PUBLIC PARTICIPATION AND PUBLIC

POLICY: THE ENERGY ACTION PLAN FOR EL PASO

APPROVED:

Gloria A. Young

John Kebleman

Kathleen A. Staudt

Michael C. Sunder

Dean of the Graduate School

PUBLIC PARTICIPATION AND PUBLIC POLICY: THE ENERGY ACTION PLAN FOR EL PASO

by

Nancy Leigh Jenkins, B.S.

THESIS

Presented to the Faculty of the Graduate School of

The University of Texas at El Paso

in Partial Fulfillment

of Requriements

for the Degree of

MASTER OF ARTS

THE UNIVERSITY OF TEXAS AT EL PASO

May 1983

ACKNOWLEDGEMENTS

I would like to thank Gay Young, chairperson of my thesis committee, for the time and encouragement she provided me during the course of my graduate studies and while writing this thesis.

In addition, I would like to express gratitude to John Hedderson for the time he took to assist me with this thesis.

I am also very grateful to Kathleen Staudt for her insight into the political theory and policy studies needed for the completion of this thesis.

April 18, 1983

ABSTRACT

The fundamental element of this study is the management of this nation's energy resources and the role of the public in influencing the decision-making process. The role of the citizen is clearly established in democratic theory and supported in environmental legislation. In this thesis, the Comprehensive Community Energy Management Program is examined to determine public influence in the establishment of energy management objectives. An energy attitude survey was conducted in the community to illustrate support for specific energy management objectives. In addition, a path model was designed to determine the variables which best predict positive attitudes toward proposed energy management objectives. Survey results indicate strong support for energy conservation and solar energy technologies as alternative management solutions for energy resources. Survey results were used to promote energy management policy favorable to the community needs.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION: ENERGY TECHNOLOGIES AND ENERGY POLICY

The management of this nation's natural resources is an important consideration in contemporary policy decisions. Nowhere is this more apparent than in the management of energy resources. Since the realization of the limited nature of traditional energy sources, controversy over the management of existing and alternate energy forms has become an issue not only nationally, but in communities across the nation. The controversy exists over the economic, political, and social issues which are raised as a result of energy resource use. It is attitudes toward these issues that effect energy management decisions and should be considered when formulating energy policy; attitudes which trigger controversy over decisions directly effecting our energy systems and the way our nation functions. The decisions made concerning natural resource management will have a profound influence on our lives in the future. Therefore, the controversial nature of energy policy and its direct effect on the mass public suggests a vital role for public opinion in the decision-making process.

This thesis examines the role of public opinion in energy management decision-making and policy formation. More specifically, the thesis attempts to determine if community attitudes toward energy management

objectives influence the decision-making process and policy formation.

Initially, the thesis examines the theoretical perspectives of the role of public opinion in a democratic state and in the decision-making process, particularly in decisions concerning our nation's natural resources. Then, an empirical study of one community's effort to develop an energy management program will be reviewed; this includes an energy attitude survey conducted in that community to provide public input into the decision-making process. The thesis also considers how well public opinion effects policy consideration and how feasible the implementation strategies of the energy management objectives are. And finally, as a mechanism for effecting policy formation, the policy implications of the community study will be considered.

As a preface to this discussion, however, it is necessary to present briefly, a technical discussion of energy as a basis for understanding the controversy that exists over its management. It is also beneficial to outline established energy policy at the national level which provides the framework within which communities are allowed to work.

Technical Aspects of Energy

America's attitude toward this nation's natural resources is reflected in the way we consume energy. As consumers, making up only six percent of the world population in 1980, Americans consumed over one third of the world's energy (Rifkin, 1980:99; Davis, 1978:1; Ehrlich, 1974:23). In electricity consumption alone, the United States generated 1.7 trillion kilowatt hours of electricity from nonrenewable resources (oil, natural gas, coal, nuclear), consuming more than the Soviet Union,

Japan, West Germany, and Great Britain combined. In addition, the increasing need for energy is expected to double within the next twenty years. Not only do Americans consume resources that cannot be fully replaced, we consume our resources very inefficiently.

America presently relies on four major nonrenewable sources of fuel: oil, natural gas, coal, and nuclear power, all of which produce electricity through centralized power plants. In the process of converting these fuel sources into electricity, energy is dissipated in the form of waste heat. The same is true for gasoline used in transportation. Conversion efficiency can be as low as 40% in electrical power plants that burn oil and natural gas, 30% efficiency in nuclear reactors, and automobile engine efficiency is as low as 25%; the remainder of which is cast off as waste heat (Ruedisili and Firebaugh, 1978:15-16).

In order to make energy available for consumption, it must be transformed into a useful state. The laws of thermodynamics govern the transformation of energy from a chemical state to a thermal state, and finally to a mechanical state (or workable state). The first law of thermodynamics states that energy can never be created or destroyed, only transformed from one form to another. And the second law of thermodynamics states that as matter is used, we pay a price in terms of its degradation; it becomes more randomized, making it less useful to perform work (Rifkin, 1980:34-38). This increased degradation is inherent in nature--man only speeds up the process. Most of the matter transformed into a mechanical state is allowed to dissipate, as heat, into the environment. In contrast, direct use of resources such as passive solar heating is the most efficient way to transform matter into useful energy

for consumption because less energy is used in the exchange process (Rifkin, 1980:58).

The inefficiency in traditional methods of transforming energy into a useful state have characterized America's energy system throughout its industrial history. Historically, America's large scale energy systems developed as a result of the establishment of the industrial state, utilizing technologies that were centralized and energy intensive. Initially, coal was the most abundant source of energy at the turn of the century and helped "power the nation as it was transformed from an agrarian to an industrial state" (Yergin and Stobaugh, 1979:93). Then, a new, less expensive and more abundant source of energy was discovered in oil, and soon its by-product, natural gas, was also being utilized. Finally, with the arrival of the nuclear age, it was discovered how easily these established centralized energy technologies could be maintained by substituting nuclear fission as a power source for the rapidly depleting sources of oil and natural gas. Centralized systems developed because of the energy technologies available during their historical evolution. The measures that the United States has taken to maintain these central technologies is evident by how we continue to manage energy.

Although nuclear power plants are still abundant, the great expenditure of money needed to construct and maintain these power plants, not to mention the controversial issue of waste disposal, has left the United States again overly dependent on oil. The problem with an over dependence on a nonrenewable energy source such as oil is not necessarily that it will become totally depleted (although eventually it will), but

that it becomes increasingly expensive as it is extracted. Presently, about 50% of the energy used in the United States is provided by oil, almost half of which is imported from foreign countries (Davis, 1978:48; Yergin and Stobaugh, 1979:13). Domestic oil reserves reached their peak of production in 1970, and have been declining ever since. The ability to acquire oil becomes progressively more difficult, more energy is required for the process, and the cost becomes excessive. As a result, feasible alternatives are sought, discovered and developed.

Alternatives to traditional sources of energy seem to be as controversial as the sources they attempt to replace. Energy conservation is promoted as a "quick fix" to alleviate the energy problem, but is often misunderstood and at best only part of the solution. Wind and solar power are feasible only in specific locations across the country. Nevertheless, solar technologies offer long term solutions as clean, reliable energy sources, but they enter the controversy when they threaten the maintenance of centralized systems and move toward decentralization. In considering solutions to the problem of developing an abundant, reliable and safe source of energy, decisions to maintain traditional management technologies or develop alternatives must be made.

Communities have made attempts to establish feasible alternative management programs, and these will be fully examined in the context of this paper. It would be futile, however, to consider immediate radical changes in the production and management of energy on the national level. Gradual changes are more realistic to consider within a functioning industrial state. At one extreme is the idea of continued unlimited growth and production with the maintenance of this country's economic

development as its major priority, along with the maintenance of existing energy systems. At the other extreme is the idea of concentrating on limited growth, decentralized energy systems, and alternative solutions to the energy problem. At the national level a compromise was established through an energy management plan that claimed to concentrate on the maintenance of economic growth, in addition to high levels of employment and production, an increased concern for the protection of the environment, and equitable resolution of energy problems "for all regions, sectors, and income groups of the United States" (Ruedisili and Firebaugh, 1978:83).

The Carter Plan

The original National Energy Plan of 1977 stressed conservation tax measures and an extreme shift away from a dependency on oil, to coal and other energy sources. As outlined by Ruedisili and Firebaugh in Perspectives on Energy: Issues, Ideas, and Environmental Dilemmas, the plan included, in the area of transportation, the establishment of an excise tax on automobiles with fuel efficiency below what was then required under legislation, an increased excise tax on general aviation fuel, a standby gasoline tax if the consumption of gasoline exceeded a stated annual target, and the removal of an excise tax on intercity buses. For conservation in buildings, the administration would provide loans for rural, low income and residential home improvement, develop a federal grant program to assist public and nonprofit schools and hospitals in insulating their buildings, established conservation measures for state and local government buildings, called for the establishment of

mandatory standards in all new buildings, and set up programs with utility companies to pay for insulation through their monthly bills.

The utility companies, in turn, would be requested to phase out the declining block rate which promotes electricity consumption, to offer interruptible service at a reduced price, to prohibit discrimination against solar and other resources, and to remove institutional barriers to the development of cogeneration systems to aid in the improvement of industrial fuel efficiency. In addition, the plan called for mandatory standards for major appliances. These objectives offered a combination of incentives and disincentives to encourage conservation.

Attempting to shift away from a dependency on oil and natural gas, the government would lift price controls,[1] develop incentives to encourage the discovery and development of domestic reserves by defining what would be considered new oil and old oil. In the area of coal development, the Carter administration would encourage industries and utilities to convert to coal by imposing taxes on the use of oil and natural gas. For the establishment of environmental protection, the administration would require the installation of the best available control technology in all new coal-fired plants, including those that burn low sulfur coal, protect areas where the air is still clean from significant deterioration, develop more effective economic methods to meet air pollution control standards, and develop national strip mining legislation.

The Carter administration also encouraged an increase in the development of nuclear power, requiring the Nuclear Regulatory Commission to expand its audit and inspection staff, for the plants to voluntarily report minor mishaps, to develop firm siting criteria, and to take into

consideration building in heavily populated areas, natural areas, and potentially hazardous regions. In addition, the NRC would upgrade criteria for licensing and develop adequate ways to store or dispose of nuclear wastes.

Briefly, in the area of solar energy, tax credits were set up for residents and businesses willing to invest in solar equipment, and public education programs were organized jointly by federal and state agencies. These objectives and the development of plans in the areas of oil and nuclear as sources of fuel indicate the plan's attempt to move from oil dependency to alternative energy sources.

Carter's energy plan was hastened through the House of Representatives, but met much opposition in the Senate; so much, that when the National Energy Plan was finally passed in October of 1978, there wasn't much left of the original plan.

Although the Carter energy plan made clear the reasons for setting its stated goals, it has been severely criticized for its failure to illustrate how these goals would be accomplished and exactly how much energy the United States would save. It was because of this failure to consider just how these goals would be attained, that it was "defeated" in Congress--in that it was almost totally restructured. To provide an analysis of the dismemberment of the Carter energy plan, Barry Commonor, in The Politics of Energy, notes three major changes:

> Where energy conservation was initially the "cornerstone" of the plan, raising the price of natural gas through deregulation took its place.
>
> Where nuclear power as an energy source was initially a last resort, the use of nuclear energy became "enshrined" in the President's plan.

> Where energy policy was the top priority of the President, inflation soon seemed the most important issue of our time posing budget cuts in heath, job programs, housing--all at the expense of increasing the military budget.

Consequently, it now appeared that energy and inflation were competing in the political arena "for attention and remedial action" (Commoner, 1979:24). What was not realized at the time, was the importance of alleviating the nation's energy problems before expecting any immediate economic relief. It his analysis, Commoner points out that because energy is used in producing all goods and services, when its price rises, the cost of everything else is driven upward. In addition, he stresses that inflation has an effect on everything: consumption, industry, and investment power:

> Inflation is a notorious evil; it reduces purchasing power, lowers demand for goods, depresses production, and so leads to unemployment. Efforts to correct it are likely to cause an economic recession. But when inflation is driven by the rising price of energy, this bad situation becomes much worse. The prices of goods that are particularly dependent on energy are hit hardest by the rising prices of energy. Unfortunately, these energy-intensive goods include housing (which depends on the cost of fuel and electricity), clothing (most of which is now made from petroleum based synthetic fabrics), and food (which now heavily depends on fertilizers and pesticides, chemicals made out of petroleum and natural gas). This puts a particularly heavy burden on poor families, which use a much larger part of their budget to buy such necessary, energy-intensive items, as compared with wealthier families. According to an analysis of 1975 consumer expenditures, the poorest U.S. households (with annual income less than $1,800) spent more than 25% of their income on energy purchases, while the wealthiest U.S. families (with incomes of $27,000) spent only 6% of their income in that way. If the price of energy increases by only a third beyond present levels--a rise much smaller than that expected in the next five years--the living standards of the poorest group of families will be reduced by nearly 9%. When energy prices increase, everyone's living standards decline, but the poor suffer most. (Commoner, 1979:29.)

Long term energy planning, will eventually remedy our nation's economic problems, but is often hard to justify when trying to develop "equitable solutions for all." It is no wonder that the Carter energy plan was met with mixed opinion in Congress. Inflation and the welfare of the nation's economy are tough competitors for any major political issue. This suggests that the final energy bill was drafted in the Senate only to expediate some policy on energy before the closing of the 95th Congressional Session.

Some highlights of the 1978 National Energy Bill as summarized by the Congressional Quarterly are as follows:

> Natural Gas--prices of newly discovered natural gas were allowed to rise about 10% a year until 1985, when the price controls would be lifted. Special pricing categories were set up to make industrial users pay the brunt of the higher prices until the cost reached a certain level, when residential users were to assume more of the burden. Some price controls were extended for the first time to gas produced and sold within the same state.
>
> Coal Conversion--New industrial and utility plants were required to be built to use coal or a fuel other than oil and gas. Exsisting utility plants using oil or gas were to switch to other fuels by 1990, and the energy secretary could order some industries, on a case-by-case basis, to switch fuels. But he could also exempt utilities and companies from the requirements if certain conditions, such as an inadequate supply of coal, existed.
>
> Utility Rates--State utility commissions and other regulatory agencies were required to consider the use of energy-saving methods, such as pricing electricity lower in off-peak hours to avoid heavy loads in the middle of the day and discontinuing discounts for large volume users. The energy secretary was authorized to intervene in the regulatory proceedings to argue for energy-saving measures.
>
> Conservation--Utilities were required to give customers information about energy conservation devices such as insulation and storm windows. Though the utility could not sell the devices or install them, the utility could arrange for the installation and allow customers to pay for the improvements through utility bills. Direct loans from utilities to consumers of up to $300 were allowed.

Over the next three years, schools and hospitals were to receive $900 million to install energy-saving equipment. Grants and government-backed loans would be available to low-income families for home conservation investments. Mandatory efficiency standards were authorized for 13 major home appliances, including refrigerators, furnaces and water heaters, with the standards to take effect in the mid-80's.

Taxes--Homeowners and businesses would get tax credits for installing energy-saving devices in their buildings. Homeowners were eligible for a credit of 15% on the first $2,000 spent on insulation or other devices, for a maximum of $300. Investment in solar, wind, or geothermal energy equipment made the homeowner eligible for a tax credit of up to 30% on the first $2,000 and 20% on the next $8,000 for a total maximum credit of $2,200.

A 10% investment credit was made available to businesses that installed specified types of energy conservation equipment. The bill also provided tax incentives for companies that produced synthetic fuels from coal or other resources.

Cars that used fuel inefficiently, known as gas guzzlers were to be taxed to discourage manufacture and purchase. Starting with 1980 models, new cars getting less than 15 miles per gallon would be taxed $200. The tax and mileage standards would increase every year so that by 1986, cars getting less than 12.5 mpg would be taxed $3,850. Taxes on 1986 models would apply to all cars getting less than 22.5 mpg.

What passed in Congress on October 15, 1978 was barely a skeleton of the original Energy Plan. The fact that the National Energy Plan was "devised under the grossest sort of political expediency, and in its final form written in the confusion of all night sessions," might lead one to question its validity as federal policy (Commoner, 1979:21). The passage of the N.E.P. justified having spent neraly two years debating the energy issue, even if the plan was less than adequate. But in this respect, the National Energy Plan failed to accomplish some important tasks.

First, Congress did specify an alternative policy which would encourage a move away from a dependency on foreign oil, but the

alternatives were far from sound. America's dependency on foreign oil stems from the inability to produce oil in the quantity that it is consumed domestically. The solution to this dilemma lies only in developing feasible alternatives. Congress provided the semblance of a move toward independence from foreign oil by establishing mandatory measures to replace existing oil-fired power plants with coal or nuclear fission as sources of fuel; the former, an abundant source of fuel domestically, and the latter, although extremely cost intensive, a fascinating, high technology solution to the energy problem. Consequently, with the introduction of these alternatives as steps toward independence from foreign oil, Congress had confronted another major failure, that of having established policy detrimental to the environment.

Therefore, with the establishment of alternative policy to replace oil as a fuel source, either with coal or nuclear fission, Congress was confronted with major health and safety consequences. To alleviate the health hazards of the first alternative, the extraction of coal from closed mines, new technologies were developed to mine from the surface. But open surface mining causes substantial land degradation and warrants policy which requires the restoration of mined land to its original productive state. Along with the problems of extracting coal, health hazards from the actual burning of the coal substance (such as sulfur dioxide, nitrogen oxide, acid rain, trace elements such as arsenic, mercury, lead, and carbon dioxide emitted into the atmosphere, thermal and chemical discharges into water, and the solid waste disposal problems of coal ash)(Yergin and Stobaugh, 1980:107), required the attention of Congress, but were not fully addressed. Similarly, substituting nuclear fission

as a power source should have raised extreme environmental concern, due to the inability to develop safe, clean methods of waste disposal. However, nuclear wastes remain potentially hazardous for millions of years. In addition, nuclear production is supported through government military expansion in the development of nuclear warheads. So even alternative policy attempting to draw us away from a dependency on foreign oil is consequently poor policy because of the controversy it ignites nationally. Congress in addition failed to establish any strong support for research and development in solar and wind technology, each of which is considered a renewable and abundant energy source, domestically independent and environmentally safe.

Finally, and greatest of all, was Congress's failure to establish educational policy that would initiate a change in attitudes toward the consumption of our nation's natural resources. Although the plan attempted to promote energy conservation through a variety of incentives and disincentives, it failed to provide energy awareness programs that educate people as to why these policies are being established, and why conserving our natural resources is so important. Of the possible solutions to the energy problem, educational awareness is probably the most feasible, least expensive, and most expedient measure Congress could have taken.

Interestingly, all three of these major policy failures, the inability to move away from a dependency on foreign oil, the lack of concern for the environment, and the inability to formulate energy awareness to discourage inefficient consumption, are all supportive of a big business, pro-growth attitude (maintaining foreign based oil companies,

relaxing air standards for industry's maximum output, and continuing mass consumption of goods as opposed to production). The policy decisions promoted by these attitudes were supported in the 1980 election.

The Reagan administration took up where the Carter administration left off: balancing the federal budget and increasing military spending at the expense of cuts in social programs. But Reagan's failure to firmly state his views on energy policy reveals a lack of responsibility in considering some serious social, economic and political consequences. Not unlike most Republican administrations, pro-business, pro-growth and development attitudes are clearly illustrated in the appointment of Secretary of the Interior, James Watt, whose views toward oil development at the expense of the environment are well known (for example, opening offshore areas to oil and gas leasing, recently proposing a bill in Congress to open up the entire west coast of the United States, postponing action on environmental provisions of the Alaska Lands Act while emphasizing accelerated development of oil and gas production provisions, etc.). The result of these policies, or policy failures, is that the nation is left in the same politically volatile position (overly dependent on foreign oil) that continues to threaten our national security and promises to exhaust our natural resources.

In addressing the management of this nation's natural resources, the National Energy Plan reflected governmental attitudes favoring continued growth, through technological development and progress. These attitudes influence energy policy decisions in the direction of energy intensive technologies, such as nuclear power, and centralized energy systems. Because of established systems, these technologies serve to