

Digitized by the  
New Jersey State Library

SAMUEL A. ALITO, Research Director  
LEGISLATIVE SERVICES AGENCY  
Div. of Legislative Information & Research  
Room 128, State House  
Trenton, N.J. 08625

NEW JERSEY SENATE

*COMMISSION*  
AD HOC ~~COMMITTEE~~ ON ENERGY AND THE ENVIRONMENT

R E P O R T

T O T H E

S E N A T E

(BY ORDER OF SENATE PRESIDENT ALFRED N. BEADLESTON  
JANUARY 9, 1973)

APRIL 5, 1973



LETTER OF TRANSMITTAL

APRIL 5, 1973

THE HONORABLE ALFRED N. BEADLESTON, PRESIDENT

THE HONORABLE MEMBERS OF THE SENATE

MR. PRESIDENT AND THE HONORABLE SENATORS:

The Ad Hoc Committee on Energy and the Environment, created pursuant to President Beadleston's order of January 9, 1973, herewith respectfully submits its report in compliance with President Beadleston's directions.

/S/ William E. Schluter  
Senator William E. Schluter  
Chairman

/S/ Joseph P. Merlino  
Senator Joseph P. Merlino  
Vice Chairman

/S/ Barry T. Parker  
Senator Barry T. Parker

\*  
Senator Frank J. Dodd

\*Senator Dodd does not concur in all of the recommendations contained in this report. He has submitted a separate Dissenting Statement.



TABLE OF CONTENTS

LETTER OF TRANSMITTAL.....	1
TABLE OF CONTENTS.....	2
MEMBERSHIP OF COMMITTEE.....	3
INTRODUCTION.....	4
SUMMARY OF RECOMMENDATIONS.....	6
OVERVIEW.....	8
NUCLEAR ENERGY.....	13
DEEP-WATER OIL PORT.....	20
ENERGY CONSERVATION.....	29
<hr/>	
APPENDIX A (LIST OF WITNESSES).....	34
APPENDIX B (SELECTED BIBLIOGRAPHY).....	37
APPENDIX C (MAJOR BILLS).....	39



Ad Hoc Committee on Energy and the Environment

MEMBERS

Senator William E. Schluter, Chairman  
District 6A (Hunterdon and Part of Mercer Counties)

Senator Joseph P. Merlino, Vice-Chairman  
District 6B (Part of Mercer County)

Senator Barry T. Parker  
District 4B (Parts of Burlington and Ocean Counties)

Senator Frank J. Dodd  
District 11 (Essex County)

---

Staff

Steven B. Frakt, Secretary  
David C. Mattek  
Ted L. Stein



INTRODUCTION

The Senate Ad Hoc Committee on Energy and the Environment was established by order of Senate President Alfred N. Beadleston on January 9, 1973. Senator Beadleston, in his address to the Senate upon election to the Presidency, charged the Committee as follows:

Finally, one of the most vital questions we will face in 1973 is that of energy and ecology. How can we best meet the legitimate power needs of the present and future and at the same time protect our valuable land and water resources from adverse and haphazard developments? While much legislation has been proposed, I am convinced that at present we do not have sufficient information on which to make intelligent judgments. How severe is the energy crisis? What are the real alternatives to the dumping of waste materials in the ocean? Where should future power resources be located? Should we permit a deep water port?

To determine the facts through consultation with appropriate conservation, business and government experts and analysis of legislation proposed to date, I am appointing a 4-member bipartisan special Senate committee. I will direct the committee to begin its task immediately and to report back to us as soon as possible.

The Committee realized from the outset that in order to present the Senate with guidance on such issues during this legislative session, it must direct its attention to a broad assessment of the short-term energy situation in New Jersey. Needless to say, this brief overview has raised more questions than it has answered. In the limited time available for completion of its task, and in the absence of operating funds, the Committee necessarily was limited in the extent to which it could generate information and technical data. In this regard,

the Committee looks forward to the eventual establishment of a State Office of Science and Technology which would, among other responsibilities, conduct research and inform and advise the state with respect to public policy issues as they are affected by scientific and technological developments.

The Committee believes, however, that through its public hearings, on-site inspection of facilities, and review of published materials, it received a comprehensive representation of the views of all parties concerned with energy supply and demand in New Jersey. Twenty-nine witnesses (see appendix) either appeared before the Committee or submitted statements for the record during three public hearings held in the Assembly Chamber on January 23, February 6 and February 20, 1973. The Committee visited the Exxon Refinery in Linden, New Jersey, and the Oyster Creek Nuclear Generating Station in Lacey Township, New Jersey. In addition, it toured the Arthur Kill and New York harbor by tugboat for a first-hand look at present crude oil handling systems and viewed construction of the Salem Nuclear Plant and the proposed Newbold Island site by helicopter. Finally, the Committee assembled and reviewed numerous reports. A selected bibliography is included in the appendix.

SUMMARY OF RECOMMENDATIONS

1. The Committee recommends enactment of Senate No. 2075, which establishes a long-range energy study commission. We recommend that the long-range commission thoroughly review (a) federal and state energy policies, (b) long-range supply and demand prospects for all types of fuel and electricity, (c) the benefits and risks of offshore drilling for oil and gas, (d) strategies for the conservation of energy and reduction in energy demand, (e) the outlook for new methods of energy production, (f) the environmental, economic and social implications of a deep-water port off New Jersey, and (g) site planning procedures for location of energy-related facilities.  
(page 11)
  
2. The Committee recommends early activation of the Governor's State Planning Council so that development of a state energy policy can be consistent with the state's growth and land-use policies.  
(Page 12)
  
3. The Committee recommends that this state not permit the operation of any nuclear power supply facility except those now operating or under construction until a thorough, safe and permanent waste disposal method is developed and in operation.  
(Page 18)
  
4. The Committee recommends that a state energy planning agency should be established to regulate the planning, site selection, construction and operation of bulk power supply facilities, including resolution of all environmental, economic and social issues in a timely and integrated manner. The Committee recommends that the long-range study commission consider the appropriate structure for such an agency.  
(Page 18)

5. The Committee recommends a moratorium on construction of any deep-water port off the Atlantic or Delaware coasts of New Jersey until July 1, 1975. During this time a thorough scientific assessment of the environmental, economic and social implications of a port should be undertaken by the long-range study commission. (Page 27)
  
6. The Committee recommends as a condition of any port development that legislation be enacted which establishes in advance the lines of authority for containment and clean-up of an oil spill and a mechanism for imposing fines and assessing and collecting damages for any economic or ecological loss attributed to any spill. (Page 27)
  
7. The Committee recommends as a condition of any port development that legislation be enacted providing for stringent regulation by the Department of Environmental Protection of the planning, site selection, construction and operation of any facilities to be used in the transportation, storage, refining or processing of any petroleum products, with particular regard to the protection of the coastal areas of the state. (Page 27)
  
8. The Committee recommends that the long-range study commission give immediate priority to the development of a comprehensive program of energy conservation, including an analysis of the feasibility and socio-economic ramifications of the various proposals for reducing energy demand. The Committee strongly urges that legislation to effect this program be introduced during the 1973 legislative session. (Page 33)

OVERVIEW

Man's activities in this nation have become so dependent upon an abundant, reliable and economical supply of energy that he has come to regard energy as a nearly costless and ubiquitous resource, and its use as an inalienable right. Almost overnight, however, widespread publicity of an "energy crisis" and instances of brown-outs, blackouts and fuel shortages in various parts of the country have forced a reassessment of these attitudes. Energy supply and demand are out of balance, and critical decisions are now called for to bring the two into accord. It is probable that the demand for energy in New Jersey will within two years outstrip the supply, resulting in brownouts and curtailment of fuel deliveries. While an increase in supply may seem the logical response to this situation, this strategy carries with it the possibility of further harm to the environment. Reduction in energy demand thus becomes an urgent goal for those who fear degradation of air, land and water resources from electric power plants, oil refineries, fuel storage tanks, transmission lines and pipelines.

Certain data presented to this Committee suggest that the nation will double its demand for energy within fifteen years. The use of electric power, in particular, is expected to double in ten years. In New Jersey, at least one electric company forecasts a doubling of its load in only six years. It has been argued by some that demand cannot continue to increase indefinitely and that some form of adjustment in the system which produces in-

creased demand -- population growth, industrial expansion and rising standards of living -- can be expected, either by voluntary action, by government intervention, or by haphazard default. In addition, the Committee was asked to contemplate the implications of the fact that this nation, with 6% of the world's population, consumes 40% of the world's yearly production of resources.

If this nation is not facing an energy crisis, it is certainly at an energy crossroad. It is imperative that decisions be made in the immediate future to chart a national energy policy that deals with such issues as energy supply and demand, offshore oil and gas exploration, fuel taxing and pricing policies, alternative energy sources, and the associated environmental and economic consequences. These issues are national in scope and therefore not central to the major thrust of the work of this Committee, which was constituted to deal with certain specific developments in regard to energy resources within New Jersey. The Committee recognizes that a national energy policy both preempts and is a prerequisite for effective state action.

The Senate has before it two bills whose enactment would preclude the development of two facilities which proponents maintain are vital to an abundant and dependable supply of energy. In its amended version, Assembly No. 827 would establish an ocean sanctuary from the state's coastline to its seaward territorial limit (generally considered three miles at present) and extending from Sandy Hook to Cape May. The sanctuary would be under the care of the Department of Environmental Protection and would be pro-

tected from any exploitation, development or activity that would substantially alter or otherwise endanger the ecology or the appearance of the ocean, the seabed or subsoil. The bill would specifically prohibit the building of any structure on the seabed or under the subsoil.

Enactment of this measure would put a halt to the plans of Public Service Electric and Gas Company for the location of a nuclear power plant 2.9 miles offshore from Little Egg Inlet, Ocean County. In addition, the language of the bill would also preclude the establishment of a deep-water port or any related pipelines within the area of the ocean sanctuary.

Assembly No. 2003, as amended, would prohibit construction of a deep-water petroleum port and related pipelines and storage facilities along the state's Atlantic coast from Middlesex to Cape May counties, including Raritan Bay and that portion of Delaware Bay south of Cape May county. This bill is in response to the recent selection by the U. S. Army Corps of Engineers of a spot 13 miles off the coast of Long Branch, Monmouth County, as the most favorable site for a deep-water port in the Northeast. Although the location is outside of the state's seaward jurisdiction, the bill would still prohibit a pipeline linking the port to onshore facilities.

The focus of this report is directed to the two main energy-related issues raised by these bills: nuclear power plants and the deep-water oil port. A third section of the report deals with the need for immediate action to reduce the growth in demand for energy in this state in order to ease the pressures for further proposals for energy facilities.

The Committee views this report as an interim one, preparatory to a more thorough analysis by the long-range study Committee proposed in Senate No. 2075. Many of the recommendations in this report call for further study. In addition, certain major aspects of energy supply and demand have not been dealt with. For example, although the Committee received testimony and reviewed reports concerning offshore drilling for oil and gas, the members felt that questions as to the environmental consequences of drilling and the extent of federal jurisdiction over the continental shelf were of sufficient scientific and legal complexity to preclude any judgments at this time. Similarly, the Committee was interested in developments of alternative energy sources, such as solar energy, fuel cells, geothermal energy, coal gasification, nuclear fusion, and oil derived from shale. The Committee strongly encourages a national research program into these technologies, because it believes more investigation is necessary to gauge adequately their potential for meeting our energy needs.

1. The Committee, therefore, recommends enactment of Senate No. 2075, which establishes a long-range energy study commission. We recommend that the long-range commission thoroughly review (a) federal and state energy policies, (b) long-range supply and demand prospects for all types of fuel and electricity, (c) the benefits and risks of offshore drill-

ing for oil and gas, (d) strategies for the conservation of energy and reduction in energy demand, (e) the outlook for new methods of energy production, (f) the environmental, economic and social implications of a deep-water port off New Jersey, and (g) site planning procedures for location of energy-related facilities.

2. The Committee recommends early activation of the Governor's State Planning Council so that development of a state energy policy can be consistent with the state's growth and land-use policies.

NUCLEAR ENERGY

New Jersey's electric companies have presented evidence to this Committee of an expected doubling in the demand for electricity in this state within the next ten years. The utilities look primarily to nuclear power for meeting this new demand. According to data compiled by the Bureau of Energy Resources in the Department of Public Utilities, present electric generating capacity in New Jersey is 11,754 megawatts (mw). The Bureau estimates that this capacity will double to almost 23,000 mw by 1981 if all presently proposed generating plants are completed on schedule. Of the present capacity only 5% is accounted for by nuclear generation, but by 1981 it is anticipated by the utilities that approximately 40% of New Jersey's electric supply (9000 mw) will be furnished by nuclear power.

At present only one nuclear generating station is in operation in this state. This plant, Oyster Creek, owned by Jersey Central Power and Light Company and located near Barnegat Bay in Lacey Township, Ocean County, has been in operation since 1969 and has a generating capacity of 640 mw. One other nuclear facility is now under construction by Public Service Electric and Gas Company in Lower Alloways Creek Township, Salem County, on the Delaware River. Scheduled for completion by 1976, the Salem complex will have a combined capacity of 2200 mw from two nuclear units.

Proposals for three other nuclear plants have been put forth, each of which is now proceeding through the various

federal and state application and licensing stages necessary before construction can commence. Public Service anticipates the location of a 2200 mw twin facility at Newbold Island, just south of Trenton on the Delaware River, and a 2300 mw complex in the Atlantic Ocean almost three miles offshore from Little Egg Inlet, Ocean County. Jersey Central is preparing to construct an 1100 mw unit adjacent to its Oyster Creek facility.

Another station which enters into the state's energy picture is now under construction in Pennsylvania along the Susquehanna River in York County. Public Service and Atlantic City Electric Company are participating in the development of two units at this site, called Peach Bottom, which will yield approximately 1000 mw for use in New Jersey when completed in the mid 1970's.

Nuclear-fueled electricity generation is said to offer three distinct advantages over fossil-fueled generation: (1) no air pollution is emitted, since no combustion takes place in a nuclear plant; (2) the cost of fuel is cheaper and therefore, despite higher capital costs, nuclear energy will in the long run permit a continuation of an economical electrical supply; (3) use of nuclear fuel will conserve scarce fossil fuels and allow these non-renewable resources to be utilized for other essential purposes.

Proponents of nuclear energy maintain that atomic plants are safe and have been designed in accordance with the regulations of the Atomic Energy Commission (AEC). They argue that the radioactivity released by a nuclear plant is harmless

and well below the natural radiation levels to which we are daily subject. They further point out that the thermal pollution from such a plant affects only a limited area immediately surrounding the facility.

Opponents of nuclear energy remain unconvinced that the AEC standards offer adequate assurance of plant safety and argue that these standards are not backed by sufficient testing and research. They fear that a release of large quantities of radiation could occur as a result of accident, sabotage, terrorist activity or war. They are concerned that the increasing reliance on nuclear energy may heighten the possibility of such an occurrence either within a plant or in the transportation and handling of nuclear fuel and radioactive waste. They cite particular concern over the necessity of maintaining a safe storage of such wastes for centuries.

Apart from these general objections, opposition has arisen to specific plants due to the impact of each on the local environment. For example, residents and visitors on Long Beach Island are concerned that the offshore nuclear plant may lead to industrialization of the coast. In addition, a strong objection has been raised to the proposed Newbold Island plant due to its demand for enormous amounts of coolant water from the Delaware River.

In view of the ever-increasing role anticipated for nuclear power in supplying the state's electric needs, the Committee toured the Oyster Creek facility for a first-hand examination of the operations of such a plant.

The Committee was impressed with the elaborate precautions in effect at Oyster Creek to prevent any possible malfunction and to confine within the facility any contaminants resulting from a disruption in its operations. The breadth of such measures -- highly exacting construction specifications, finely engineered instrumentation, intensive monitoring of plant operations and the surrounding environment, detailed security checks of personnel in the plant -- compels the Committee to ask whether we should rely more heavily on a generating system which by its very nature demands from us these stringent surveillance techniques and complex fail-safe mechanisms. By their very nature these necessary safeguards emphasize the potential dangers inherent in a nuclear facility.

Aside from the debate concerning the levels of daily radioactive emissions, the effects of thermal pollution, and the risks of contamination resulting from an accident, an act of sabotage, terrorist blackmail or a war, the manner of disposition of long-lived radioactive wastes produced by the plants is of serious concern.

Some of the radioactive waste from a nuclear plant must be stored away from man and the environment for thousands of years until it loses its potency. Whatever permanent disposal method the Atomic Energy Commission may choose -- burial in deep salt mines is one plan now under consideration -- the fact remains that we are essentially demanding that future generations maintain an eternal vigil over the location of these wastes and

a sufficient social organization and military power to prevent accidental or purposeful intrusion into these sites. As Dr. John M. Green, a high-energy physicist, testified before the Committee:

We have to dispose of this stuff and we have to keep it disposed for thousands of years. If you could imagine William the Conquerer burying his poisoned arrows, and we having to keep guarding these damned arrows or they would get out, and all that has happened since William the Conquerer -- the English Revolution, the French Revolution, the American Revolution -- and you still have to put a guard on these damn things -- that is a tremendous burden we are asking our descendents to bear.

Although it is not proposed that waste be buried in New Jersey, we cannot pass this matter off as a problem for another state. Radiation, once released, like any other form of pollution, does not observe political lines. In any event, the Committee is concerned about the safety of people and the protection of our environment everywhere and recognizes that this is a social question national in scope.

The problem of waste disposal is far from academic. Indeed, the Committee was disturbed to learn that all of the spent nuclear fuels accumulated since the Oyster Creek plant began operation have remained in storage at the plant. Although it is intended that this particular waste be shipped through New Jersey to an out-of-state facility primarily for recycling into new fuel, but also for ultimate disposal, the Committee was informed that the recycling plant is not yet in operation and that there is no permanent plan for the disposition of radioactive waste.

The Committee believes that New Jersey must follow an energy policy which mirrors the state's high regard for its

social responsibility. Such a policy requires that the state re-evaluate the immediate need for nuclear power facilities and focus instead on energy conservation programs and the development of alternative energy sources. However minimal the probability of an accident at a nuclear plant or the untimely release of nuclear waste into the environment, the consequences may exceed by orders of magnitude the damages that might result from any other form of electric power generation.

3. The Committee therefore recommends that this state not permit the operation of any nuclear power supply facility except those now operating or under construction until a thorough, safe and permanent waste disposal method is developed and in operation.

The Committee appreciates the fact that this recommendation, if implemented, may cause the utilities in this state to turn to additional sources for power production, at least until energy demands are reduced and/or new sources of power become available. The Committee also realizes that the utilities have encountered a variety of problems in the planning, site selection and construction of fossil fuel plants.

4. The Committee therefore recommends that a state energy planning agency should be established to regulate the planning, site selection, construction and operation

of bulk power supply facilities, including resolution of all environmental, economic and social issues in a timely and integrated manner. The Committee recommends that the long-range study commission consider the appropriate structure for such an agency.

DEEP-WATER OIL PORT

Approximately 30% of the present United States annual supply of oil is imported. The petroleum industry anticipates that the increasing demand for energy will necessitate reliance on foreign sources for about 57% of our oil needs by 1985. In absolute numbers, imports are expected to quadruple from 3.5 million to 15 million barrels a day over this period.

Many observers are gravely concerned with this growing dependence on foreign supplies for such a vital resource, particularly since most of this oil will come from the politically unstable Middle East. This is one reason why the petroleum industry is urging the Federal government to allow exploration for oil and gas off the Atlantic coast. Even if such exploration were begun today, however, it would be years before any oil and gas that might be discovered would be available for use. Even beyond that, the petroleum industry anticipates that imports of foreign fuels would still be necessary, although perhaps at a reduced rate.

There is, therefore, a strong impetus for the development of one or more deep-water oil ports off the eastern and/or Gulf coasts to facilitate the importation of a large and economical supply of foreign oil. The term "port" is a misnomer when applied to the simplest mechanism for receiving crude oil from tankers: a buoy supporting a hose connected to a pipeline on or beneath the ocean floor. There are more elaborate facilities for deep-water oil handling, including

berthing stations for the ships and artificial islands for storage, which could more properly be described as a "port". Whatever the design, numerous deep-water ports have been established throughout the world.

The Commission finds merit in the claim that the most environmentally and economically sound method for overseas transportation of oil is by means of the recently-developed Very Large Crude Carriers (VLCC). These supertankers, as they are more commonly known, range in size from 150,000 to 500,000 dead-weight tons (dwt) and draw up to 100 feet of water. Because of draft limitations, no United States port is presently capable of handling ships of this size. The largest tankers currently being received in this country are in the 65,000 to 80,000 dwt range.

It has been estimated that the economies of scale associated with movement of oil in VLCC's would result in savings of 40 to 50% over present transportation costs. Furthermore, since each supertanker can replace several smaller vessels, reduction of harbor congestion and oil spills due to ship collisions are anticipated. In addition, direct off-loading at a deep-water receiving facility should lessen the chances of tanker grounding. Such a port, when connected by pipeline to the mainland, should substantially reduce the need for the current practice of lightering, whereby oil is transferred into smaller tankers for final delivery into port. The expected result would again be an easing of harbor congestion, and more important, a meaningful reduction in the chance of oil spillage from

handling accidents.

The Committee recognizes, of course, that the use of supertankers to gain greater operational efficiency is a two-edged sword, for these tankers also carry with them the potential for larger-scale disasters. An oil spill from a supertanker might conceivably cause irreparable harm to the fragile ecology of the land-water interface along New Jersey's coastline. Such an event might prove disastrous to the breeding and feeding grounds of marine life as well as to the state's tourist and recreational industry.

The deep-water port became a front-page issue in this state following the recent recommendation of the U.S. Army Corps of Engineers for construction of such a facility 13 miles off the coast of Long Branch, Monmouth County. Other alternative sites have been investigated or suggested. Initially, the Corps evaluated 19 spots from Maine to Virginia. The Delaware Valley Council presented a case before the Committee for an oil port in Delaware Bay. Proposals have been forwarded for placing such a facility off the South Atlantic or Gulf coasts. The Corps also offered two possible locations off the Delaware coast, but that state has effectively prohibited such a port by enactment of its Coastal Zone Act of 1971.

The Committee sought to evaluate the port proposal from three standpoints: (1) The port's relationship to New Jersey's energy situation, (2) its environmental impact, and (3) the land-use implications of a deep-water oil port off this state's coast. The Committee has left the larger

task of determining whether this nation must necessarily quadruple its importation of oil by 1985, and hence whether a deep-water port must actually be constructed, to the long-range study commission. However, as is pointed out elsewhere in this report, the Committee does believe that a reduction in the growing demand for energy and the need for such amounts of fuel is an important goal for this state and nation.

The Committee cautions against evaluating the desirability of an oil port strictly in terms of the present warnings of an "energy crisis" in this state. The Committee has concluded that the presence of a deep-water facility is not necessarily vital for the continuation of a dependable energy supply for New Jersey. The fact is that New Jersey refineries export to other states a large percentage of the crude oil received here. As an example, only 25% of the production at the Exxon refinery in Linden serves New Jersey's needs. The remaining 75% is shipped to New York, Pennsylvania and other north-eastern states.

The petroleum industry prefers a port off New Jersey, and presumably an associated expansion of refinery capacity, primarily because of New Jersey's established role in the production of petroleum products and the state's location vis-a-vis the large northeastern market. Most of the large refineries in the Northeast are either in New Jersey or across the Delaware River in Pennsylvania.

The argument has been made before this Committee that New Jersey citizens should not accept the ecological risks of a port and any attendant industrial expansion simply to

satisfy the energy demands of other states. According to this point of view, the planners of such a port should look to those states which are actively seeking the facility and do not have the refinery capacity to meet their needs for heating oil, gasoline and other fuels. If New Jersey should need more oil in the future, the argument continues, it can be brought in by pipeline from other areas. It has been noted that the State of South Carolina, desiring the economic benefits of a port, has expressed interest in having the port located off its coast.

The Committee can appreciate the sentiments of this position, but believes that the nation's energy policy ought not be established simply on the basis of the parochial attitudes of individual states. A shortage of fuels in any area will have an ultimate affect on every area. The Committee rejects the proposition that each state should achieve self-sufficiency in petroleum production without regard to the needs of other states. Few if any aspects of our commerce are based on this premise. This is not to say that New Jersey must necessarily accept the port and thereby accept as its destiny the role of refinery for the northeast. Indeed, as the following discussion indicates, the Committee found many unsettling aspects of the port proposal which would dictate a cautious approach.

The U.S. Army Corps of Engineers has identified four major environmental impacts that could result from the construction and operation of a port: (1) impacts associated with the physical dimensions of the port; (2) impacts associated with dredging and spoils disposal; (3) impacts associated with spills and oil pollution; and (4) impacts associated with induced landside development.

In the Committee's view the major proposal of the Corps -- a monobuoy located 13 miles into the ocean and connected to the mainland by pipeline -- would minimize the environmental dangers of the first three types of impacts. The port would be of a minimum physical size, and there would be no need to dredge to accommodate tankers of 100-foot drafts. Further, the great distance from land might allow for dispersal and clean-up of any spill before it reached the shore. On the other hand, the Committee is concerned that the severe weather conditions which often prevail in the Atlantic might create hazards for the supertanker operations. The VLCC's would have no harbor in which to seek refuge. This problem might be resolved if the port were located in either Raritan or Delaware Bay, but these locations would require extensive dredging and would bring oil spills close to shore.

The Committee believes further study is necessary to compute the possibilities and probabilities of an oil spill, as well as the relative safety of operations offshore as opposed to within a bay.

Even though risks of oil pollution at a deep-water port may be well below the risks of spillage at our existing crowded ports, one massive spill from a supertanker might result in far greater damage to the state's coastline than the damage from present handling systems. The Committee is also concerned that action to clean-up a spill not be delayed by jurisdictional disputes and that responsibility for damages be determined in advance.

The Committee is most alarmed over the impact of a deep-water port on the coastal lands. To quote one possible scenario from the Corps' study:

For an evaluation of this factor, an underlying assumption is that, given the free interplay of economic factors and the absence of control over industrial siting (beyond local zoning restrictions), the location of a deep water port terminal will tend to induce industrial concentration, particularly of refineries and petrochemical complexes. In turn, this concentration of basic petroleum-related industries would induce concentration of associated commercial and economic activities.

The Committee does not view with favor the possibility of the industrialization of the shore area and the increases in pollution, congestion, highways and population which such development would breed. The state would lose valuable recreational opportunities and would find its land, water and air resources under tremendous stress.

There are many who would argue that a viable economy is not dependent on continued growth. While the Committee is not prepared to evaluate that assertion, it firmly believes that New Jersey can prosper without replicating the conditions that exist in the present petroleum-refining areas of the State. Certainly this Committee in no way wishes to limit employment possibilities in New Jersey, but it believes the costs of this type of development far exceed the benefits. The Committee believes that pressures to develop the coastal area will inevitably follow the establishment of a port. Such development should be carried out in a well-planned manner consonant with the State's responsibility to encourage a comfortable environment for its citizens.

5. The Committee, therefore, recommends a moratorium on construction of any deep-water port off the Atlantic or Delaware coasts of New Jersey until July 1, 1975. During this time a thorough scientific assessment of the environmental, economic and social implications of a port should be undertaken by the long-range study commission.
  
6. The Committee recommends as a condition of any port development that legislation be enacted which establishes in advance the lines of authority for containment and clean-up of an oil spill and a mechanism for imposing fines and assessing and collecting damages for any economic or ecological loss attributed to any spill.
  
7. The Committee recommends as a condition of any port development that legisla-

tion be enacted providing for stringent regulation by the Department of Environmental Protection of the planning, site selection, construction and operation of any facilities to be used in the transportation, storage, refining or processing of any petroleum products, with particular regard to the protection of the coastal areas of the state.

ENERGY CONSERVATION

In testimony before this Committee, officials of the oil and gas industries and the state's electric utilities presented persuasive evidence of a growing demand for energy. The industry representatives expressed the fear that certain proposed governmental policies -- federal and state -- would prevent them from keeping pace with this energy need. If exploration for oil and gas off the Atlantic coast is not permitted, if construction of a deep-water oil port is prohibited, if the development of new electric power facilities is postponed, these officials predict certain possible results, such as a loss of employment opportunities, a lowering in our standard of living, an economic depression and a weakening of our national posture.

No one should fault the suppliers of energy for anticipating future demand. It takes, for example, up to ten years to plan and put into operation an electric power plant. Neither should they be criticized for stating their perception of the consequences of a supply shortage. The question that should be raised, however, is whether demand must inevitably increase at such rates, and whether failure to increase energy production will necessarily result in such days of doom. Those witnesses who called for initiation of energy conservation policies would answer "no".

The Committee believes that since the facilities associated with energy production have the potential to inflict serious damage upon the environment and impose health risks

upon our citizens, an immediate assessment of the nature of our energy demands must be undertaken. We must evaluate the extent to which our demands are necessary or frivolous, environmentally beneficial or harmful, economically efficient or wasteful, and socially responsible or reckless. The Committee is of the opinion that such an evaluation will reveal potential for reducing significantly our use of energy.

The Committee recognizes that there may be problems with public acceptance of energy conservation measures. As the President of General Public Utilities Corporation, William G. Kuhns, pointed out in a statement submitted to the Committee, "There is no question that the energy crisis could be postponed for some time period if the rate of increase of energy demands was slowed by reductions in the waste of energy." He felt, however, that it would be "unrealistic" to assume consumers could be induced to reduce consumption on a long-term basis, since "ours is a wasteful society and the waste of energy is one of the less conspicuous forms of such waste." Nevertheless, the Committee believes that implementation of energy-saving policies is an urgent task in light of the large increases in demand that are anticipated.

Two recent studies attest to the energy savings that could accrue from a well-planned and vigorously promoted conservation program. The Federal Office of Emergency Preparedness has estimated that immediate implementation of a variety of strategies might reduce energy demand in

this country by 16% of the anticipated consumption in 1980. This is equivalent to a savings of two-thirds of the projected oil imports for that year.

The Rand Corporation, in a study for the California State Assembly on proposals for slowing the growth rate of electricity consumption, presented three options for action with the potential to reduce the demand expected in the year 2000 by 37 to 50%.

A full listing of possible conservation measures would fill pages. Some of the major areas for action which have been presented to the Committee are as follows:

- . Building codes should require better insulated homes and buildings, and structures should be designed to minimize energy consumption. It has been estimated that an additional investment of \$280 for home insulation could reduce thermal losses by 50% of present levels. A homeowner would more than recover his investment by savings in fuel over a few years. It has been suggested that the homeowner receive a tax credit for home improvements which conserve energy.

- . Transportation priorities should be changed. Dependence on the automobile should be reduced by development of a comprehensive mass transportation system. In terms of passenger miles per unit of energy, a bus is reportedly six times as efficient and a train is 17 times as efficient as a car. Other possibilities include substitution of buses and trains for airplanes for inter-city routes under 500 miles and movement of freight by rail rather than truck.

. Tax incentives should be offered to industries to promote the installation of more efficient equipment.

. Home appliances, particularly air-conditioners, should be rated for their efficiency in utilizing electricity. To encourage purchase of more efficient appliances, the amount of sales tax could be levied in reverse proportion to the appliances' efficiency rating. It is interesting to note in this regard that a major manufacturer has just introduced a new refrigerator that is claimed to use 30 to 50% less electricity than previous models.

. The inverted electricity rate structure, which some say actually encourages profligate use of electricity, should be studied with a view to equalizing the unit cost for all users, if not to reflect a higher cost for above-average consumption. Also, rates might be higher for electricity consumed during peak load hours.

. Recycling and reuse of goods and materials should be increased. This would not only reduce the energy expended in producing new products, but would also save supplies of raw materials. In the case of nonferrous metals, for example, recycling can save 80% of the energy necessary to produce new materials. Each time a soda bottle is returned, the energy needed to manufacture a new bottle is saved.

. Daylight saving time should be in effect year-round. An extra hour of daylight in the evening would reduce lighting and heating requirements at a time of peak use. This measure has additional benefits regarding the hazards of traveling during rush hour darkness.

. An intensive consumer education program should be conducted to stress the need for energy conservation and to demonstrate practices which each individual could observe at home.

These strategies for reducing energy consumption should not be considered only as measures to be attained in the long-run. The need for them is immediate. The President of the Board of Public Utility Commissioners, William E. Ozzard, recently warned of the possibility of electrical brownouts in 1974 and blackouts in 1975. None of the controversial energy projects discussed in this report, even if approved today, would have any impact on the immediate prospects of an inadequate energy supply.

8. The Committee recommends that the long-range study commission give immediate priority to the development of a comprehensive program of energy conservation, including an analysis of the feasibility and socio-economic ramifications of the various proposals for reducing energy demand. The Committee strongly urges that legislation to effect this program be introduced during the 1973 legislative session.

LIST OF WITNESSES AT PUBLIC HEARINGS

Lewis R. Applegate  
Director of Governmental Relations  
New Jersey State Chamber of Commerce

Robert A. Baker  
Executive Vice President  
Public Service Electric and Gas Company

Shepard Bartnoff  
President  
Jersey Central Power and Light Company

C. Louis Bassano  
Assemblyman, Union County

Larry Bogart  
Citizens Energy Council

David T. Brewster, Executive Director  
Fuel Merchants Association of New Jersey

John J. Brown, Secretary-Treasurer  
New Jersey State AFL-CIO

Vikram Dalal  
Vice Chairman, Princeton Chapter  
Federation of American Scientists

Mrs. Ruth Fisher  
The Sun People  
Alternate Energy Advocates

Dr. R. Stockton Gaines  
Chairman, New Jersey Chapter  
Sierra Club

Robert L. Godell  
Delaware River Basin Commission

Dr. John M. Greene  
New Jersey Chapter, Sierra Club

Dr. Francis J. Haughey  
Rutgers University

James P. Hayward, President  
Atlantic City Electric Company (Statement)

Ronald M. Heymann, Commissioner  
New Jersey Department of Labor and Industry (Statement)

Samuel T. Hudson, President  
Delaware Valley Council

Norman Hughes, Legislative Representative  
New Jersey Motor Truck Association

Robert Kaighn  
Assistant Chief of Planning Branch  
Philadelphia District  
United States Army Corps of Engineers

Peter J. Kassak, Past President  
New Jersey Gas Association

Wilson M. Laird  
American Petroleum Institute

Dr. Eleanor J. Lewis  
Executive Director  
New Jersey Public Interest Research Group

David W. Lloyd  
Secretary, Committee on Environmental Quality  
New Jersey Manufacturers Association

John McDonell  
Manager, Community Affairs  
Atlantic City Electric Company

Bob G. Murphy  
New Jersey Petroleum Council

John K. Mustard, Executive Director  
Delaware Valley Committee for Protection of  
the Environment

William E. Ozzard  
President  
New Jersey Board of Public Utilities Commissioners

Mrs. Claire Schiff  
Summit, New Jersey

Dr. Robert Socolow  
Princeton University

Richard J. Sullivan, Commissioner  
New Jersey Department of Environmental Protection

The Committee also met with the following individuals in executive session:

Charles G. Amato  
Nuclear Engineer  
Bureau of Radiation Protection  
New Jersey Department of Environmental Protection

Edwin M. Ambler  
Manager - Public Relations  
Jersey Central Power and Light Company

Joseph P. Kigin  
Director of State and Local Government Relations  
Westinghouse Electric Corporation

John McDonald  
Vice President  
Public Service Electric and Gas Company

Len H. Ruppert  
Director  
New Jersey Petroleum Council

Alfred W. Sitarski  
State Government Relations Representative  
Exxon Company

John G. Winger  
Vice President  
Chase Manhattan Bank

SELECTED BIBLIOGRAPHY

Battelle Memorial Institute - Pacific Northwest Laboratories, Review of the Santa Barbara Channel Oil Pollution Incident, Research Report to the U. S. Department of the Interior and U. S. Department of Transportation, Washington, D. C., July 18, 1969.

Chase Manhattan Bank, Energy Economics Division, Outlook for Energy in the United States to 1985, June 1972.

Environmental Action Foundation, The Case for a Nuclear Moratorium, Washington, D. C., 1972.

Executive Office of the President, Office of Emergency Preparedness, The Potential for Energy Conservation, Washington, D. C., October, 1972.

National Academy of Engineering, Outer Continental Shelf Resource Development Safety: A Technology and Regulation for the Systematic Minimization of Environmental Intrusion from Petroleum Products, December, 1972.

National Petroleum Council, Guide to National Petroleum Council Report on United States Energy Outlook, Washington, D. C., December 11, 1972.

National Science Foundation - National Aeronautics & Space Administration Solar Energy Panel, Solar Energy as a National Resource, December, 1972.

Rand Corporation, California's Electricity Quandry, 3 vols., Santa Monica, California, September, 1972.

State of Delaware, Delaware Bay Oil Transport Committee, Energy, Oil, and the State of Delaware, Dover, Delaware, January 15, 1973.

U. S. Department of the Army, Corps of Engineers, Institute for Water Resources, Foreign Deep Water Port Developments, 3 vols., December, 1971.

U. S. Department of the Army, Corps of Engineers, Institute for Water Resources, U. S. Deep Water Port Study, 5 vols., August, 1972.

U. S. Department of the Interior, Geological Survey, Geology, Petroleum Development, and Seismicity of the Santa Barbara Channel Region, California, Geological Survey Professional Paper 679, Washington, D. C., 1969.

U. S. Department of the Interior, Geological Survey, Installation of Platforms "C" and "Henry" on Federal Oil and Gas Leases OCS-P 0241 and 0240 issued Under the Outer Continental Shelf Lands Act, Santa Barbara Channel Area Off the Coast of California (EIS), Washington, D. C., August 26, 1971.

Weil, George L., Nuclear Energy: Promises, Promises, Washington, D. C., George L. Weil, 1972.

MAJOR BILLS PERTAINING TO  
ENERGY SUPPLY AND DEMAND

- A-659 Provides for the reacquisition of the "Worthington Tract" by the Commissioner of Environmental Protection.
- Status: Passed Assembly, April 12, 1972.  
Laid over in Senate, May 18, 1972.
- A-827 Establishes an ocean sanctuary to the state's seaward territorial limit extending from Sandy Hook to Cape May and protects the area from any development or activity that would substantially alter or otherwise endanger the ecology or appearance of the ocean, seabed or subsoil.
- Status: Passed Assembly, amended, Nov. 20, 1972.  
Currently in Senate Labor, Industry and Professions Committee.
- A-1429 Provides for state review and regulation of construction and development within an area along the Atlantic coast and Delaware River and Bay.
- Status: In Assembly Air, Water Pollution and Public Health Committee.
- A-1673 Establishes an Energy Facilities Planning Commission to review and regulate the location, operation and maintenance of bulk power supply facilities.
- Status: In Assembly Air, Water Pollution and Public Health Committee.

A-2003  
(S-2004)

Prohibits the construction of a deep-water petroleum port and any related facilities on or adjacent to the Atlantic Coast from Middlesex to Cape May counties and in the Delaware Bay south of Cape May. S-2004 is essentially similar to A-2003.

Status: Passed Assembly, amended, February 5, 1973.  
Currently in Senate Agriculture and Environment Committee.

A-2008

Creates a five member Energy Policy Study Commission to study the state's energy requirements for the next 20 years, including the availability of other energy sources and the potential effects upon the environment.

Status: In Assembly Air, Water Pollution and Public Health Committee.

A-2103

Provides for enactment of emergency powers by the Board of Public Utility Commissioners during a fuel emergency relating to the rationing and conserving of fuel.

Status: In Assembly Transportation and Public Utilities Committee.

S-767

Prohibits the drilling for subsoil minerals, gases or oil in the marine coastal waters of the state.

Status: Passed Senate May 15, 1972.  
Currently in Assembly Agriculture, Conservation and Natural Resources Committee.

S-2075

Creates a 12-member Energy Crisis Study Commission to study the energy needs of the state, to explore measures for locating energy facilities, and to reduce energy demand.

Status: Passed Senate, amended, March 22, 1973.





