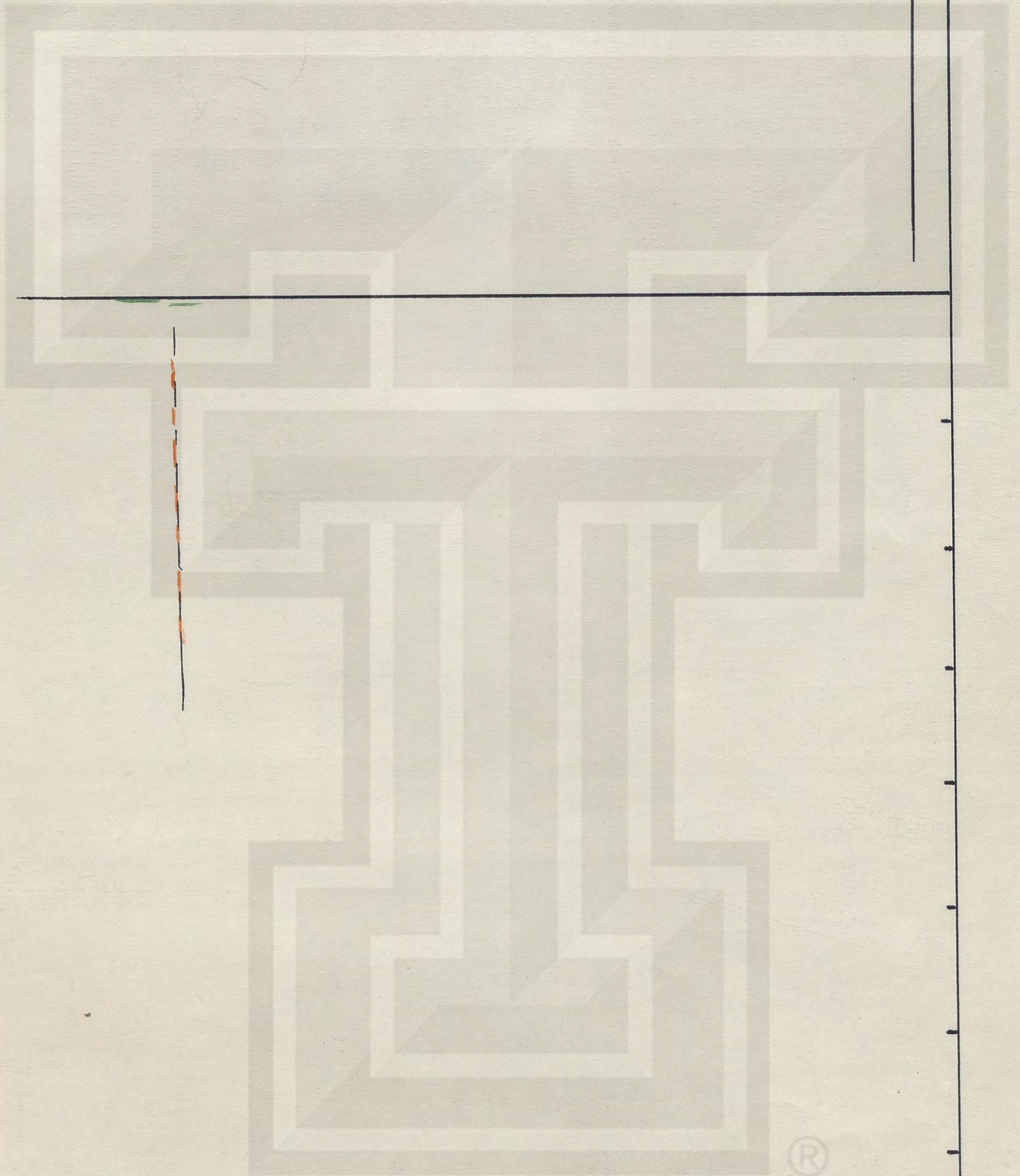
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®

Bruno

League of Women Voters Education Fund
1730 M Street, N.W.
Washington, D.C. 20036

TEXAS

(state)

PRELIMINARY PROPOSAL FOR A STATE LEAGUE
ENERGY EDUCATION OUTREACH PROJECT
(PHASE II)

Date: September 15, 1978

State President: Betty Anderson

League: LWV-Texas

Address & Phone:

Address & Phone: 1212 Guadalupe, #109
Austin, TX 78701
(512) 472-1100

1. Workshop Participant (project manager):

Patricia Bruno

Address & Phone:

2. Workshop Participant:

Pat L. Nickell

Address & Phone:

Evaluation of Phase I

1. Briefly, what were the objectives of the first state League energy education project?

The primary objectives of the first energy project were to: (1) hold three energy conferences in various locations in Texas; (2) provide information on both energy production and conservation, though emphasizing conservation -- a need in a producer state such as Texas; (3) reach expected audiences of 50-75 participants at each conference including League members, legislators, and the general public; (4) videotape the Austin conference for distribution to other local League areas.

2. From the state League's point of view, was the project successful in meeting those objectives?

Yes. The project was successful from the point of view of the LWV-Texas in that the conferences were informative and the desired number of individuals were reached. We

a. ~~If yes, what aspects contributed significantly to its success?~~

were not as successful in reaching legislators in the first two conferences, however the one held in Austin achieved this goal. This was due to location as well as emphasis on a legislative response panel in Austin. The videotape has been ordered for showing in Amarillo, Corpus Christi, San Marcos, Harlingen, and Abilene. It was shown in Austin initially.

b. If no, why not? What, if anything, do you think should have been done differently or should be done differently in another project?

®

Description of Phase II

Describe your overall proposed project, including your plans to make full use of effective materials developed in the first phase and to increase your audience or to target certain groups. (Attach an additional sheet, if necessary.)

The purpose of this project is to produce a 30- or 60-minute video tape documentary in cooperation with KTXN-TV, Lubbock's public television station, in order to regionally examine the questions and controversies surrounding nuclear waste disposal.

This documentary will examine three prongs of the nuclear waste issue: public fears, emerging policy and legislation, and proposed methods and costs of waste disposal/storage.

Program format will include interviews with Carter nuclear policy architects, regional nuclear energy advocates, environmentalists, and area consumer protest groups.

It would also include a brief review of recent proceedings from public hearings conducted in Midland, Amarillo, and El Paso, Texas over proposed nuclear disposal sites.

The documentary will further include an explanation of major risks and safeguards, existing, and proposed, for the transportation, storage and disposal of nuclear waste material.

Production will be under the supervision of Production Manager George Warmingham, and the program will air on Channel 5, KTXN in the spring of 1979. Video copies will be made available for use by local Leagues through the state office. Information on the documentary will be available to the West Texas local Leagues in Abilene, El Paso, Amarillo, Midland, and Odessa for local TV promotion. Copies of the tape will be offered to the Public Broadcast Service with its 200+ stations in a national network, a print of the program will also be available to any broadcast station to air on a non-commercial basis, and to educational and cultural institutions within the state.

Timetable Give a brief outline of goals or activities you would plan to accomplish in each time period.

Nov--Dec Begin research; complete interviews in Washington, D.C. and Austin, Texas; begin reviews of public hearings, and finish on-site filming and interviews in Carlsbad, N.C.; initiate project grant publicity.

Jan--Feb Complete interviews in Midland, Amarillo, Albuquerque, and Los Alamos; complete research and hearing reviews; transfer video cassette to two-inch tape; begin editing.

March--April Complete editing and production; finish promotional material for publicity.

May--June Dubbing and distributing four tapes for airing; make material available for air.

Budget Attach a general, proposed project budget

SEND THIS PROPOSAL BY SEPTEMBER 20, 1978 TO THE ENERGY DEPARTMENT, LEAGUE OF WOMEN VOTERS EDUCATION FUND, 1730 M ST., N.W., WASHINGTON, D.C. 20036.

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PROPOSED BUDGET

Project Managers	\$ 400.00
Travel	1500.00
Video Tape Costs/Transfer	950.00
Graphics	50.00
Publicity	500.00
Equipment Rental	<u>600.00</u>
TOTAL	4000.00

AJ. Radio



It's been said that politics is the
"art of the possible"... It is ^{widely agreed} also said,
by all interested parties, that ^{the} ^{issue} ^{question of}
~~solution~~ to the nuclear waste disposal ^{issue} ^{in the US}
is a political ^(one) ~~problem~~... it ~~follows~~
N-waste disposal is, ^{in fact} possible; it is also ^{if so} ^{then}
quite possibly an art ~~alone~~
~~to~~ ~~escape~~ ^{still} escapes its time.
^{is misunderstood}
for which is generation is unprepared.
whose public is unwilling
or unprepared to ~~effect~~
accept:

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widely agreed in the U.S. that the

Pat Bruno



League of Women Voters Education Fund 1730 M Street, N.W., Washington, D. C. 20036 Tel. (202) 659-2685

memorandum

April 10, 1979

TO: Energy Education Project managers, co-managers and project treasurers

FROM: Dotty Powers, Energy Chair and Florence Chichester, Energy Education Program Director

RE: The relationship between the League of Women Voters of the United States (LWVUS), the League of Women Voters Education Fund (LWVEF) and grant-funded projects; proper crediting of funding sources.

There does not seem to be a clear understanding among many Leagues of the importance of distinguishing between the LWVUS and the LWVEF in connection with the state League energy education outreach projects. The LWVEF is designated a 501(c)3 organization by the Internal Revenue Service (IRS). Grants and tax-deductible contributions are made to the LWVEF because it conducts only unbiased research and educational activities--no advocacy or lobbying. The LWVUS is designated a 501(c)4 organization. The LWVUS reaches positions on governmental issues and acts to influence policies relating to these issues. Contributions to the LWVUS are not tax-deductible.

Your energy education project funds come to you via the LWVEF, which is responsible to the US Department of Energy (USDOE) and the IRS for the objective nature of grant activities. Therefore, no grant funds can be used for advocacy, no grant project can support or oppose an energy strategy, and no project manager can involve herself simultaneously in energy lobbying. The LWVUS energy position should not be invoked in any way in a League energy education project.

Products or promotional materials produced by a League energy education project--publications, slide shows, flyers, films, public service announcements--must carry a credit, and in many cases a disclaimer. The USDOE and the LWVEF must be credited. We suggest this format: This publication/film/slide show has been financed in part/entirely with funds from the League of Women Voters Education Fund and the US Department of Energy (USDOE) under grant #EU-78-G-01-6482. Contents do not necessarily reflect the views or policies of USDOE. If you wish you may also credit the effort of your state League or state energy office or any outside contributors.

Please note that the grant number, EU-78-G-01-6482, for the Phase II grant is not the same as the one for Phase I, last year.

Second interim reports are due in the national office by April 30.

cc: State League presidents
State Board liaison for energy education project.

See also the Project Guidelines

Contributions to the Fund are deductible for income-tax purposes.



memorandum

April 13, 1979

TO: State League Managers, LWVEF Energy Education Outreach Projects (Phase II)
FROM: Florence Chichester, Program Director
RE: Project Guidelines and other items

Enclosed are two copies of the revised project guidelines which include general project instructions (pink) and project accounting procedures (yellow). I am also sending one copy to each project's treasurer, assistant manager (if there is one), board liaison person, and state League president.

These guidelines are very late but I hope you have all been using (and regularly referring to) the November 1977 Phase I guidelines which were sent to you on December 6, 1978 along with your start-up checks. The information contained in those guidelines is still relevant--i.e. permissible expenses, printing regulations, restriction against lobbying or action-related activities and accounting procedures. The revised guidelines attempt to clarify some of the more troublesome instructions and reflect some changes from the management of the Phase I Energy Education Program. Please note the revised reporting schedule and the different instructions regarding state League "indirect costs" (pg. 2) than were given you at the October 1978 conference in the national office. If any problems arise from the changes in the guidelines, let me know and I will work with you to solve them. It is very important that you and others involved in the project keep these guidelines handy and regularly refer to them.

Some of you adhered to the Phase I January 15 reporting deadline (for which I thank you). I have tried to contact the rest of you to request an interim report. I ask that you all follow the remaining schedule and submit the next interim report by April 30, 1979.

Please note that the grant number is not the same as last year and use the current number (EU-78-G-01-6482) on any publications or audio-visual materials that you produce for the project.

In response to your request expressed at the October training conference, we are sending you with this mailing a newsletter containing information on LWVEF and state League energy activities. The LWUS Public Relations

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ENERGY EDUCATION OUTREACH PROGRAM

NEWSLETTER

APRIL 1979

At the October Training Conference many of you told us that you felt there should be more communication between each project and the national office and between project managers. We agree that the sharing of events and information among all of us strengthens our individual efforts. This newsletter is an attempt to highlight national office plans and activities and those of the 24 state projects. In addition, we have some other bits of information which may interest you or prove useful.

AT NATIONAL

Limelight--The LWVEF's national energy education program received much attention at the National Energy Education Business and Labor Affairs Conference (January 15-18 at the Washington Hilton Hotel here in Washington). The US Department of Energy, the American Association of Community and Junior Colleges and the American Vocational Association sponsored this conference to focus attention on public energy awareness/education activities and on energy-related vocational training.

League President Ruth Hinerfeld addressed conference participants on the role of public interest groups in energy education and their skills and experience that equip them to deliver energy information to the public.

League Energy Chair Dotty Powers briefly recounted, as a part of a panel discussion, the League's involvement in energy education and described some of the activities undertaken by state Leagues. To illustrate the quality and creativity of League efforts she showed the LWV of Pennsylvania's public service announcement (PSA) featuring an Amish farmer, and demonstrated the hand puppets developed by the Montana League for its show, "Take That, You Monster!"

In the hotel exhibit hall various energy-related industries, utilities and public interest groups displayed products and disseminated information to participants. The LWVEF booth featured the publications, posters and audiovisual materials developed in the Energy Conservation Technology Education Project and in Phase I of the Energy Education Outreach Program. Ours was the only booth which displayed actual end products of energy education outreach activities. Over 1000 people flocked to the LWVEF exhibit with

many questions and favorable comments. We felt that the exposure was very beneficial public relations.

A flyer, Energy Education, tracing past LWVEF energy education efforts and detailing present activities, was developed for distribution at this DOE conference. It has proved to be a useful tool for explaining and publicizing our activities; the American Gas Association (AGA), a consortium donor, is printing 1000 copies to distribute to its members. A copy is enclosed for each of you.

In response to the many requests by League members and others to purchase energy education materials produced by the Leagues with DOE funds, Florence approached our grants officer and the legal office of DOE for a clarification of DOE's restrictions on these matters. Although the policy remains hazy, we did get a green light on sale of the Pennsylvania PSA. However, the federal government retains access to the products of the projects it funds, and may assign access to whomever it wishes. Cornelia Toole, Pennsylvania League project manager, provided the following prices and terms for the League's PSA:

Price per copy:

- 1.....\$20
- 2-9..... 17.50 ea.
- 10-15..... 16.00 ea.
- 16 or more 14.00 ea.

Orders must be prepaid. Please allow two weeks for delivery.

Order from:

LWV of Pennsylvania
Strawbridge and Clothier
8th and Market Sts., 11th Floor
Philadelphia, PA 19105
215-627-7937

Energy BRIEF #12 has been updated for 1979; a copy is attached.

Below is the schedule of staff and national energy committee visits to some of the energy projects. Time and money restrictions prevent us from seeing all of your efforts first hand; as you can see from the schedule below we often squeeze more than one visit into a trip!

Date	State	Event	Location	Assignment
Thursday, March 22	New Jersey	"The Dollar and the Energy Connection" conference	Elizabeth	Weninger and Powers
Thursday, March 22	Wyoming/Colorado	Planning meeting uranium conference (cancelled due to weather; rescheduled for April 6)	Denver	Chichester
Saturday, March 24	New Mexico	Editorial meeting for nuclear waste publication and planning meeting for conference	Las Cruces	Chichester & Beane

Site visit schedule, continued

Date	State	Event	Location	Assignment
Sunday and Monday, March 25 & 26	Texas	Film review and script discussion for nuclear waste documentary	Lubbock	Chichester & Beane
Thursday, March 29	California	Training work- shop for slide show	Sacramento	Powers
Thursday- Sunday March 29- April 1	Washington	Conference on the Seattle Emerging Interna- tional Economic Order		Powers
Friday, May 4	Florida	Workshop on energy and land use	Brevard Co.	Weninger
5/4-5	New Mexico	Nuclear Waste Conference	Las Cruces	Ellett and Beane
Tuesday- Friday, June 12-15	Wyoming/Colorado	Conference on Uranium Mining	Laramie	Powers, Ellett, Hoelscher, Martin, Knight, Weber, Chichester

Media--Included with this mailing is a copy of "PSA Pointers", written by our Public Relations (PR) Department. This brochure is for those of you with little experience in producing PSAs, particularly those project managers who are using PSAs to publicize the project, not as the major component. It should help you avoid some of the more common mistakes that occur with PSAs.

The PR department has also provided us with these little gems of information: According to a recent survey by the Associated Press, energy is among the top ten issues that radio listeners want to hear about; news of your activities should, therefore, be welcomed by radio stations. PR has also learned that listeners (and therefore programmers) prefer hearing news that contains a happening. So, plan your PSAs and news releases around events and offer League spokespersons for interviews.

Energy Education Phase III? Possibly...if DOE funds our latest proposal. Phase III proposes to allow ten state Leagues to develop factual information on utility companies in their states, to open up a dialogue between consumers and utility companies by holding regional workshops in different parts of their states and to disseminate this information in one or more publications. It is especially timely in view of the passage of the Public Utilities Regulatory Policy Act of 1978, one of the five components of the National Energy

Act. Funding sought amounts to \$270,430. We should be informed of DOE's decision by mid-May.

SUNDAY is May 3rd--The Solar Coalition tells us that, while there will be no central SUNDAY coordination this year, they do encourage local and individual activities to mark the day. Perhaps you can refresh everyone's memories of last SUNDAY by scheduling an activity for May 3, 1979.

More on Solar Energy--The Center for Renewable Resources (CRR), an outgrowth of the SUNDAY organizers, is launching a survey of model solar and energy conservation projects. Funded by a grant from the USDOE, the survey aims to identify and publicize unique programs developed by individuals and communities.

Florence is serving on CRR's steering committee for this project and agreed to inform state Leagues of the effort. The survey will cover a broad range of solar or conservation projects, including agricultural applications, educational programs, financing mechanisms and legislation. In addition, a national meeting of groups interested in solar energy will be held this summer to distribute information on the model projects. If any of you know of any interesting, innovative or informative solar or conservation projects, you may contact CRR at 1028 Connecticut Ave., NW, Washington, DC, 20036, 202-466-6880.

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WHAT'S BEEN HAPPENING IN THE STATES?

CALIFORNIA--Fifteen minute slide show on state energy alternatives produced and 25 copies made and distributed to local Leagues. Workshops to train local Leagues to use the show held March 29-30 in northern California and April 2-3 in southern California. Local League showings will begin soon.

DELAWARE--Over 135 showings thus far of the adult and student versions of the Phase I slide show, "The Energy Story," reaching 2500 people. Many more showings booked. Additional presenters trained.

FLORIDA--Five workshops with local government officials, Regional Energy Action! Committees (REACS) and local Leagues on energy and Local Government Comprehensive Plans:

3/8--Fort Meyers

4/4--Winterhaven

4/18--Pensacola

3/19--St. Petersburg

5/4--Brevard County

Because the cost burden of the workshops has been offset by the State Energy Office the project manager is developing ideas to use some grant funds to publish a citizen's guide on energy and comprehensive planning.

ILLINOIS--The League's weatherization dollhouse is completed and is being displayed at various meetings including an Energy and Home Improvement Fair in Chicago. Training sessions were conducted to teach League members to use the dollhouse for weatherization workshops. Showings of the League's Phase I slide show continue.

IOWA--Three TV PSAs on solar energy aimed at the agricultural sector are completed and will be distributed by local Leagues to TV stations around the state. Viewers are given an address to which to write for information which will be supplied by the Iowa Energy Policy Council.

KENTUCKY--The League has joined with the KY Humanities Council in developing the latter's film on coal and has helped shape a balanced presentation of the issues. Various distribution strategies are planned.

LOUISIANA--A TV PSA with a conservation theme is completed. It shows an elderly Cajun man fishing near a deserted oil rig and emphasizes the ultimate transience of non-renewable energy sources. It is now being distributed to all TV stations in the state.

MICHIGAN--First set of bus posters on display; second set goes out in April. Messages read: "Styrofoam doesn't grow on trees, paper cups do...use renewable resources," "Michigan imports 90% of its fuel--natural gas from Louisiana, oil from the Mideast, coal from Pennsylvania--build Michigan cars sold in Maine and Morocco," "If kilowatts were calories we'd all be FAT. Go on an energy diet." Each is cleverly illustrated.

MINNESOTA--Project manager is working with the Minnesota Energy Agency on various energy education projects including a Minnesota Energy Resource Directory. Working on distributing the energy quiz restaurant placemat. Two information-packed newsletters produced thus far for the regional energy resource persons and other interested parties.

MISSISSIPPI--In April energy programs were conducted for Jackson area high school students. The Youth Conference on Energy will be held June 1-3 in Long Beach. Motivated secondary school students will plan conservation campaigns for the fall.

MISSOURI--Two radio PSAs on energy standards for buildings have been given to local Leagues for distribution to about 130 radio stations around the state. The state energy office's "hot line" phone number is included in the message and that office will help respond to callers, who will be sent the LWVMO's new brochure on building energy standards. Also updating it's Phase I brochure, the Missouri Solar Use Survey, 1978.

MONTANA--Production of teacher/puppet kits took place on a large scale in a Bozeman church basement and distribution to schools is now underway. Requests for teachers' kits and showings of the large puppet set are coming in faster than the project manager can handle them but she is working to find a way to make more kits available.

NEW JERSEY--About 150 people attended "The Dollar and the Energy Connection" Conference in Elizabeth on March 22. Dotty Powers chaired a lively panel discussion of New Jersey's energy and economic interdependency.

NEW MEXICO--May 4-5, "Nuclear Waste--How Will We Manage It?" conference. \$6000 grant from the state Humanities Council is enabling the League to expand the scope and audience. The League's overview publication on nuclear wastes will make its debut at the conference.

NEW YORK--The script for the documentary on New York energy situation, written by a NY State Department of Education Bureau of Mass Communications staffer, is finished and filming has begun. Project manager is forming a committee to plan local League use of the film.

OHIO--Local Leagues working closely with teachers and students on energy education programs. Also conducting citizen's energy programs and making extensive use of audio-visual materials--some developed in Phase I.

PENNSYLVANIA--Pennsylvania Power and Light will probably fund the gift decal for children who see the League's PSA and write in. Although production of the PSA awaits final funding approval, the managers have been brainstorming with the producers (same as last year) for ideas.

SOUTH CAROLINA--Updating and improving the Phase I slide show for more showings to adult groups; publishing a one-time newspaper supplement on alternative energy sources for statewide circulation.

TEXAS--Filming and interviewing for the nuclear waste documentary completed. Drafting of script in progress. Project managers will soon begin work on integrating film footage and script.

WASHINGTON--Emerging International Economic Order Conference (League ran the energy component) was held in Seattle on March 29-April 1. Dotty Powers attended and was impressed not only by the caliber of the conference but by amount of work League manager and helpers put into the energy workshops. The conference was preceded by four League-organized local forums to discuss the issues and prepare for the conference.

WEST VIRGINIA--Regretfully the West Virginia League has withdrawn from the program.

WYOMING/COLORADO--June 13-15--Conference on Uranium Mining at Laramie. Almost all of the \$31,000 necessary for the conference has been raised from the two states' energy offices and other sources. Since several of the National Energy Committee members will be participating in the conference the whole committee will attend and hold its final meeting of the League year.

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PSA POINTERS

When it comes to public service announcements, what may sound simple on the air is never simple to produce. Any number of mistakes or oversights could keep your spot from reaching the audience you want--or even getting on the air.

To help you avoid having your psa aired just before the national anthem at sign-off time or buried in the bottom drawer of some public service director's desk, we are suggesting you ask yourself a few questions about your production. These questions outline the classic mistakes that everyone producing a public service announcement falls prey to. Remember, broadcasting stations receive hundreds of psa's that never reach the airwaves. As Voltaire said, "Common sense is not so common."

1. Have you decided who you want to reach and figured out the best method? Before deciding to do a psa, identify your audience. Often there is an assumption that by doing a psa you will reach everybody you want and more. That's not necessarily so. Public officials seldom have time to watch TV. They do read newspapers. However, women watch TV more often than men. Make sure the medium you choose reaches the audience you want.

Corollary: Are you aiming your psa at your target audience and placing it on the station most likely to reach that audience? This concept of targeting is particularly important for radio. The following results of a nationwide Associated Press preference poll on radio station program styles can help you choose your station targets.

	Total Mention	Socio-Economic Status			Sex	
		Low	Middle	High	Male	Female
MOR "Middle of the road" -						
Variety, diversified, adult, adult contemporary	30.3%	28.1%	29.5%	35.6%	29.0%	31.4%
Contemporary - Top 40, rock, soft rock, mellow	16.9%	13.9%	19.5%	15.2%	15.8%	18.0%
Country - Bluegrass, country-western	15.5%	19.7%	16.6%	6.3%	16.4%	14.8%
Beautiful music	12.5%	6.4%	13.5%	18.8%	10.8%	14.0%
AOR - "Album oriented rock," progressive, underground	4.2%	4.1%	4.8%	2.6%	5.4%	3.0%
Soul - Disco, black, R & B, jazz	3.5%	7.1%	1.7%	2.6%	3.5%	3.4%
News, all news, news and information, talk	3.0%	3.7%	1.9%	4.7%	4.1%	1.9%
Classical	2.3%	2.0%	1.3%	5.2%	2.7%	1.9%
Religious, gospel, inspirational	1.6%	2.0%	1.5%	.5%	1.5%	1.7%
Solid gold	1.0%	2.0%	.6%	.5%	.6%	1.3%
Educational, public service, public	.7%	.7%	.4%	1.6%	.8%	.6%
Ethnic	.1%	.0%	.0%	.5%	.2%	.0%
Other formats	1.1%	1.4%	1.3%	.0%	1.0%	1.1%
None, no preference	5.5%	6.1%	5.6%	4.7%	6.2%	4.9%
Don't know	3.2%	4.1%	2.9%	2.6%	3.3%	3.0%

Preferences will also vary with age of listener and size of the radio market.

(For more information contact the LWVUS P.R. department.)

2. Are you duplicating effort?

If somebody else has already done what you are planning to do, the odds are they've also sewn up the market. Make sure you are not planning a spot which the government or a utility, corporation or another public interest group has done or might be planning. In other words check around with other organizations sharing the same interests before you begin your project. The League can always do something complementary.

3. Are you choosing a reliable producer?

What you need from a producer is professionalism: deadlines met, estimates and contracts held to, quality production standards.

To find a reputable producer, talk with other organizations who have done spots and ask the stations who they think is reliable. (A station might even offer to do it for you. University communications departments are another resource.) Then talk with and review samples of several producers before you let a contract. Be clear in what you expect of a producer, and you'll get what you want in return.

4. Are you trying to say too much in a psa?

Spots are by nature short. They can only accommodate simple (or simplified) information. If your goal is to explain an issue, don't do a spot.

You can't put a Know-Your-City pamphlet in a spot. But you can say that Your Town USA is a nice place to live, or write to the League for a copy of Know Your City. Details or lists or options don't belong in a psa. But the fact that there are options does.

5. Are your spots the right length and format?

Each station has its preferences in length and format for spots. Regarding formats, some radio stations would rather have printed copy than tape. Some TV stations would prefer videotape to film. Regarding length, for example, some radio stations will use ten-second spots; others will never touch them.

If you can afford it, you will probably want to produce your spot in a variety of lengths. But to avoid waste or to know what is the most acceptable to the largest number of stations, consult your target stations beforehand.

Corollary 1: Are you meeting deadlines? Most stations have deadlines for submission of material well in advance of the airdate. If your psa is geared to an event, make sure you know the stations' deadlines and have it in their hands in plenty of time. Two weeks is standard.

Corollary 2: Are you releasing your spots at the best time of year? Some times of the year are harder to get psa's on the air than others, since most psa's are used to fill unsold commercial time. In fall, not only are the new season TV shows almost completely sold to commercial advertisers, but any unsold time is likely to be used for station or network program promotion.

6. Are you asking the right people the right questions?

If you contact the wrong person about your psa's, you're undercutting your credibility with both the person you bother and the person you should have contacted. Find out the name and title of the person responsible for psa's at each station before you call for information or send your spots. A receptionist, secretary or switchboard operator

will be glad to tell you who that person is. The person in charge of psa's doesn't need your spot, but you need that person's good will in order to get your spot on the air. If you don't bother to care who he or she is or what the station prefers in quality, format, length and style, you can expect your psa to be treated with equal nonchalance (and maybe disdain).

Secondly, if you start asking the wrong person for information or address your psa to the wrong person, you are wasting time (and implying you don't know or care what he or she really does). You will be less welcome when you really need to talk to that person about his or her responsibilities.

7. Does the psa style suit the station?

Most stations--particularly radio stations--have a style geared to their audience. If your production does not meet that style (all news, easy listening, rock, soul, etc.), it is less likely to be used, and it certainly won't get on at prime time or drive time. Once you decide who you want to reach, you can tailor your spot to the stations which serve that audience.

Corollary: Be prepared for competition. Your psa should also match the quality of its neighbors. If you expect a station to air it during prime time (for example, a commercial break in "All in the Family") or drive time (the six o'clock radio news), it should be as technically superior and artistically clever as a commercial spot or one of the national psa's. Remember a station receives far more psa's than it can use. Yours has to be as good or better than the rest.

8. Does your narrator's voice convey the image you want for the League?

Listen to a few audition tapes before you choose your narrator. Remember, the narrator's voice will give your audience a mental image of the League. Does he or she sound appealing and convincing? As far as possible, the voice on your spot should also correspond to the sound of the station you target.

9. Be on target.

All things being equal (quality, length, style, format), a local psa has more appeal to a station than a general one. A localized psa refers to a specific community situation, service, or event or reflects some quality of the region. Since a station is required to serve the community of license and must report to the FCC what proportion of its psa's are local, it is to your benefit to localize the spot in some way.

10. Use appropriate language.

Eliminate bureaucratic or vague language in producing your psa. People don't talk like the Encyclopedia Britannica, and your spot shouldn't either. We are accustomed to hearing single syllable words and simple declarative sentences. By the time a listener gets to the end of a sentence in passive voice with a participial phrase or two, the listener won't remember the subject or the verb, much less the adjectives. Write your copy for the ear, not the eye, and read Edwin Newman's Strictly Speaking and A Civil Tongue before you write anything.

11. Don't talk down to your audience.

There is a fine line between ingenuity and cuteness. Even the multi-million dollar ad campaigns for commercial products frequently antagonize their audience. It takes

a lot of skill to use humor in a spot and still imply respect for your audience's intelligence. Beware of the humor or gimmick that might be interpreted by your audience as condescension.

12. Be on hand during production.

If you are not involved in the production of the psa from start to finish, you could end up making expensive alterations in the finished product. Be involved in approving the script, the shooting sites, the talent, the music, the credits, etc. Then be there for the actual shooting and editing.

Decide ahead who among your board will need to be involved too. Post production changes could increase your costs by 50%. What if the narrator mispronounces something? Or the board doesn't like something, once its on film or tape? Avoid having to find out.

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March 1979

League of Women Voters Education Fund

1730 M Street, N.W.

Washington, D.C. 20036



Revised March 1979

Project Guidelines for the
League of Women Voters Education Fund
Energy Education Outreach Program
Funded By a Grant From the U.S. Department of Energy
Grant #EU-78-G-01-6482

These guidelines are a revised version of the November 1977 project guidelines developed for the Phase I LWVEF energy education project managers. Each project's manager and treasurer, and anyone else involved with running the project, should read these detailed instructions, keep them and regularly refer to them during the course of the project. Please do not simply read them once and put them away. It is particularly important that the persons handling the project money be very familiar with the financial instructions.

I. GENERAL INSTRUCTIONS

A. THE LEAGUE AND THE PROJECT MANAGER

Energy grant funds are awarded to state Leagues to enable them to conduct energy education outreach projects. The recipient League appoints a project manager to administer the project. The project manager assumes the duties and responsibilities of the project, either by performing tasks herself or by coordinating the work of others, and reports to her League board. The LWVEF, in general, communicates directly with the project manager once the project has begun, but also sends copies of written communications to the League president. It is the joint responsibility, however, of the League board and the project manager to keep in close communication with each other and to be sure the administration of the grant follows League policy and the approved design of the project. The LWVEF requests that a board member be appointed as liaison with the project but that the project manager not be a board member who, in her board capacity, may be required to lobby or take other action on various issues while the project is being conducted. Some Leagues have established their own general policy for conducting pass-through grant projects and the LWVEF, indeed, suggests that all Leagues will want to do so.

Restriction Against Action

Caution: GRANT MONIES MUST BE USED FOR EDUCATIONAL PURPOSES ONLY! Grant funds may not be used for any legislative action--neither for lobbying or urging support for or against a particular legislative program or bill nor for reaching positions upon which such action will be based (that is, not for a consensus meeting)! This caveat is very important. All persons working on the energy education project must understand the distinction between local, state or national action-oriented activities and educational activities funded by tax-deductible contributions or government or other grants. All grant-funded materials (publications, flyers, slide shows, films, etc) must reflect this distinction.

Stipends

To compensate the project manager in a small measure for the duties and responsibilities she or he undertakes, it is permissible for the League to pay a stipend of up to 10% of the total state League grant. This stipend is to be provided for in the project budget. It should be a line item and deducted from the total grant. We suggest that the stipend be paid to the manager in two parts, evenly spaced through the period of the project. If the League wants to provide a compensatory stipend for a co- or assistant manager and/or a project treasurer, this, too, is permitted and should be specified in the project budget. The total amount of stipends (including the one for the project manager) should be no greater than 15 to 20% of the full grant.

State League "Indirect Costs"

In administering a project, sponsoring Leagues usually incur what are called "indirect costs". These costs represent a whole group of expenses which cover a variety of operations and programs carried out by the state League as an established and on-going organization. When the state League conducts a project under an LWVEF program, part of the operations, and therefore their costs, are devoted to the development and execution of the project. The current policy is that in order to establish an approved, fixed indirect cost rate for a project budget funded by federal money, the indirect cost rate for each League would have to be negotiated with the federal government.

To avoid this costly and time-consuming process at this time, the LWVEF recommends that the state treasurer, project treasurer, and project manager together determine a proportionate share of actual League costs attributable to the energy project and list the share of each of those costs as direct expenses. For example, a proportionate share of the actual rent, utility costs, and equipment rental, as well as a share of the total costs of a board or committee meeting which can be estimated as having been devoted to project purposes may be listed as direct costs.

Once the actual share of costs has been determined, the state treasurer should list those costs in a statement on League stationery, date and sign it, and submit it to the project treasurer for payment. That statement then becomes support documentation for those expenses. To resolve any difficulties caused by this change in procedure from that described in the October workshop, the individual project managers should consult the LWVEF project director.

E. REPORTS--January 15, April 30, July 2, August 17

Interim reports on local or state League project activities are due in the LWVEF office on January 15 and April 15, 1979. Friday, June 1st is the suggested completion date for all projects and the Leagues' final project reports are due in the national office on July 2. If a project manager foresees difficulty in meeting any of the reporting deadlines, particularly for the final report, she should contact the LWVEF project director as soon as possible. IT IS IMPORTANT THAT LEAGUES MEET THESE DEADLINES SO THAT THE LWVEF REPORTING COMMITMENTS TO DOE CAN BE FULFILLED.

Interim reports should include: 1) a brief description of the activities the League has carried out during the reporting period; 2) an outline of upcoming

activities; 3) an assessment of the project's effectiveness to date, including data on the numbers of people reached; and 4) a brief statement about the use of the project funds, i.e., whether the budget projections were accurate and expenditures to date. (See also the Accounting Procedures for submission of vouchers.) Project managers should also submit samples of media coverage and other information produced for or pertinent to the project. (See section on Printed and Visual Materials.)

The final report, due July 2nd, should include an overall description and evaluation of the project. Possible methods of evaluating a project were discussed at the Project Conference in October 1978 and, as you will recall, all projects were requested to include an evaluation plan as part of the final proposal. As soon as possible following the project's completion, but no later than August 17, 1979, the project manager and treasurer must submit to the LWVEF a final financial report on the use of the project funds. At that time, or as soon as possible thereafter, the treasurer should also submit all bank statements and all cancelled checks. If project funds are kept in the League account and the League needs to retain the statements and checks, it may do so but the president and state treasurer should keep them accessible for about three years in case any problems arise or they are required for a federal audit of the project. Do not send the LWVEF the check register booklet, unused checks or any other materials from the account unless the LWVEF requests them.

C. USE OF PROJECT FUNDS--WHAT IS ALLOWABLE?

As mentioned on the first page of these guidelines, the most important restriction on grant funds is that they may not be used for any form of legislative action nor for any part of a process leading to such action. In general, all reasonable costs for carrying out the grant activities are allowed, including the following: office space and telephone, necessary equipment rental, supplies, postage, printing and duplicating (except as described below), project-related travel, conference and meeting expenses, and personnel expenses (such as manager's stipend, secretarial and other necessary contractual services, and speakers fees). Project travel should be by coach or economy class, if available, and, whenever possible, two persons should share a double room rather than each having a single (unless they pay the difference themselves). Neither room service, costs of personal business nor alcoholic beverages may be charged to the grant.

Prizes

Contests, such as school poster contests, and prize awards can be good "attention getters" but prizes are considered gifts by the federal government and are not allowed as grant expenditures. Leagues have, however, been very successful in getting individuals or businesses to donate interesting prizes or the money to purchase them.

Printed and Visual Materials

Before printing any publication with grant funds, send the LWVEF project Director a copy for review. THE LWVEF MUST REVIEW ALL DRAFT PUBLICATIONS PRIOR TO PRINTING--first the detailed outline or first rough draft and later the final draft. The LWVEF must also review draft slide-tape show scripts, agendas for public meetings, and information on talks or speeches. Project Managers will

E. ADDITIONAL CONTACTS AND OUTSIDE FUNDS

A League project can often be enhanced and its audience increased by cooperation or cosponsorship with other organizations. This establishes a larger communications network and greater resources upon which to draw for carrying out the project. In working with others, however, the League must be very sure not to lose sight of project goals and purposes.

Many Leagues have also been quite successful at obtaining additional local or state contributions to help support their education efforts. Many of the energy-related industries and utilities that contributed to the LWVEF energy education program are viable sources to fund state efforts. It is advisable, however, to check with the LWVUS Development Office for any helpful information before making contact.

Leagues do not need to inform LWVEF on how outside contributions are spent (unless they come through the LWVEF, see next paragraph), but should let us know about any additional sources of funding. Outside funding should be used to complement grant funds, not in lieu of them, because DOE requires that the LWVEF return unspent or unobligated grant funds at the end of the project. This means, therefore, that, where appropriate, Leagues should use DOE money, which has a deadline, before those outside funds which do not have a date by which they must be spent. A separate bank account for outside funds is not required but project treasurers are encouraged to budget non-LWVEF funds individually and must keep separate records of expenditures.

If a League does receive contributions and the donor wishes the money to be tax-deductible, remember that unless the League has set up its own 501(c)3 organization, the money should be made payable to the LWVEF and forwarded to the LWVEF Office of State and Local Grants to be earmarked for that League's project. A League that wishes local or state contributions to be thus administered by the LWVEF must then apply to the LWVEF (through the Office of State and Local Grants) for approval of its project and for receipt of the exact amount of funds to be used for that project. Be sure to note that the contributions are being used to complement an approved LWVEF pass-through grant project. The LWVEF publication, The Way to Go: How to Use the LWVEF to Raise Tax-Deductible Money to Fund State and Local League Projects, publication #348 (30c), describes the procedures to be followed and may be obtained from the LWVUS. Felice Sorett, Director of the LWVEF Office of State and Local Grants, can provide additional information and application forms.

II. FINANCIAL INSTRUCTIONS

Because the LWVEF is accountable to DOE for the use of the grant funds, Leagues must account to the LWVEF for all expenditures of pass-through grants. The basic accounting procedures established under Phase I still apply; we have tried, however, to clarify the procedures and requirements to avoid some of the problems that arose in Phase I.

A. FUNDING, BANK ACCOUNTS, FINANCIAL RECORDS

Each state League selected to receive an LWVEF energy education grant received one-half of its funding with the December 6, 1973 memo giving the final national energy committee approval of and comments on its project. An advance of the remaining half will be sent upon request when the League has expended and accounted for most of its first advance. Advances are sent to the state League treasurer for processing through the state League. The state treasurer then passes the funds on to the responsible project person--either the designated project treasurer (who in some cases may be the state League treasurer) or the project manager.

The LWVEF suggests but does not require that a separate bank account be opened for the project to avoid intermingling grant funds with other League operations. A League's treasurer may serve as project treasurer but because project terms and Board terms do not necessarily coincide, the League's treasurer may change during the period of the project and some confusion arise. If a state treasurer can manage the grant funds along with the other League duties and separately keep track of grant funds within a League account, then the LWVEF will not object.

The treasurer may establish her own bookkeeping system, but she should keep track of expenses according to the line items listed on the project budget. If more money is needed for one item and less for another, adjustments in the budget may be made. The budget submitted with the project proposal serves as a guide only; expenses are not restricted to the amounts budgeted for each line item. The LWVEF Project Director should be notified, though, if transfers of more than about \$100 between line items are made.

Project Income

Any income received in the course of conducting DOE-funded grant activities (e.g., registration fees for workshops or sale of publications produced under the grant) must either be spent for the project or returned to DOE as part of any unspent federal funds remaining at the end of the project. The treasurer should keep a separate record of such income and provide a statement of how it was spent.

B. ACCOUNTING

Vouchers

1. A project treasurer accounts for money advanced to the League by reporting all expenditures of grant funds on LWVEF expense vouchers, a number of which have been sent to each project treasurer. Receipts (or bills or official statements) for every expenditure of \$5.00 and over claimed on a voucher must be attached to that voucher (see section on receipts).

2. Vouchers are required in order that the project manager or anyone else associated with the project may be reimbursed for expenses incurred on behalf of the project. They are also required in order to document the use of funds that may have been advanced by the project manager to persons working on the project or that may have been passed-through to local Leagues. Expense vouchers must also be completed for purchases that are billed directly to the project or payments made directly by the project manager or treasurer.
3. Each pre-printed voucher consists of an original and four self-carboning duplicates. The copies should be handled as follows:
 - yellow copy--retained by person who requests reimbursement;
 - green copy--corrected, if necessary, and returned by the treasurer with reimbursement check to the person who submitted voucher (or in cases of local League pass-through, a local manager may keep this copy for her files);
 - Blue copy--retained by state project treasurer for her records;
 - white and pink copies--mailed to the LWVEF project director, with receipts attached.
4. Each person who requests reimbursement should complete a separate voucher; that person's expenditures, however, can be grouped together on one voucher (i.e., all of one person's travel expenses) Any direct payments made by the manager/treasurer can also be grouped together as much as seems practicable on one voucher. This will reduce the amount of paperwork for the treasurer and the LWVEF.
5. Once the person requesting reimbursement submits the voucher (minus the yellow copy retained for her records), the treasurer should check it over to be sure it is complete and accurate and discuss any problems with the reimbursee. Necessary corrections should then be made on all copies so that the green copy returned to the reimbursee will reflect any changes. All required receipts or bills must be attached to each voucher.
6. Before each voucher is paid or sent to the LWVEF, the project treasurer should number it consecutively in the space provided in the lower left corner of the voucher. This will enable the treasurer and the LWVEF to keep track of every voucher. (This numbering system is not to be confused with any method a project treasurer and a local project manager may develop for keeping track of a local League's vouchers. See section on Local League Pass-through below.) It does not matter if one voucher dated after another is received in the LWVEF office before it, just that each is numbered consecutively when it is sent to the LWVEF.
7. Once the amount accounted for by the voucher is subtracted from the total current LWVEF advance to the project, the amount of the remaining advance should be entered under "balance of advance(s) remaining" in the lower left corner of the voucher.
8. Vouchers should be submitted in groups when several have accumulated or when the next advance is needed. A treasurer should not let too many pile up before sending them in.

Receipts and Bills

To meet federal accounting requirements, the LWVEF needs substantiation for all expenditures. The federal government generally will not accept photocopies of bills. The LWVEF Accounting Department will not process vouchers that do not have the appropriate receipts attached. It will not accept credit card receipts or bills that are not itemized. THUS WE MUST ASK THAT THE TREASURER GET AN ORIGINAL RECEIPT FOR EVERY EXPENSE OF \$5.00 OR MORE AND THAT SHE ATTACH ALL RECEIPTS TO THE APPROPRIATE EXPENSE VOUCHERS. Keep original airplane, train or bus tickets, parking stubs and hotel bills. If private motor vehicles are used, 17¢ for each mile travelled can be reimbursed. A record of the total mileage and the origin/destination must be kept and reported on the voucher. A printing or duplicating bill must be kept and a sample of the material that was printed attached to it. Receipts for stamps (over \$5) must be obtained from the Post Office. When phone calls are charged to the project, the treasurer must submit the original phone bill or a copy of the bill if the original is not available, and circle the calls that are charged to the project. If telephone tax is computed and included please indicate the percentage and the actual amount.

THE IMPORTANCE OF KEEPING ORIGINAL RECEIPTS FOR ALL EXPENDITURES CANNOT BE OVEREMPHASIZED. Government agencies frequently audit projects after they have been completed. Therefore, the LWVEF must keep all receipts (bills, statements, etc.) as part of the supporting documents to substantiate project expenditures. This means that a League may be liable for money spent which cannot be substantiated with receipts that prove the expense was incurred in accordance with project requirements and is allowable by the government agency. The date, amount and item or service should be clearly stated on each receipt.

Unlike businesses, individuals performing services for the project are not likely to provide a bill to substantiate that the work was actually performed. This situation is most apt to arise when the project hires someone to do secretarial work. In such an instance the League should prepare a bill on behalf of the person performing the work. A treasurer may either prepare a bill each time one is needed or may adopt a standard billing form. Each bill should be typed on League letterhead and should contain the following information: the name of the person who performed the service, the service performed, the hourly rate and number of hours worked if the person is paid by the hour, the total amount owed, the signature of the person who performed the work and the signature of the project manager or treasurer. At the time that the project is charged for the service this bill should be handled like any other bill. In other words, the expense must be reported on an expense voucher and the bill attached to the voucher. A sample statement to be made up by the treasurer for services that do not have formal receipts is included at the end of these instructions. If you purchase a receipt book for these types of expenditures the amount on the receipt must be itemized in detail.

C. LOCAL LEAGUE PASS-THROUGH

Some projects involve passing smaller grants through to local Leagues. Each local League must follow the above procedures when accounting for its grant funds. Therefore, the project manager must provide the accounting instructions and a set of vouchers to the person in the local League who will handle the money. (Additional guidelines and vouchers may be obtained from the LWVEF

project director.) The local treasurer should then complete vouchers for all project expenditures and give a voucher to each person who requests reimbursement from the project. Advances to individuals or local Leagues should be listed as such and should not be recorded in the project books as expenditures until the money is properly accounted for.

The local Manager should check that all vouchers are properly completed with all required receipts attached, sign the voucher in the lower left corner and send the blue, pink and white copies to the state League project manager or treasurer. The state League project treasurer then checks the vouchers for receipts and for accuracy, consecutively numbers each voucher, enters the amount of the voucher into her own bookkeeping system, records the remaining amount of the state League advance in the space at the bottom of the voucher, and forwards the pink and white copies of all paid vouchers to the LWVEF project director.

SAMPLE

League of Women Voters of (state)
Energy Education Project
0000 Main Street
City, State

STATEMENT OF SERVICES

(date(s) service performed)

Service: _____
(describe)

Performed by: Name _____

Address _____

For: League of Women Voters of (state) Energy Education Project

Number of Hours (if applicable): _____

Rate of Pay: (if applicable): _____

Total Payment: _____

Received by: _____
(payee's signature)

Date: _____

Authorized by: _____
LWV of (state) Energy Education Project

Project manager/treasurer

Revised March 1979

Project Guidelines for the
League of Women Voters Education Fund
Energy Education Outreach Program
Funded By a Grant From the U.S. Department of Energy
Grant #EU-78-G-01-6482

These guidelines are a revised version of the November 1977 project guidelines developed for the Phase I LWVEF energy education project managers. Each project's manager and treasurer, and anyone else involved with running the project, should read these detailed instructions, keep them and regularly refer to them during the course of the project. Please do not simply read them once and put them away. It is particularly important that the persons handling the project money be very familiar with the financial instructions.

I. GENERAL INSTRUCTIONS

A. THE LEAGUE AND THE PROJECT MANAGER

Energy grant funds are awarded to state Leagues to enable them to conduct energy education outreach projects. The recipient League appoints a project manager to administer the project. The project manager assumes the duties and responsibilities of the project, either by performing tasks herself or by coordinating the work of others, and reports to her League board. The LWVEF, in general, communicates directly with the project manager once the project has begun, but also sends copies of written communications to the League president. It is the joint responsibility, however, of the League board and the project manager to keep in close communication with each other and to be sure the administration of the grant follows League policy and the approved design of the project. The LWVEF requests that a board member be appointed as liaison with the project but that the project manager not be a board member who, in her board capacity, may be required to lobby or take other action on various issues while the project is being conducted. Some Leagues have established their own general policy for conducting pass-through grant projects and the LWVEF, indeed, suggests that all Leagues will want to do so.

Restriction Against Action

Caution: GRANT MONIES MUST BE USED FOR EDUCATIONAL PURPOSES ONLY! Grant funds may not be used for any legislative action--neither for lobbying or urging support for or against a particular legislative program or bill nor for reaching positions upon which such action will be based (that is, not for a consensus meeting)! This caveat is very important. All persons working on the energy education project must understand the distinction between local, state or national action-oriented activities and educational activities funded by tax-deductible contributions or government or other grants. All grant-funded materials (publications, flyers, slide shows, films, etc) must reflect this distinction.

Stipends

To compensate the project manager in a small measure for the duties and responsibilities she or he undertakes, it is permissible for the League to pay a stipend of up to 10% of the total state League grant. This stipend is to be provided for in the project budget. It should be a line item and deducted from the total grant. We suggest that the stipend be paid to the manager in two parts, evenly spaced through the period of the project. If the League wants to provide a compensatory stipend for a co- or assistant manager and/or a project treasurer, this, too, is permitted and should be specified in the project budget. The total amount of stipends (including the one for the project manager) should be no greater than 15 to 20% of the full grant.

State League "Indirect Costs"

In administering a project, sponsoring Leagues usually incur what are called "indirect costs". These costs represent a whole group of expenses which cover a variety of operations and programs carried out by the state League as an established and on-going organization. When the state League conducts a project under an LWVEF program, part of the operations, and therefore their costs, are devoted to the development and execution of the project. The current policy is that in order to establish an approved, fixed indirect cost rate for a project budget funded by federal money, the indirect cost rate for each League would have to be negotiated with the federal government.

To avoid this costly and time-consuming process at this time, the LWVEF recommends that the state treasurer, project treasurer, and project manager together determine a proportionate share of actual League costs attributable to the energy project and list the share of each of those costs as direct expenses. For example, a proportionate share of the actual rent, utility costs, and equipment rental, as well as a share of the total costs of a board or committee meeting which can be estimated as having been devoted to project purposes may be listed as direct costs.

Once the actual share of costs has been determined, the state treasurer should list those costs in a statement on League stationery, date and sign it, and submit it to the project treasurer for payment. That statement then becomes support documentation for those expenses. To resolve any difficulties caused by this change in procedure from that described in the October workshop, the individual project managers should consult the LWVEF project director.

E. REPORTS--January 15, April 30, July 2, August 17

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Interim reports should include: 1) a brief description of the activities the League has carried out during the reporting period; 2) an outline of upcoming

receive LWVEF comments usually about two weeks after receipt of a draft (any special deadlines should be noted). Any publication and/or slide-tape show should be visibly identified as a publication of the project League. Various LWVEF publications can provide examples of most appropriate space and emphasis for the League identification. If a League is doing a slide show, the LWVEF strongly advises the project manager to refer to "Projecting Your Image", one of a series of five LWVUS public relations factsheets (see section on Public Relations).

Credit to the LWVEF and the DOE should appear on all material produced with federal grant funds. The following wording is recommended: *This publication/film/slide show has been financed in part/entirely with funds from the League of Women Voters Education Fund and the US Department of Energy (USDOE) under grant #EU-78-G-01-6482. The contents do not necessarily reflect the views and policies of the USDOE.*

Restriction on Number of Copies

Government regulations place a maximum limit on the number of copies of a publication that may be printed without becoming subject to government printing requirements. To avoid these requirements, a League may not print more than 5,000 copies of any single page and the number of pages in the publications multiplied by the number of copies of the publication cannot exceed 25,000 pages. (A page is one side of a sheet of paper, 8x10½ inches.)

For example, a League may print 4,000 copies of a six-page publication because there will be only 4,000 copies of any one page and a total of 24,000 printed pages (4,000 copies x 6 pages). However, a League may not print 4,000 copies of an eight-page publication since this would result in a total of 32,000 printed pages (4,000 copies x 8 pages) thus exceeding the 25,000 printed page limit. Similarly, a League may not print 6,000 (or more) copies of any publication regardless of its length since that would exceed the 5,000 copy per page limit. Please send the LWVEF ten copies of any publication produced with federal grant funds.

D. PUBLIC RELATIONS

The public relations component of a project (an allowable expense) will, of course, vary but good publicity is a very important tool in public education and should be built into each project to some degree, again depending on the activity and the budget. The LWVEF recommends that a League's public relations person or another person with such skills be included in the project's planning committee. At the October training conference, each project manager received a set of five LWVUS factsheets on various ways of imparting information to the public (slide shows, the broadcast media, etc.). The LWVEF project director can provide a limited quantity of additional factsheets if any project manager would like more. As mentioned under Reports, the LWVEF requests that project managers submit samples of press releases and any publicity the project receives.

E. ADDITIONAL CONTACTS AND OUTSIDE FUNDS

A League project can often be enhanced and its audience increased by cooperation or cosponsorship with other organizations. This establishes a larger communications network and greater resources upon which to draw for carrying out the project. In working with others, however, the League must be very sure not to lose sight of project goals and purposes.

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B. ACCOUNTING

Vouchers

1. A project treasurer accounts for money advanced to the League by reporting all expenditures of grant funds on LWVEF expense vouchers, a number of which have been sent to each project treasurer. Receipts (or bills or official statements) for every expenditure of \$5.00 and over claimed on a voucher must be attached to that voucher (see section on receipts).

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3. Each pre-printed voucher consists of an original and four self-carboning duplicates. The copies should be handled as follows:

- yellow copy--retained by person who requests reimbursement;
- green copy--corrected, if necessary, and returned by the treasurer with reimbursement check to the person who submitted voucher (or in cases of local League pass-through, a local manager may keep this copy for her files);
- blue copy--retained by state project treasurer for her records;
- white and pink copies--mailed to the LWVEF project director, with receipts attached.

4. Each person who requests reimbursement should complete a separate voucher; that person's expenditures, however, can be grouped together on one voucher (i.e., all of one person's travel expenses). Any direct payments made by the manager/treasurer can also be grouped together as much as seems practicable on one voucher. This will reduce the amount of paperwork for the treasurer and the LWVEF.

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To meet federal accounting requirements, the LWVEF needs substantiation for all expenditures. The federal government generally will not accept photocopies of bills. The LWVEF Accounting Department will not process vouchers that do not have the appropriate receipts attached. It will not accept credit card receipts or bills that are not itemized. THUS WE MUST ASK THAT THE TREASURER GET AN ORIGINAL RECEIPT FOR EVERY EXPENSE OF \$5.00 OR MORE AND THAT SHE ATTACH ALL RECEIPTS TO THE APPROPRIATE EXPENSE VOUCHERS. Keep original airplane, train or bus tickets, parking stubs and hotel bills. If private motor vehicles are used, 17¢ for each mile travelled can be reimbursed. A record of the total mileage and the origin/destination must be kept and reported on the voucher. A printing or duplicating bill must be kept and a sample of the material that was printed attached to it. Receipts for stamps (over \$5) must be obtained from the Post Office. When phone calls are charged to the project, the treasurer must submit the original phone bill or a copy of the bill if the original is not available, and circle the calls that are charged to the project. If telephone tax is computed and included please indicate the percentage and the actual amount.

THE IMPORTANCE OF KEEPING ORIGINAL RECEIPTS FOR ALL EXPENDITURES CANNOT BE OVEREMPHASIZED. Government agencies frequently audit projects after they have been completed. Therefore, the LWVEF must keep all receipts (bills, statements, etc.) as part of the supporting documents to substantiate project expenditures. This means that a League may be liable for money spent which cannot be substantiated with receipts that prove the expense was incurred in accordance with project requirements and is allowable by the government agency. The date, amount and item or service should be clearly stated on each receipt.

Unlike businesses, individuals performing services for the project are not likely to provide a bill to substantiate that the work was actually performed. This situation is most apt to arise when the project hires someone to do secretarial work. In such an instance the League should prepare a bill on behalf of the person performing the work. A treasurer may either prepare a bill each time one is needed or may adopt a standard billing form. Each bill should be typed on League letterhead and should contain the following information: the name of the person who performed the service, the service performed, the hourly rate and number of hours worked if the person is paid by the hour, the total amount owed, the signature of the person who performed the work and the signature of the project manager or treasurer. At the time that the project is charged for the service this bill should be handled like any other bill. In other words, the expense must be reported on an expense voucher and the bill attached to the voucher. A sample statement to be made up by the treasurer for services that do not have formal receipts is included at the end of these instructions. If you purchase a receipt book for these types of expenditures the amount on the receipt must be itemized in detail.

C. LOCAL LEAGUE PASS-THROUGH

Some projects involve passing smaller grants through to local Leagues. Each local League must follow the above procedures when accounting for its grant funds. Therefore, the project manager must provide the accounting instructions and a set of vouchers to the person in the local League who will handle the money. (Additional guidelines and vouchers may be obtained from the LWVEF

project director.) The local treasurer should then complete vouchers for all project expenditures and give a voucher to each person who requests reimbursement from the project. Advances to individuals or local Leagues should be listed as such and should not be recorded in the project books as expenditures until the money is properly accounted for.

The local Manager should check that all vouchers are properly completed with all required receipts attached, sign the voucher in the lower left corner and send the blue, pink and white copies to the state League project manager or treasurer. The state League project treasurer then checks the vouchers for receipts and for accuracy, consecutively numbers each voucher, enters the amount of the voucher into her own bookkeeping system, records the remaining amount of the state League advance in the space at the bottom of the voucher, and forwards the pink and white copies of all paid vouchers to the LWEP project director.

SAMPLE

League of Women Voters of (state)

Energy Education Project

0000 Main Street

City, State

STATEMENT OF SERVICES

(date(s) service performed)

Service: _____
(describe)

Performed by: Name _____

Address _____

For: League of Women Voters of (state) Energy Education Project

Number of Hours (if applicable): _____

Rate of Pay: (if applicable): _____

Total Payment: _____

Received by: _____ Date: _____

(payee's signature)

Authorized by: _____ Project manager/treasurer

LW of (state) Energy Education Project

League of Women Voters
Education Fund
1730 M STREET, N.W., WASHINGTON, D. C. 20036

March 6, 1979

Ethel Sturgis, Treasurer
LWV of Texas
3613 Wooten Dr.
Fort Worth, TX 76133

Dear Ethel:

Enclosed is a check for \$2,000, the final advance to the LWV of Texas for the Energy Education Outreach Project. Pat Bruno, the project manager, urgently requested the final advance in a phone conversation I had with her earlier this week. Please process the check through your books and send the funds on to Pat Bruno as soon as you possibly can. Pat impressed upon me the need to have the funds quickly and I ask you to do what you can to expedite the matter.

Thank you.

Sincerely,

Florence Chichester
Director
Energy Education Outreach Program

enclosure

cc: P. Bruno
Pres, LWVTX



League of Women Voters
Education Fund
1730 M STREET, N.W., WASHINGTON, D. C. 20036

March 9, 1979

Linda Archer, Treasurer
LWVTX Energy Education Project
Rt. 4, Box 16257
Subbock, TX 79413

Dear Ms. Archer:

As the administrative assistant for the LWVEF Energy Education Program I check the vouchers received from state League projects for accuracy and correct documentation of expenses. I can sympathize with your problem of educating Pat Bruno and Pat Nickell to ~~keep~~ track of and retain receipts for their project expenses. However, it is necessary that expenses be documented according to the accounting procedures guidelines (November 1977), sent to Pat Bruno in the project start-up mailing of December 6, 1978 (copy enclosed). Please supply original receipts for all expenses of \$5.00 or more, except automobile mileage. If receipts are unavailable, or several small expenses ~~accumulate~~, then an itemization of the expenses, on official stationery, dated, signed by the payee and authorized by you or the project manager, is acceptable. LWVTX vouchers 1-10a are ~~exempted~~ from the standards outlined above b since they have already been submitted to the LWVEF.

In the batch of vouchers I received from you there were no vouchers numbered 6 or 9 and two that were numbered 10. Please advise me of the whereabouts of 6 and 9, if any. To distinguish between the two number 10s I changed the one for \$206.55 to "10a".

I am returning the green and yellow copies of vouchers 10 and 10a; they were still attached to the LWVEF copies, the pink and white. The payee should retain the yellow copy; the green is for the state LWV project records (see Nov. 1977 guidelines enclosed). Thank you for your assistance in clearing up these matters. If I can assist you please feel free to contact me.

Sincerely yours,

Ann Weninger, Assistant
Energy Education Program

enclosure

cc: P. Bruno
Pres., LWVTX



Final Report
Nuclear Waste Documentary
LWV Energy Project ; Phase II

		1	2	3	
		DOE accounting	Exxon accounting	Total project	
1	Income:				1
2	Department of Energy	400000			2
3	Exxon	150000	150000	550000	3
4					4
5					5
6	Expenditures:				6
7	Stipend	55000		55000	7
8	Travel	136152	81203	217355	8
9	Station expenses	110000		110000	9
10	Postage	186		186	10
11	Xerox	742		742	11
12	Telephone	12336	4181	16517	12
13	Supplies	3138		3138	13
14	Tapes	2651		2651	14
15					15
16		320205	85384	405589	16
17					17
18	Balance given to Wanda Walser	79795	64616	144411	18
19	as agreed by F. Chichester				19
20	for writing and production	- 0 -	- 0 -	- 0 -	20
21					21
22					22
23					23
24					24
25					25
26					26
27					27
28					28
29					29
30					30
31					31
32					32
33					33
34					34
35					35
36					36
37					37
38					38
39					39
40					40

		Voucher CR		Cash		
		No	No	Dr	Cr	
1978						
Dec	15	Deposit - advance from LLOYD-TEF		60000		1
	15	KLBK-TV			30000	2 300.00
	15	Pat Nickell - advance for Denver			20000	3 200.00
	19	Deposit - DOE money through LLOYD-TEF		140000		4 1400.00
	19	Patricia Bruno			27500	5 275.00
	19	Pat Nickell			36033	6 360.33
	19	Betty Anderson			1470	7 14.70
	19	Pat Nickell			5039	8 50.39
	19	Patricia Bruno VOID			53580	9 535.80
	19	Patricia Bruno			20000	10 200.00
1979						11
Jan	5	Patricia Bruno			30500	12 305.00
	5	Pat L Nickell			20655	13 206.55
	5	Pat L Nickell			6923	14 69.23
Feb	9	Pat L Nickell		E1	2537	15 25.37
	9	Patricia Bruno		E2	11203	16 112.03
	9	The Denver Hilton Voucher 11 skipped				17
	9	The Denver Hilton		12	5983	18 59.83
	9	Patricia Bruno		13	27500	19 275.00
	9	KLBK-TV		14	20000	20 200.00
	9	Deposit - Exxon Money		150000		21 1500.00
	10	Pat Bruno		15	8815	22 88.15
	10	Patricia Bruno		E3	2200	23 22.00
	10	Pat L Nickell		16	7114	24 71.14
	24	KLBK-TV		17	20000	25 200.00
	24	Pat L Nickell - advance for Austin		21	35000	26 350.00
Mar	5	Victor Palit		E4	5543	27 55.43
	5	Patricia Bruno pl 50.00 payable 218.65		E5	21865	28 218.65
	14	Deposit - DOE money - be		200000		29 2000.00
	14	Patricia Bruno - balance of voucher E5		24	21865	30 218.65
	19			18	3940	31 39.40
Apr	27	KLBK		19	20000	32 200.00
Aug	17	Video Systems Inc		20	2651	33 26.51
Oct	16	Pat Nickell		E6	2036	34 20.36
	16	Linda Archer		21	186	35 1.86
	18	Pat Nickell		22	5896	36 58.96
				550000		37 5500.00
Oct	18	Wanda Walser		23	79795	38 797.95
	18	Wanda Walser		E7	64616	39 646.16
					405587	40 4055.87
					550000	

	3	4	5	6	7	8	9	10
	Cash from DOE	Cash from Emen	stipend	travel	station expenses	state overhead	miscellaneous	
1	600.00							1
2					300.00			2
3				D 200.00				3
4	1400.00							4
5			275.00					5
6				A-1 360.33				6
7							supplies	14.70
8							zercy	4.87
9					535.80		telephone	29.58
10					200.00		supplies	15.94
11								11
12				D 305.00				12
13				AI 206.55				13
14				DC 69.23				14
15				Dal 253.74				15
16				Dal 107.03			phone	500.46
17								17
18				D 59.83				18
19			275.00					19
20					200.00			20
21	(516.43)	1500.00						21
22		1362.60		A-1 56.92			phone	16.58
23				AI 12.10			Xerox	2.55
24				DC 22.00	E			24
25	(675.32)	1340.60		D 70.40			supplies	74.40
26	(776.2)				200.00			26
27		190.60		A-2 350.00	E			27
28				A-2 55.43	E			28
29				A-2 368.84	500.00		telephone	36.81
30	2000.00							30
31	(1124.68)	666.52		A-2 181.84	E		telephone	36.81
32							telephone	39.40
33					200.00			33
34							tapes	26.51
35				203.4				35
36							postage	1.86
37				211.6				37
38							telephone	37.80
39			550.00	1474.60	1100.00			213.24
40	Professional Service	1444.11		2173.55				232.34
	D - Denver	A - Austin	AI - Albuquerque	DC - Wash. DC	Dal - Dallas			

