Chapter V

PUBLIC PARTICIPATION

Public Participation: A Pilot Project

The public participation element of this assessment was an effort to bring about an exchange of information between OTA and citizens in the study region. This two-way flow of information was intended to contribute to public understanding of the technologies being assessed, and to obtain information directly from the affected citizens about impacts of greatest public interest and concern.

The data obtained from the public participation program helped OTA ensure that factors which citizens consider relevant and important were adequately addressed in the study. The public participation program also helped OTA to make the assessment as complete as possible so as to assist the Congress in anticipating, understanding, and considering, to the fullest extent possible, the consequences of technological applications, as mandated by the Technology Assessment Act of 1972.

In addition to contributing to the content of this particular assessment, the public participation program was intended to help OTA learn how the public could participate in a meaningful way in the assessment of technology. The process of involving the public and integrating the results of such an effort into a technology assessment is an experimental one. There is virtually no practical experience upon which to draw, nor does the process lend itself to standardized formulas, models, or techniques. This pilot project was therefore designed to evolve throughout the coastal effects study so as to meet the needs of the assessment team and of the public participants.

Overall, OTA learned through responses to its public participation program that citizens were most interested in the economic benefits and losses, the social and environmental advantages and disadvantages, possible changes in their way of life, and the possible risk of major accidents associated with the three energy systems or their alternatives.

With regard to the current system for information gathering and decisionmaking, citizens were concerned that the States and the public lack an effective partnership role and that the various Federal agencies do not sufficiently coordinate their roles and activities.

Repeatedly, participants in the program saw an urgent need for a national energy policy in which each energy system could be considered, and serious research and funding could be given to determining conservation measures, identifying alternative sources of clean and renewable energy, and developing innovative energy systems.

The need for a national energy policy was stressed by many respondents, and their collective views are well expressed by a respondent from Hillside, N. J., who put it this way:

> Before these options are explored, the State and the Nation must develop a comprehen-

sive energy conservation policy, including development of mass transit and recycling of all usable products. As a second step, all minimum polluting forms of energy—such as solar, wind, and geothermal—should be utilized wherever possible. If offshore facilities are eventually developed, legislation should spell out clearly that they must conform to all existing environmental legislation. This is especially important regarding onshore development which will definitely affect air quality maintenance planning.

More than 15,000 persons were reached by OTA during the project. Those who participated in the assessment by returning questionnaires, attending workshops, or communicanting with OTA in other ways, represented industry, trade associations, professional associations, consultant groups, academic groups, citizen organizations, and local, State, regional, and Federal officials, as well as the general public.

Since no attempt was made to obtain a representative sample, participants may or may not be representative of the entire population of the study area. Nor was any attempt made to conduct a public opinion poll on support for, or opposition to, the technologies. OTA was seeking substantive information and as many points of view as possible to ensure a thorough and reliable assessment of offshore energy systems.

Participation in the assessment was in response to OTA efforts to reach as many persons as possible in New Jersey and Delaware, but the study was not confined exclusively to that area.

The process of public participation was facilitated by the following factors:

(1) the limited size of the study area;

(2) the existence of actual proposals in the area for:

-offshore oil and gas exploration and development,
—a floating nuclear powerplant,
-deepwater ports; and

(3) the neutral position of OTA relative to each of the technologies being studied.

Response to the public participation project was mostly favorable. Participants indicated they were pleased to be consulted by the Government at a time when they felt their opinions would make a difference in the study. Dissemination of information to the public was indicated as a major step toward encouraging citizen involvement and OTA was encouraged to find more ways of distributing information and involving the public by the most efficient and least costly method.

Responsibility for planning, directing, and conducting the public participation project was assigned to one member of the OTA Oceans Program staff, but other members of the assessment team, including the Program Manager, also attended workshops, prepared materials, and evaluated i n formation received. Thus, all members of the team were aware of the relevance of information being generated and public participation activities were integrated into the assessment process. Instead of being viewed as a separate part of the study, public participation was considered by the entire Oceans Program staff to be a necessary and integral part of the effort to provide Congress with relevant information, including public perceptions and views about the consequences of the technologies being assessed.

The following methods of communication were used for this information exchange:

- an initial OTA news release announcing the study;
- distribution of 100 copies of a staff-prepared briefing paper about the assessment;
- three public workshops which drew a total of about 90 participants;
- attendance by OTA staff at public hear-

ings and at meetings sponsored by other groups;

- distribution of 15,000 i n formation brochures, "Proposed New Technologies Off the Shores of New Jersey and Delaware";
- more than 1,000 responses to questionnaire i ncluded in brochure;
- in-depth interviews conducted by the assessment team;
- correspondence and position papers supplied to OTA by participants;
- review of background papers by OTA advisory p[a]ne] members and public partici - pants;
- specially convened industry, govern - ment, and academic panel on alternatives sponsored by OTA;
- meetings with the OTA Coastal Effects Advisory Panel and the Technology Assessment Advisory Council;
- review of OTA draft report by panel, public participants, and government officials involved in the technologies;
- survey results and constituent correspondence supplied by congressional offices;
- monitoring of press reports on the assessment and the proposed offshore technologies in Delaware, New Jersey, New York, Philadelphia , and Washington, D. C.; and
- interaction with members of Congress and their staffs.

The process of identifying and reaching potential participants was, by design, an evolutionary one. Initial contacts were expected to provide additional names, and they did. Those sources in turn provided more names. Lists of potential participants were also obtained from interested persons and organizations, congressional offices, testimony at hearings, press reports, and requests for information received by OTA.

Supplementary sources of information, such as testimony at Government hearings, press reports on energy systems in genera], and similar sources not generated by OTA, were also used to determine whether there were any major d inferences between views expressed in those forums and views being expressed to OTA, and to detrmine whether relevant segments of the public were being reached by the OTA effort.

The public participation project was a continuous loop of information exchange from the assessment team to the public and back to the team. The information exchange made it possible for the OTA staff to confirm ongoing work or modify or expand the study i n response to concerns and information needs identified by participants.

The following sections of this chapter detail major findings, the ways in which OTA made use of the information gathered through the public participation program, and how the program was conducted. Throughout the discussion, the actual words of respondents are often used to illustrate the level of public interest, understanding, and concern about the energy systems being studied.

Major Findings for All Technologies

BACKGROUND

From responses to a questionnaire (see figure V-1) distributed during the public participation program, OTA obtained two groups of information: lists of the positive and negative impacts expected from the three energy systems, and comments on all aspects of offshore energy development.

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Figure V-1. Public participation questionnaire

New Jersey-Delaware Offshore Energy and Coastal Zone Assessment

~~Public~~ Participation Questionnaire

1. If you would like to be kept informed about the assessment, please print:

Name _____

Address — _____

City _____ State _____ Zip _____

2. If you belong to any organization(s) that would have an interest in the assessment, please indicate

Organization _____

Address _____

City — _____ State _____ Zip _____

President _____

Organization _____

Address _____

City _____ State _____ Zip _____

President _____

3. If offshore energy systems were developed off the coasts of New Jersey and Delaware, what effects would you foresee for yourself, your community. and the nation? Do you think these effects would be generally positive or generally negative?

Possible effects? (Please list)	Positive Or Negative, (Please check)
Offshore Drilling for Oil and Gas	
1. _____	Pos ☐ Neg. ☐
2. _____	Pos ☐ Neg. ☐
3. _____	Pos ☐ Neg. ☐
Floating Nuclear Power Plants	
_____	Pos. ☐ Neg. ☐
2. _____	Pos. ☐ Neg. ☐
3. _____	Po, ☐ Neg. ☐
Deepwater Ports for Supertankers	
1. _____	Pos. ☐ Neg. ☐
_____	POS. ☐ Neg. ☐
_____	P05. ☐ Neg. ☐

4. If you have other comments on any of the subjects related to offshore energy development in the New Jersey-Delaware area, or alternatives to such development, please note these below:

_____

_____

_____

_____

_____

_____

_____

5. If you or your organization have developed any information relative to the subjects of this study that you would like to send along with this questionnaire, please note below the nature or title of the materials:

_____

_____

_____

_____

_____

Please mail this questionnaire, along with any other information you wish to share with OTA to:

Please fold here

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The lists supplied by respondents allowed OTA to determine which anticipated impacts were most important to participants. They also made it possible to compare responses from various areas of New Jersey and Delaware to determine if there were significant differences in views based on place of residence.

The comments, which were made in response to an open-ended question on the questionnaire, provided the quotes used in this chapter and advised OTA of alternatives and other actions which the respondents believed important, relative to energy supplies.

The following pages give the overall findings from the questionnaires and the findings for each of the three systems studied. For each system, the findings are grouped as they relate to anticipated effects, how the technologies will be implemented, and preferences or alternatives expressed by respondents.

OVERALL FINDINGS

The public participation program showed that:

- Questionnaire respondents attributed more positive than negative effects to offshore oil and gas systems and to floating nuclear powerplants, but more negative than positive effects to deepwater ports.
- More respondents perceived mixed effects—i e., some positive, some negative—from offshore drilling, than from floating nuclear powerplants or deepwater ports.
- For all technologies, the important positive effects related to increased energy supply, lowered energy costs, stimulus to the economy, fiscal advantages, increased employment, and environmental advantages.
- For all technologies, the primary negative impacts related to degradation of the onshore and marine environment, the dangers and consequences of major accidents such as oil spills or nuclear malfunctions, adverse economic impacts—especially potential losses to the tourist-recreation industry—and adverse energy use impacts such as depletion of nonrenewable sources, disincentives to conservation and to alternative energy source development.
- The major positive effect perceived for offshore drilling was increased energy availability y.
- The major positive effect perceived for floating nuclear powerplants was also increased energy availability.
- The major positive effect perceived for deepwater ports was lower energy costs,
- The major negative effect perceived for offshore drilling was undesirable onshore impacts.
- The major negative effect perceived for deepwater ports was the possibility of large oil spills.
- The major negative effect perceived for floating nuclear powerplants was potential nuclear hazards.

In addition, respondents expressed a preference for alternatives other than nuclear or oil-related offshore developments. These can be summed up by the following statements by participants:

> ConservatiOn of energy, wind, and solar power should be used, not stepped-up production of oil or dangerous nuclear power- the ocean belongs to the world and should be protected at all costs. (From Paramus, N.J.)

> More effort must be made to use solar energy. Nuclear, fossil fuels are at best stop-gap measures. (From Waldwich, N. J.)

> The only real solution to the energy problem is a commitment to development of sources

other than fossil fuels or nuclear fission. An all out effort to develop solar, wind, geothermal sources, etc., would meet with public acceptance. (From Chatham, N. J.)

It's time to develop new means of supplying energy in the United States. (From Montclair, N. J.)

FINDINGS BY REGION

The number of respondents -who listed predominantly positive or predominantly negative effects for each technology was tabulated and this i n formation was sorted according to the counties in which the respondents live. This analysis allowed the study team to determine whether residents of coastal counties perceived effects which were significantly different from those perceived by residents of noncoastal areas. The major findings of this analysis are as follows:

NEW JERSEY

Delaware River Counties of New Jersey (Cumberland, Salem, Camden, Gloucester, and parts of Cape May Counties):

- more positive than negative on nuclear plants, offshore drilling for oil and gas, and deepwater ports; but
- largest positive margin on oil and gas.

Southeastern New Jersey (Cape May, Atlantic, Ocean Counties):

- positive on oil and gas, but by smaller margin than other parts of New Jersey;
- about evenly divided on nuclear, but negative percentage larger than in other parts of New Jersey;
- more positive than negative on deepwater ports, but by fairly small margin.

Northeastern New Jersey (Monmouth, Middlesex, Union and Essex Counties):

- largest number of respondents;
- more positive on oil and gas and nuclear;
- more negative on deepwater ports;
- more positive on floating plants than Southeastern New Jersey or Delaware River Counties;

Non-coastal New Jersey:

- larger margin positive for oil and gas than other New Jersey or Delaware regions;
- larger margin positive for floating nuclear plants than other New Jersey or Delaware regions;
- larger margin negative on deepwater ports than other New Jersey regions.

DELAWARE

New Castle County, Delaware:

- more positive for oil and gas;
- more positive for floating plants;
- more negative on deepwater ports.

Kent and Sussex County, Delaware:

- smallest number of respondents;
- more negative than positive on all three technologies;
- more negative on offshore development and floating plants than deepwater ports;
- margin of negative for all three technologies greater in Sussex than Kent.

OFFSHORE DRILLING FOR OIL AND GAS

Anticipated Effects.

The perceived positive effects of offshore drilling focused on very different factors from the perceived negative effects. The benefits of OCS oil and gas were seen mainly as economic and energy-related, with emphasis on energy

self -sufficiency and employment oppor - tun i ties; whereas the adverse effects were associated main 1 y with anticipated degrada - tion of the coastal and marine environment, the quality of life, and the risks of major accidents causing losses to the economic base of the region—the recreational industry which depends on a clean environment. (See figure v-2.)

Concerning the positive effects, a Bloomfield, N, J., resident saw offshore drilling as "a positive step in the direction of providing this country with the energy it needs. " A Montclair, N. J., respondent saw offshore drilling as "absolutely necessary for our future economy. Another Bloomfield resident saw OCS development as "good for the State in that it provides much needed jobs and tax revenue, and a Pompton Lakes, N .J., person said that offshore drilling "should help the very bad economic and unemployment situa - tion now existing in New Jersey. "

A Wilmington, Del., resident summed up these responses by saying "I favor offshore drilling as benefits seem to more than offset the risks. " Finally, a Basking Ridge, N. J., man said, "The United States should do all it can to develop energy supplies not related to other countries. "

In contrast, a respondent from Barnegat Light, N. J., summed up many of the negative perceptions by saying he felt that "such developments would ruin the N.J. shore. " A Wilmington, Del., resident was "against such development" because it "would supply very limited amounts of oil over a very short commercial life but would radically alter the ecology, both animal and human along the coast" and "may impose additional taxes on current residents. " And a South Orange, N.J., resident said "Tourism is N.J. 's number one business. Unattractive onshore development should not be allowed to damage this busi - ness. "

Process of Implementing the Technologies

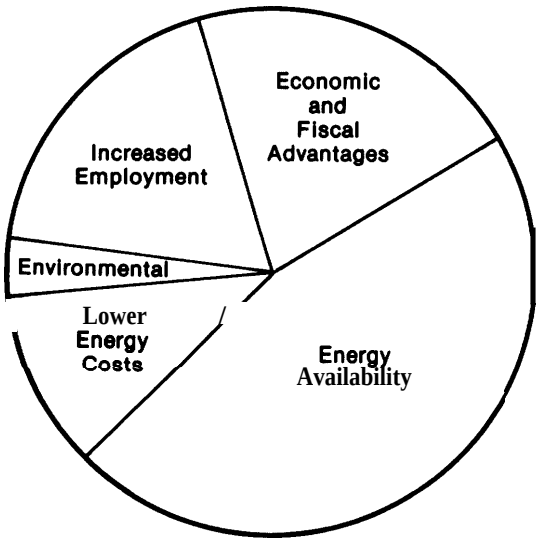
The responses to an open-ended query on the questionnaire distributed by OTA confirmed the findings of workshops and interviews that the manner and timing of Federal decisions relating to offshore oil and gas development, as well as the State and public role in such decisions, are matters of concern. The way in which the offshore drilling technology is managed and regulated was also criticized by some, and the absence of adequate liability and compensation programs in the event of major oil spills was noted. Proponents of offshore drilling were less critical of the present system of implementation and management and many felt that changes in the process would cause undesirable delay in developing offshore oil and gas sources.

GOVERNMENT INVOLVEMENT

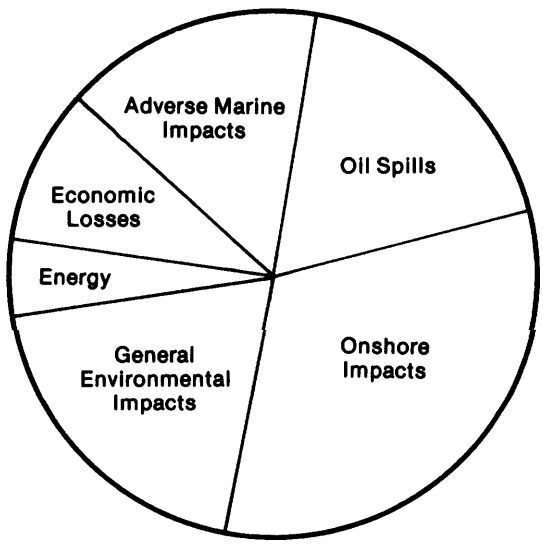
There were some widely divergent views on the nature and extent of appropriate government involvement in offshore oil and gas development. Views ranged from those of the Neshanic Station, N.J., resident who favored "minimal government interference in the develop merit," that of a Westfield, N. J., respondent who said "offshore exploration and production should be done by industry, not Federal or State agencies, " and the Mendham, N. J., man who wanted "a minimum of necessary government controls, " to those of a Leonia, N.J., resident who said "nationalize all energy industry, " and the Bayone, N. J., resident who felt that "if offshore development occurs it should be undertaken by the Federal or State government for maximum public benefit."

There were some who said, as did a South Orange, N. J., respondent that "the present OCS leasing system works very well" and that "pending OCS legislation looks like another attempt to destroy private enterprise, and substitute big government bureaucracies." A number of respondents cited the desirability

Figure V-2. Results of public participation questionnaire: offshore drilling for oil and gas



(1207 Positive Effects = 58% of Oil and Gas Effects Listed)		
ENERGY AVAILABILITY		**47%**
Increased supply of energy to the nation or region in general	52%	
Enhanced energy independence and national security	4770	
Other	1%	
ECONOMIC/FISCAL ADVANTAGES		**20%**
Stimulate economy	57%	
Increase tax revenues	17%	
Industrial development	17%	
Balance of payments, other	9%	
INCREASED EMPLOYMENT (Increase employment - decrease unemployment)		**19%**
LOWER ENERGY COSTS (Cheaper oil and gas, cheaper transport costs)		**12%**
ENVIRONMENTAL ADVANTAGES (Less pollution from tankers, etc.)		**2%**
Total Positive Effects:		**100%**



880 Negative Effects = 42% of Oil and Gas Effects Listed)		1
ONSHORE IMPACTS		**32%**
Damaged beaches, shore	29%	
Industrial development	21%	
Increased support/service facilities	17%	
Increased population	13%	
Aesthetics	7%	
Other quality of life impacts: Boom town, air pollution, traffic congestion, community dislocation	13%	
GENERAL ENVIRONMENTAL IMPACTS		**21%**
Harm to environment/ecology	65%	
Pollution	35%	
OIL SPILLS		20%
Oil spills	69%	
Accidents (including pipeline leaks, blowouts)	31940	
ADVERSE MARINE IMPACTS		**15%**
Harm to ocean ecology in general	61 %	
Harm to wildlife, marine life	30%	
Damage to wetlands	6%	
Damage to ocean floor	3%	
ECONOMIC LOSSES		**8%**
Losses to tourist-recreation industry	64%	
Damage to fishing industry	24%	
Other losses (property values, farmland)	12%	
ENERGY IMPACTS (Decrease conservation, further dependence on oil, use up non-renewable sources, delay energy alternatives)		**1%**
Total Negative Effects:		**100%**

of separating exploration from the development of offshore oil and gas or suggested several related ways to change the present leasing system. One respondent, from Chatham, N. J., said that "the United States should do its own exploration work to determine the oil and gas resources, then perhaps lease lands. These are public resources and if developed the public should receive a better return than has been true in the past. " A Brookside, N. J., respondent said, "I think exploration for oil and gas is important in terms of knowing our resources. However, development should not be undertaken until other resources are exhausted. "

And, finally, a Red Bank, N.J., respondent summed up the views of many public participants as follows: "The development of OCS oil resources must be done on a thoroughly planned basis. This requires a preliminary exploratory phase. After the total resources are known, then a rational national energy plan can be developed which will match the Nation's energy needs over the long term while minimizing environmental impact. "

STATE-LOCAL ROLES AND COMPENSATION

There were many general comments, relating to all technologies, that offshore developments should take place with adequate State and local participation in decisions. One summation of this view is that of the Newark, Del., resident who said, "The States of Delaware and New Jersey should have a strong voice in all proceedings. No 'Federal-experts-know-best' attitude, Some 'experts' simply are not greatest authorities on all matters, especially local ones." Cooperation among levels of governments was seen by a Dover, Del., respondent as especially needed with regard to offshore drilling: "Department of the Interior and the oil companies have a serious credibility problem. Top management is either insensitive or too arrogant. Offshore exploration can be speeded up with a 'true' cooperative program between local, State, and Federal govern merits."

Several aspects of the State and local role in OCS development were discussed by participants. A Glen Ridge, N. J., woman said "I believe New Jersey should have a say as to where the drilling will be done. . . ." Several respondents expressed views similar to that of a Fanwood, N. J., man who felt that "New Jersey should receive some compensation for use of the the land and natural resources" and the Selbyville, Del., resident who said, "If it is necessary, the States should be financially compensated to provide the facilities that will be needed for the increase in population. "

ORDERLY DEVELOPMENT

A recurring theme among questionnaire responses was that development should be preceded by proper planning and safeguards. As a Highland, N.J., man put it, "The OCS should be developed but with proper planning given to the many environmental impacts that will result. " A Fort Lee, N. J., respondent added, "1 cannot overemphasize the need for careful environmental planning, especially in regard to the effects on the local communities. It must be dealt with as a complete 'system' including access roads, pollution abatement, and recreation for the increased population. " A Wilmington, Del., woman wrote, "I would favor some offshore energy development (excluding nuclear) if it were undertaken with adequate safeguards for the environment and in a time frame allowing Delaware communities to plan for the resulting growth. " On the other hand, a State legislator from Centerville, Del., felt that "Coastal zone management and statewide land use plans must be developed with inputs from the total community. "

A Wilmington, Del., resident said, "I favor offshore drilling with control to minimize spills, " and a Washington, D. C., respondent saw the need for "strict adherence to environ-

mental protection measures—provision for prompt remedies in case of spills, accidents, etc." A Phillipsburg, N. J., resident, who expressed support for drilling, wrote: "The technology exists to control spills and leaks from any oil-related activity."

Strict control over the technological systems was also emphasized by respondents like one from Wenonah, N. J., who saw a need for "constant reliability check on equipment and operators of vital equipment. Operators must be very well selected for ability to accept responsibility and to perform consistently."

A Westfield, N. J., man added that, "Enforceable stiff rules on spill prevention should be developed."

LIABILITY AND COMPENSATION FOR OIL SPILLS

Many respondents wanted, as did a Wilmington, Del., resident, to "make sure enough money is set aside to compensate for spills and damages." A Belleville, N. J., resi-' dent wrote, "People should have quick inexpensive recourse for restitution for damages due to spillage." A Millville, N.J., resident stated that "any private company should be required to post bond of sufficient amount to cover cost of spill cleanup and restoration of wild life," and the Belleville, N. J., respondent added that "Legislation should include oil companies to put up bond for cleanup and all damages from an oil spill."

Preferences and Alternatives

Some of the respondents made choices among the technologies.

For example, a Budd Lake, N. J., resident said, "Oil and gas is necessary for development of the United States and has many and varied uses. Nuclear power would make us less dependent on oil, but radioactive waste is a nearly prohibitive problem which should be dealt with before any further nuclear industry development." Similar views were expressed by a Lawrenceville, N. J., respondent who said, "Fossil fuels are a more sensible alternative to nuclear energy development", primarily because of "nuclear debris generated during production of fuel elements." A resident of Wilmington, Del., stated: "I fully support these developments based on oil and gas energy. I'm concerned about nuclear-power development because of its potential hazards." He cited disposal of radioactive wastes and the potential for sabotage at sea with offshore nuclear plants.

A resident of Ridgewood, N. J., added: "Offshore energy should be developed in oil and gas after full measures of the social and environmental impact have been made. The hazards of offshore nuclear facilities and deepwater ports do not warrant their development at this time."

While most of the comments on energy policy and energy alternatives were general to all three technologies, some participants did express specific views about oil resources in general and offshore drilling in particular. Some felt, as did a Mountain Lakes, N. J., resident, that "oil, at best, is a short-term solution to our national energy needs. A concentrated effort to develop suitable long-term solutions is required. Why run the risk of environmental disaster to achieve a short-range solution?" A Lewes, Del., woman felt that "less dependence on oil should be our first priority; with more Federal money being spent on the development of solar energy." A Pt. Pleasant, N. J., respondent, on the other hand, said "This offshore drilling for oil and gas is a short-term solution to energy-source problems. Energy sources other than burning of fossil fuels (with the exception of coal which is in good supply in this country) should be developed (i.e., tidal, solar, nuclear)." A somewhat similar view was expressed by a Wilmington, Del., man who said, "Petroleum development is only a stop-gap measure as supply will run out shortly. I suggest increased support of

solar technology, wind power, and nuclear fusion supplies of energy. ”

In addition, the alternative of energy conservation was advocated by a large number of participants. As a Montclair, N.J., woman put it, “The proper alternative to offshore development is conservation .“ A West Orange, N. J., man elaborated on these themes as follows: “Devoting large amounts of capital to oil and gas exploration will ‘lock us in’—it will commit us to stick with these energy sources, since investors will not allow their investment to yield no return. The only way to escape from this development-consumption cycle is to break away and concentrate on a program of conservation and alternate sources.

Finally, the priority and nonpriority uses of offshore oil were discussed by a Fanwood, N. J., resident who asked, “Why offshore drilling? If this energy is going to be used for mass transportation and industry, OK, but let’s not do this to lower the price of automobile gas. The only thing this alternative would do is lower our undersea oil reserves. I say more mass transportation. ” A Franklin Lakes, N. J., respondent said, “Rather than floundering around for oil in the short term, we should tax the stuff out of use as a fuel except for aircraft-develop fusion, wind, and solar power and start the withdrawal from our oil jag before the whole world has to go ‘cold turkey ’.”

A respondent from Chatham, N. J., summed up the point of view of a number of participants by saying, “The total expected reserves off New Jersey and Delaware represent a small fraction of our energy needs. Developing it now will not bring us that much closer to energy independence, but it will be depleting a valuable resource for future generations who may, hopefully, use oil for more productive purposes than generation of power where coal could be used instead. Oil is extremely versatile and valuable as an organic building block for drugs, plastics, synthetic food, etc. It should be preserved where possible for these uses. ”

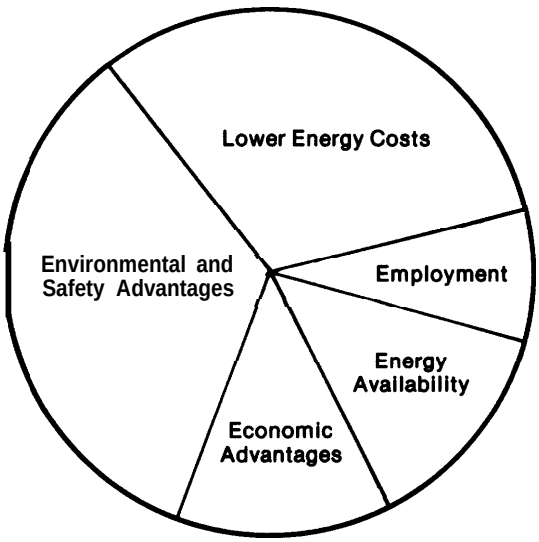
DEEPWATER PORTS

Anticipated Effects

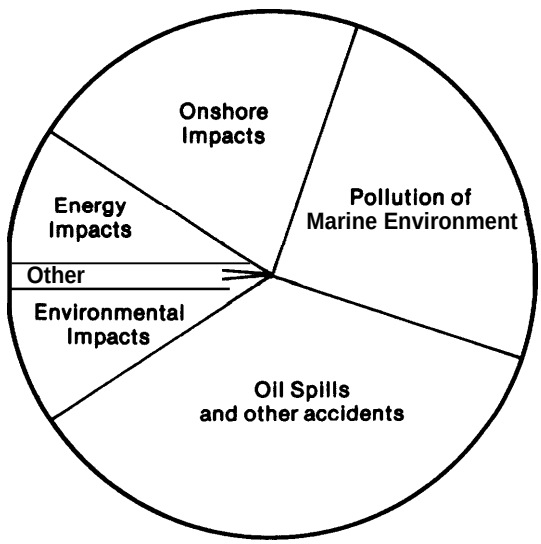
While many of the perceived effects of deepwater ports focused on lower energy costs, other economic advantages, increased energy supply and more jobs, a significant proportion of respondents saw such systems as safer and less harmful to the environment than the smaller tanker traffic closer to shore. On the negative side, however, a large proportion of respondents were concerned about the potential for larger oil spills from supertankers. Greater danger of accidents and general offshore and onshore environmental degradation were also seen as negative effects. Many of these respondents saw such ports as encouraging continued dependence on foreign oil and therefore inconsistent with energy self-sufficiency. (See figure V–3.)

A Florham Park, N. J., respondent summed up many of the negative perceptions as follows: “The use of deepwater ports for supertankers would only marginally affect the economics of oil delivery. While it may be argued that the decrease in number of vessels involved reduces the chances of accidental spills, the increase in severity of one accident offsets this consideration. ” A Sea Girt, N.J., resident said, “See no need for deepwater ports, since these are intended principally for import of foreign oil which we ought to be

Figure V-3. Results of public participation questionnaire: deepwater ports



(770 Positive Effects = 48% of Deepwater Ports Effects Listed)		
LOWER ENERGY COSTS		**30%**
Cheaper oil, energy	61 %	
Cheaper transportation costs	39%	
ENVIRONMENT AND SAFETY ADVANTAGES OVER PRESENT METHODS		**28%**
Fewer spills, less water pollution	4970	
Less tanker traffic in rivers and ports	29%	
Less general environmental impact	13%	
Fewer collisions, port fires, other accidents	9%	
ECONOMIC ADVANTAGES		**16%**
Stimulate economy	40%	
Industrial development	30%	
Help business activity, refinery operation, shipbuilding	24%	
Tax revenue	6%	
ENERGY AVAILABILITY (Increase needed energy supplies)		**15%**
EMPLOYMENT (Increase jobs)		**11%**
Total Positive Effects:		**100%**



(835 Negative Effects = 52%. of Deepwater Ports Effects Listed)		
OIL SPILLS AND OTHER ACCIDENTS		**38%**
Larger oil spills	70%	
Safety hazards, accidents including pipeline ruptures, collisions, bad weather effects, fires	30%	
POLLUTION OF MARINE ENVIRONMENT		**24%**
General pollution including water	76%.	
Harm to marine life, wildlife, wetlands, ocean ecosystem, ocean floor	24%	
ONSHORE IMPACTS		**20%**
Industrial development	29%	
Damaged beaches	27%	
Aesthetics	8%	
Other land use impacts onshore support facilities, increased population	36%	
ENERGY IMPACTS		**10%**
Encourage continued dependence on imported oil	71 %	
Postpone long-range alternatives, conservation	27%	
Other	2%	
ECONOMIC DISADVANTAGES		**6%**
Potential losses to tourist-recreation industry	49?40	
Expensive to build, higher energy costs	27%	
Other—lower property values, increased taxes, balance of payments	24%	
OTHER		**2%**
Use of supertankers, increase ship traffic, target for sabotage		
Total Negative Effects:		**100%**

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curtailing, ” and a Ridgewood, N. J., resident said, “Supertankers . . . are notorious spillers of oil. ”

A Wilmington, Del., respondent saw it differently. “The present method of lightening is more dangerous, potentially, than a deepwater port under controlled condition s.” put another way, a Summit, N .J., resident stated, “Offshore tanker ports would add an important safety increment to our east coast ports. Much tanker traffic now operates in confined bodies of water at greater hazards. ” Finally, a Lincroft, N. J., man said, “The Northeastern United States needs to be less dependent on the other areas of the country for supplies of gas and oil. ” He asked, “Would a deepwater port give it an advantage over other areas?”

Process of **Implementing the Technologies**

Some respondents indicated that the risks associated with this system should be eliminated or minimized before the technology is deployed.

A Wilmington, Del., man put it this way: “The supertanker ports would be unacceptable to me unless new regulations were enforced in order to reduce the chance of major oil spills. At present, oil company policies are lax and attempts at self-regulation have seemed to fail. ” A Whitestone, Va., resident pointed out that “we will lose small amounts of surf clams” from offshore development but proper precautions “will keep this to a minimum. Pipelines buried from deepwater terminals and from wells can circumnavigate most shellfish areas. ”

The themes of State and local role, orderly development, the assignment of responsibility y for oil spills, and providing adequate compensation to persons and businesses damaged by oil spills, were concerns also expressed by respondents with regard to deepwater port development.

Preferences and Alternatives

Some respondents expressed preferences among the three technologies as follows: A Ridgewood, N. J., man said “We should proceed with offshore drilling and nuclear floating powerplants. Supertankers do not solve the problem of foreign oil dependence. ” A Wilmington, Del., respondent made a different choice. “I favor offshore drilling ...1 oppose floating nuclear plants-risks of land-based plants seem less. I favor deepwater unloading ports. This may reduce pollution from spills. ”

A Washington, D. C., woman wrote, “Since I question the efficiency of Project Independence I believe the importation of oil to be the most efficient policy, since the proposed projects would increase capital costs, raising prices to those of imported oil anyway. In the interim period, we should explore the large-scale development of large-scale solar energy more fruitfully.”

Others saw alternative energy systems as preferable to deepwater ports. A resident of East Hanover, N. J., stated, “I am positively opposed to DWP’s [deepwater ports] as an interim solution. Only a total effort to cut dependence on petroleum makes any sense. That means power rationing, efficient mass transit, and properly engineered atomic-energy plants.” A Silver Spring, Md., man saw it this way: “Deepwater ports imply a continued reliance on imported oil—this is self-defeating. . . . Atomic power alone goes in the right direction, away from reliance on fossil fuels, until alternative sources (solar, thermal, etc.) can be developed.” A Cinnaminson, N. J., respondent concluded, “Reliance on oil should be reduced. Increase use of coal and ration gasoline. Reduce imports. ”

FLOATING NUCLEAR POWERPLANTS

Anticipated Effects

The major advantages of floating nuclear powerplants perceived by public participants were that such plants would increase the supply of needed energy, advance energy self-sufficiency, and provide electrical power at lower costs than would otherwise be the case. Increased employment and stimulus to the economy were also seen as benefits. Some respondents indicated that these plants would have less harmful environmental impact than oil-related energy systems, that they were clean and safe, that floating plants had environmental and safety advantages over those built on land, that such plants contribute to a good energy policy by helping to end dependence on oil and gas and by conserving fossil fuels.

The major concern of respondents who cited negative effects focused on the specific hazards and problems that they associated with such plants. Many of the participants pointed to the risk of nuclear accidents and of radioactive contamination with its attendant dangers to the natural environment and to human health, and to the unsolved problem of disposing of radioactive nuclear wastes. Some respondents said the plants were too experi - mental and there were too many unknown safety factors. Most of the other negative effects involved adverse i m pacts on the marine and onshore environment and, in particular, the potential thermal pollution from such plants. Others saw economic disadvantages, including the high expense of such plants and the potential losses to the tourist and fishing industries. Some said investment in these plants would take funding away from safer alternatives. A small portion cited risks of sabotage and theft. (See figure V–4.)

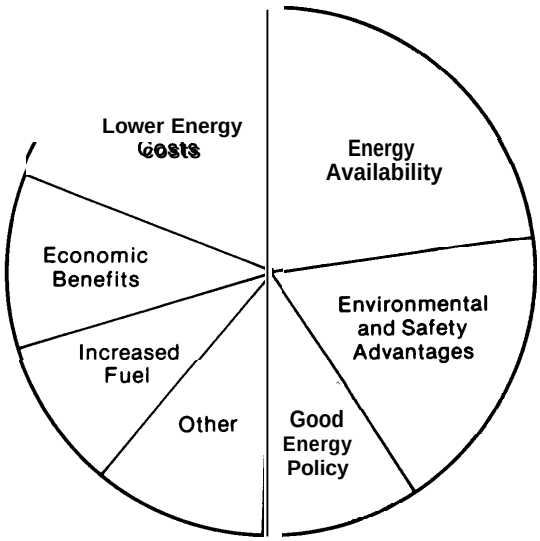
Some of the positive factors were mentioned by a Bloom field, N. J., resident who said, “Nuclear power is our most efficient and pollution-free source and should be utilized, ” and a respondent from Cranford, N. J., who wrote, “Floating nuclear powerplants appear on the surface to be the safest short-term technology for development of New Jersey and Delaware. I feel there is better technology and fewer hazards with this development. ’ A Woodbridge, N. J., man said, “The nuclear energy proposal would result in the ‘cleanest’ way of helping to develop our resources. ” Support for nuclear, but not for the floating plants, came from a Cherry Hill, N.J., man who said, “Nuclear powerplants are needed, but building them at sea creates additional design problems and risk which I do not think are offset by the advantages. Additional nuclear plants should be built on land. ”

On the negative side, a Wilmington, Del., respondent summed up many of the concerns about the risks of such plants by saying, “1 am opposed to the establishment of floating nuclear powerplants because of the greater safety hazards involved and the tremendous potential impact of a nuclear accident. In addition, I would not like to have the first such plant located near Delaware. ”

A Linden, N. J., man cited “heat and radioactive waste problems. ” An East Brunswick, N. J., man mentioned the “effect of water-temperature rise on marine life and migration behavior. ” A Marlton, N. J., respondent said that nuclear power stations “will most likely negatively affect the ecological balance of marine life and lead to the inevitable destruction of same. ” A Ridgewood, N, J., man said that, “Powerplants create an unnatural Gulf Stream water temperature to which marine life becomes accustomed. If shut

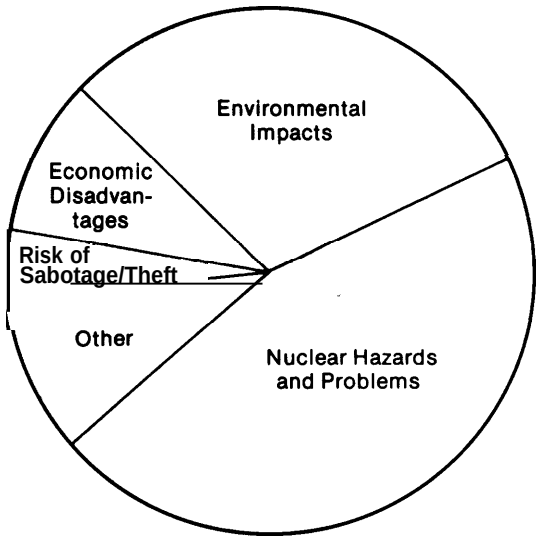
Figure V-4. Results of public participation questionnaire: floating nuclear powerplants

ANTICIPATED POSITIVE EFFECTS



(977 positive effects =53% of FNP Effects Listed)		
ENERGY AVAILABILITY		24%.
Increase energy supplies	81%	
Advance energy self-sufficiency	19%	
ENVIRONMENTAL AND SAFETY ADVANTAGES		20%
Advantages over land-based plants (isolation from people, reduced thermal pollution, less risky,better land utilization, unlimited supply of cooling water)	5070	
Clean and Safe (clean electricity, minimize air and water pollution, safe, good for fish)	28%	
Less environmental impact than oil	22%	
LOWER ENERGY COSTS		19%
ECONOMIC BENEFITS		11%
Stimulate economy	4170	
Industrial development	37%	
Other: higher standard of living, tax benefits. increased land values	22%	
GOOD ENERGY POLICY		9%
Stop dependence on oil and gas (save these for petro-chemical industry, other)	7570	
Conservation of fossil fuels	25%.	
INCREASED EMPLOYMENT		8%
OTHER		9%
Total Positive Effects:		**100%**

ANTICIPATED NEGATIVE EFFECTS



(872 negative effects = 47%. of FNP Effects Listed)		
NUCLEAR HAZARDS AND PROBLEMS		47%
Accidents	26%.	
Safety risks (unsafe, too experimental, unknown safety factors)	22%	
Radiation contaminant ion (including leakage, fallout, health hazards)	33%	
Nuclear waste disposal	190/0	
ENVIRONMENTAL IMPACTS		32%
Thermal pollution	29%.	
Harm environment, ecology	21 %	
Harm marine life, ecosystem	18%	
Pollution (including air and water)	17%	
Onshore impacts: industrial development, increased population, service facilities, congestion	1 20/0	
Aesthetics	3%	
ECONOMIC DISADVANTAGES		90/0
Expensive to build, drain on capital funds	46%.	
Losses to tourist/fishing industry	24%	
Cheaper to build on land	15%	
Take funding away from safer alternatives	100/0	
Lower property values; higher taxes	50/.	
RISK OF SABOTAGE/THEFT		3%
OTHER		9%
Total Negative Effects:		**1000/~**

Source Office of Technology Assessment

down, the water temperature drops back to normal and many thousands of species are killed. Environmentally, a powerplant causes more harm than good. " A Bethany Beach, Del., resident stressed the uncertainties by saying "Nuclear power has yet to prove itself. "

A Ridgewood, N. J., woman foresaw "total destruction if terrorists were to sabotage an energy system", and a Sewell, N. J., resident said the offshore plants "become extremely vulnerable to an enemy. "

And, finally, a local official in Brigantine, N. J., stated: "Consider the vast tourist development along the Jersey shore which will be hurt by even the threat of offshore oil or offshore nuclear development. Consider the problems of evacuating huge crowds in the event of a catastrophe. "

Process of Implementing and Managing the Technologies

If offshore nuclear plants were to be deployed, some respondents want certain safeguards included. These people, like a Hockessin, Del., resident, believe that "with careful design and operation, environmental and safety problems can be circumvented. " A Sparta, N. J., man said, "Floating nuclear powerplants pose slight risks from storm damage and problems with underwater transmission of electricity. Conservative design would minimize these problems. " And a Washington, D. C., resident said it is "essential to build into the systems measures to prevent introduction of . . . nuclear waste into the ocean, "

One respondent, a visitor from Arizona, had a specific technical suggestion, "Floating nuclear powerplants could be serviced by mobile shipboard fuel recycling factories. This would eliminate the risk of high jacked or lost nuclear fuel en route from a generator to a land recycling factory. In effect, the factory would go to the fuel. "

The siting of offshore plants requires rethinking, according to participants like a Ridgewood, N. J., resident who asked, "Why does it have to be Delaware and New Jersey? Why not some remote area where human life and marine life will not be affected?" and the Brick Township, N. J., person who suggested, "Select new site for offshore nuclear plant away from estuary. " A Pennsauken, N. J., man pointed out, "The development is situated directly in 'hurricane alley' (and) will be subject to hurricane damage. "

There were also respondents who saw the present risks and uncertainties about nuclear plants so great as to make deployment undesirable until those problems have been solved. A South Orange, N. J., man wrote, "Nuclear powerplants are entirely out of the question until feasible safety measures are developed," and a North Beach Haven, N. J., woman stated, "Until safe disposal of radioactive wastes is guaranteed, no more nuclear plants should be put in anywhere. " A Phillipsburg, N. J., resident echoed this view: "We still don't know what to do about nuclear wastes. I would . . . oppose any nuclear plant until radioactive-waste disposal has been perfected." A similar view was expressed by respondents such as the resident of Freehold, N. J., who said of all three technologies, "environmental effects should be minimized now to prevent opposition later. " Finally, an Elmer, N. J., resident said that "Dangers of nuclear power have been overrated and exaggerated, " but also expressed the view that we "need more research on utilization and disposal of nuclear-power wastes."

Preferences and Alternatives

Some respondents preferred nuclear plants offshore to oil-related developments. A Wilmington, Del., man stated, "Let's push nuclear so we don't have to import oil. " A Florham Park, N. J., respondent said, "First priority should be nuclear—step up oil and gasoline conservation. " An Essex Falls, N. J.,

resident said, "Nuclear energy should get priority over all." On the other hand, an East Brunswick, N. J., respondent said, "I prefer the nuclear option, but cautious oil exploration and development should be acceptable." A Woodbridge, N. J., resident saw advantages of the offshore plants in these terms: "The Jersey coast offers recreation to millions and the aesthetics of the shore line can best be preserved by the floating plant, not oil rigs and platforms. I have seen too many 'tar balls' on the sands of our coastline to allow encouragement of any offshore oil development."

A respondent from Princeton, N. J., said, "Offshore drilling and deepwater ports are well developed and should cause no problems. I doubt that our technology is a match for the sea in the construction of nuclear powerplants; thus, chances of nuclear accidents are greater than in land-based plant."

A Fords, N. J., resident saw it this way: "In the present overall economic and energy situation, offshore oil development should be recommended. Floating nuclear powerplants are undesirable due to various important reasons." Some such reasons were expressed in the form of questions by the Wilmington, Del., resident who said, "I fully support those developments based on oil and gas energy. I'm concerned about nuclear power development because of its potential hazards. What is the plan for disposal of radioactive wastes? Sabotage at sea more likely?" To answer these and other questions, a Linden, N. J., resident said that while "offshore drilling and loading ports are a must and much needed . . . nuclear powerplants still require more research into their safety and hazards of handling wastes."

Aside from the alternative of siting the plants on land, which was preferred by some respondents, there were many participants who wanted non-nuclear alternatives pursued.

A New Brunswick, N. J., man said, "Energy conservation methods should be more greatly stressed. Further pushing for nuclear power without adequate safeguards is simply continuing madness." A Princeton, N. J., resident wrote, "Should have a crash program in renewable energy sources, solar, wind. Firmly against nuclear power." A Wilmington, Del., man said, "Coal should be the number one source of energy for the immediate future," and an Ocean View, Del., resident said, "Accelerate methods to use coal in a non-polluting manner. Consider use of solar energy." A Florham Park, N. J., man said, "Energy conservation should be the keystone of fulfilling energy needs (and) would go hand-in-hand with environmental needs. I believe there should be priority over nuclear fuels in developing needed new energy sources."

A Millingtown, N.J., respondent said, "I believe that more attention (and funds) should be allocated to energy conservation such as solar heat, restrictions on cars, public transportation. Any studies on fossil or nuclear energy must include the full impact on ecology and public welfare. If this is done, the alternates become more attractive." And a Roselle Park, N.J., man said, "Energy should be conserved before offshore powerplants are built. Incentives should be formulated to conserve energy and reduce automobile traffic." A Roebling, N. J., respondent wrote, "More research money can be spent on fusion, solar power, wind power as alternates to nuclear power." A Wilmington, Del., resident asked: "Have you considered using the strong tides and currents in the Delaware River to generate energy?" A Townsend, Del., man also suggested "using tides to produce energy." A Newark, Del., man suggested, in addition to tidal sources to generate and store electrical energy, that "thermal gradient between surface water and ocean trough could be harnessed to generate power."

A Margate, N. J., resident who expressed opposition to nuclear powerplants said, "I prefer

safe alternatives. Prof. [William] Heronemous has suggested a string of windmills either offshore or along the Garden State Parkway. Also, tidal power is a possibility worth developing. And solar power is the cleanest, safest method of power production. Government should finance it heavily." A Watchung, N.J., resident added, as an alternative, "development to burn garbage for energy."

A Westfield, N. J., resident saw this set of alternatives as desirable: "Limit nuclear-plant construction to demonstration plants for each promising reactor system. In view of the accidents that have already occurred, I want at least another decade of intense R&D and testing before widespread use. Fusion may then be more practical too." The same respondent had these recommendations: "Conserve petroleum for ultimate use in chemical synthesis. Build coal conversion plants for liquid and gases and fuels. Expand solar energy demonstration program—aim for solar and space heating in all new buildings. Use wind, geothermal, to the maximum extent feasible."

How Public Participation Affected the OTA Assessment

OTA responded to many of the specific concerns identified during the public participation program by redirecting ongoing work, initiating additional studies, or broadening studies already underway.

The following are key examples of how this system worked:

1. Public Expressions—The potential adverse impacts of offshore oil development have social as well as economic dimensions. That is, increased industrialization of the coastal zone with consequent increases in population, transportation congestion, air pollution and noise would make the area less desirable for residents and tourists.

OTA Response to Expressions—OTA examined the types of facilities that would be required onshore for a range of estimates of recoverable oil and gas, but found that existing data did not permit a precise prediction of secondary land use and other impacts.

OTA Conslusion—Adequate information about offshore oil and gas development is not available and more involvement in the deci - sionmaking process by the State and local communities would enable them to better plan for impacts.[1]

2. Public Expressions—Onshore facilities and other aspects of offshore drilling may be a financial burden on State and local communities.

OTA Response to Expressions—OTA expanded its examination of fiscal impacts of offshore development.

OTA Conclusion—The capital-intensive nature of most facilities might produce substantial sales and property tax statewide after the first 2 or 3 years of development if OCS oil and gas were landed in the same State in which the main support bases were located. However, there are many factors that could make it possible that individual States or localities within a State would experience adverse budgetary impacts during some period of development. z

3. Public Expressions—Some thought the nuclear powerplant would make more energy available and that therefore costs of electricity would go down. Others thought the high capital costs of the floating nuclear powerplant could have the effect of raising energy prices.

OTA Response to Expressions—OTA investigated nuclear powerplant costs and ex -

plored the uncertainties involved in predicting the final cost of a floating nuclear plant.

OTA Conclusion—While the cost advantage of the Atlantic Generating Station over a land-based facility of comparable generating capacity is small, in the long run the floating nuclear power plant concept may provide a method of controlling the escalating costs of nuclear powerplants. [3]

4. Public Expressions—Pipelines and pipeline leaks may harm the wetlands.

OTA Response to Expressions—OTA intensified its examination of the effects of pipeline and pipeline leaks on estuaries and wet lands.

OTA Conclusion—The placement of pipelines i n coastal areas requires careful planning and the lines should be routed to avoid marshlands. The danger of an oil spill striking a beach would increase if it occurred as a result of a pipeline rupture near shore. Special consideration of pipeline design and installation is needed. q

5. Public Expressions—Air and water quality may be lowered as a result of OCS and deepwater port development.

OTA Response to Expression—OTA expanded its study of air and water quality status and standards in the two States and the relative impacts to be expected due to refinery construction.

OTA Conclusion—Air quality in many potential locations already violates standards and additional discharges would not be permitted under present guidelines. [5]

6. Public Expressions—Offshore energy development would provide needed jobs and secondary employment from increased energy would reduce unemployment, but many of the employment opportunities may not accrue to the New Jersey-Delaware region, and potential losses to fishermen and tourism could offset employment and income gains.

OTA .Response to Expressions—OTA followed up on this subject by talking to industry representatives about their practices and by refining estimates of peak employment, proportion of jobs likely to accrue to the region, and other aspects of the issue.

OTA Conclusion—Direct employment advantages would peak at about 4,500 jobs for a medium-sized oil discovery. On the other hand, it is not possible to predict accurately either what secondary employment might develop or what employment losses might take place.[6]

7. Public Expressions—There is a possibility the NRC is not seriously investigat - ing the risks of a major nuclear- accident and its consequences.

OTA Response to Expressions—OTA reviewed the work of the NRC on the subject of accidents and initiated some special studies.

OTA Conclusion—The Nuclear Regulatory Commission is not evaluating the risks from accidents in floating nuclear plants com - prehensively enough to permit either a generic comparison of the relative risks from land based and floating nuclear plants, or a-n assessment of the specific risks from deploying floating plants off New Jersey.[7]

8. Public Expressions—The problem of disposing of nuclear wastes has not been solved.

OTA Response to Expressions-OTA examined the waste disposal plan for the floating nuclear plant.

OTA Conclusion—Fuel and waste handling systems and the decommissioning procedures for the floating plant have not yet been adequately analyzed and decommissioning problems have not received the necessary attention.[8]

9. Public Expressions—The major advantages of offshore energy development may be increased energy availability for the region and lower energy costs.

76-183 O - 76 - 16

OTA Response to Expressions—OTA expanded its study of the regional energy supply and demand situation.

OTA Conclusion—Most supply networks and prices are determined on a nationwide basis and little change in regional supply or prices can be expected. Lower transportation costs might give New Jersey and Delaware a price advantage compared with some other region of the country, but future prices would depend, in part, on oil and gas price-control policies and on world prices. Transportation of imported crude oil by supertanker to deepwater ports would similarly not create important price cuts. For the floating nuclear plant, it was found that cost and price changes could not be predicted. g

10. General Concerns—In response to more general concerns surfaced through the public participation program, OTA also convened a panel of industry and government experts in New Jersey to discuss the need for conservation and alternative energy sources and to determine what actions industry and government are taking to foster conservation and to investigate possible alternatives to the existing energy systems. [10]

Sources and Uses of Public Participation Data

The major sources of public participation data were the OTA-sponsored workshops, questionnaire responses, interviews and informal meetings, and review comments on draft materials. Several of these activities were conducted simultaneously and each yielded somewhat different types of information.

The assessment began in the fall of 1974, with a major data-gathering effort. This effort produced descriptions of the technological systems, deployment scenarios, legal-institutional systems and procedures, and the ecological setting.

Workshops

During this phase of the assessment, OTA held three public workshops (Washington, D. C., in May; Newark, N. J., in June; Atlantic County, N.J., in August, 1975). It also held numerous informal meetings in the study region to obtain preliminary information from representatives of affected and interested persons about potential positive and negative impacts of priority concern, policy issues related to the technologies, and alternatives to the technologies.

The Washington workshop was held for the specific purpose of obtaining data from national environmental, civic, and sport fishing associations, about potentially adverse and beneficial environmental effects of the proposed systems. The two New Jersey workshops were held to obtain data from a broad and balanced representation of affected and interested publics in the region (including industry, utilities, labor, State and local officials, academic, environmental, and consumer groups) on a wide range of impacts and issues of regional as well as national relevance.

These workshops, held early in the assessment, provided timely information on areas of inquiry and analysis considered most relevant by persons with knowledge, interest and active involvement in these subjects. (See figure v–5.)

In addition, workshop participants raised questions about the process by which the technologies are implemented and managed at the Federal, State and local level. These discussions helped OTA begin to identify factors which participants felt were not being ade-

Figure V-5. Sites of OTA contacts during public participation program

Source **Off Ice** of Technology Assessment

quately addressed through the current process, and the difficulties encountered by citizens and local officials who wished to become involved in that process.

The workshops also provided information about participants' views of the scope, assumptions and methodology of this assessment. Some participants raised questions which they wanted the assessment to address; others suggested sources of additional information relevant to the assessment.

The workshop format, with its free-flowing and informal exchange among participants with diverse viewpoints and perceptions, provided OTA with a perspective not attainable through questionnaires or interviews. The give-and-take discussion enabled participants as well as study-team members to address and follow up on comments made by other participants. This helped OTA understand the extent to which viewpoints were shared, the level of differences in views, and the relative importance assigned to various factors by different participants representing different elements of the affected public.

Questionnaires

A questionnaire appended to an information brochure describing the assessment was distributed from August through December, 1975. (See figure V– 1.) During this time, the study team was starting the detailed analysis of potential impacts and the preliminary identification of policy issues. The questionnaire responses were examined periodically with a view toward providing the assessment team with more detailed data on impacts and issues of importance as seen by respondents. These data were useful in confirming, sharpening or supplementing information already obtained from workshops and from the study team's analysis.

One of the questions was:

> If offshore energy systems were developed off the coasts of New Jersey and Delaware, what effcts would you foresee for yourself, your community, and the Nation ? 'Do you think these effects would be generally positive or generally negative?

The responses to this question yielded the most systematic information on anticipated effects. The effects listed by respondents were tabulated in order to provide some indication of the frequency with which certain categories of effects were mentioned and to indicate which categories were viewed as positive or negative.

This analysis helped OTA staff to identify priorities among the anticipated positive and negative effects attributed by respondents to the three technologies.

The number of respondents who labeled the effects which they listed as all positive, all negative, or some of each, was also tabulated. This analysis provided OTA with a comparison among the technologies of the proportion of respondents who saw impacts as positive, negative, or mixed.

Finally, a tabulation was made of the number of respondents who anticipated predominantly positive or predominantly negative effects for each of the technologies. This information was used to identify the differences in perceptions by residents of various parts of the study region.

The quantification of responses in this report must be read with the knowledge that not all respondents answered all questions or listed the same number of impacts for each technology, and that some responses were not tabulated because they were illegible, could not be categorized, or did not indicate whether effects listed were positive or negative.

Another item on the questionnaire said:

> If you have other comments on any of the subjects related to offshore energy development in the New Jersey-Delaware area, or alternatives to such developedopment, please note these below,

While OTA did not ask for an indication of support or opposition to the technologies, many persons responded to this item of the questionnaire with an indication of support or opposition to the technologies. Many respondents expressed their opinion as to whether one, some, or none of these systems should be implemented. Some qualified their support or opposition by saying that certain things should be done before the energy systems are implemented. Some expressed a preference for alternative energy systems or policies. Others gave their views on the process by which decisions to implement the systems are made, and the manner in which the technologies are managed. The role of various levels of government and of the public was addressed by some respondents.

Some of these statements illustrated and elaborated upon the "anticipated effects" replies. Other explained the reasons for respondents preferences among the technologies or preferences for alternatives to the technologies. Many of the statements paralleled the types of information obtained from the workshops; some touched on different points.

The questionnaire did not ask respondents to indicate organizational affiliation. It did permit respondents to indicate whether they belonged to any organization that would have an interest in this assessment. Very few respondents answered this question. No attempt has been made, or could be made, to correlate replies with affiliations.

Brochures and questionnaires were mailed initially to nearly 2,000 persons and organizations on the preliminary mailing list compiled by OTA. Additional brochures were sent upon request for distribution by congressional offices, libraries, and various government or private organizations for a total distribution of more than 15,000. The office of Senator Clifford P. Case of New Jersey, distributed 6,100 copies, and another 100 copies were distributed by the office of Congresswoman Millicent Fenwick of New Jersey. Four hundred copies were distributed to New Jersey libraries through the New Jersey Library Association. In addition, the following organizations were among those who requested and presumably distributed more than 100 copies of the brochure and questionnaire:

	Copies
American Institute of Chemical Engineers	3,600
Delaware League of Women Voters	500
Chamber of Commerce, Wilmington, Del.	400
Exxon—Bayway Refinery, Linden, N.J.	800
Watch Our Waterways, Dover, Del.	400
Save Our Seashores, Chamber of Commerce, Dover, Del.	200
Control Data Corp., Md	50

Many people who learned about the questionnaire from press reports, from newsletters of various organizations, or from persons who had received one in the initial distribution, requested copies.

The brochure and questionnaire enabled the OTA team to reach and ot obtain information from a larger number of people than was possible with other methods.

Followup

The findings of the workshops and the questionnaires were supplemented with interviews and, in many cases, with further detailed analysis by OTA staff, or by additional studies on specific subjects and issues raised during the public participation activities.

Many of the issues relating to impacts or process were pursued in interviews and meetings with industry and utility representatives, citizen group leaders, and with Federal, State and local government officials. interviews were conducted throughout the assessment but most intensive use of this method took

place just prior to identification and analysis by OTA staff of the issues and options to be emphasized in the assessment report (January through July, 1976). During this period, OTA staff also attended several public hearings and other official proceedings of Federal decision-making agencies and advisory bodies in order to obtain first-hand information on which to base an evaluation of the process.

Finally, in order to examine energy projections, energy alternatives and energy policies more fully, OTA convened a day-long session with government, industry, utility, and academic specialists.

Review of Draft Documents

When background documents on technology, institutional and ecological descriptions were completed, OTA made a copy available for study by the public in the OTA library, and also sent copies for review as to accuracy and completeness to persons knowledgeable in the subject areas who had participated in the assessment. This review took place during the period of February through April, 1976.

As OTA staff completed drafts of interim reports on each part of the assessment, these were sent out to the advisory panel for substantive review and, after release by the OTA Board, to key participants in the assessment. Summaries of the draft interim report were distributed for review to those who had attended workshops, replied to questionnaires, or requested copies. This review, for the oil and gas section, occurred in April, May, and June, 1976. The review comments helped OTA reevaluate, sharpen or expand upon the statements of findings, issues, and options. In some cases, additional options were suggested, or the potential consequences of options displayed in the draft reports were discussed by reviewers. These comments were considered in preparing the final report.

Summary

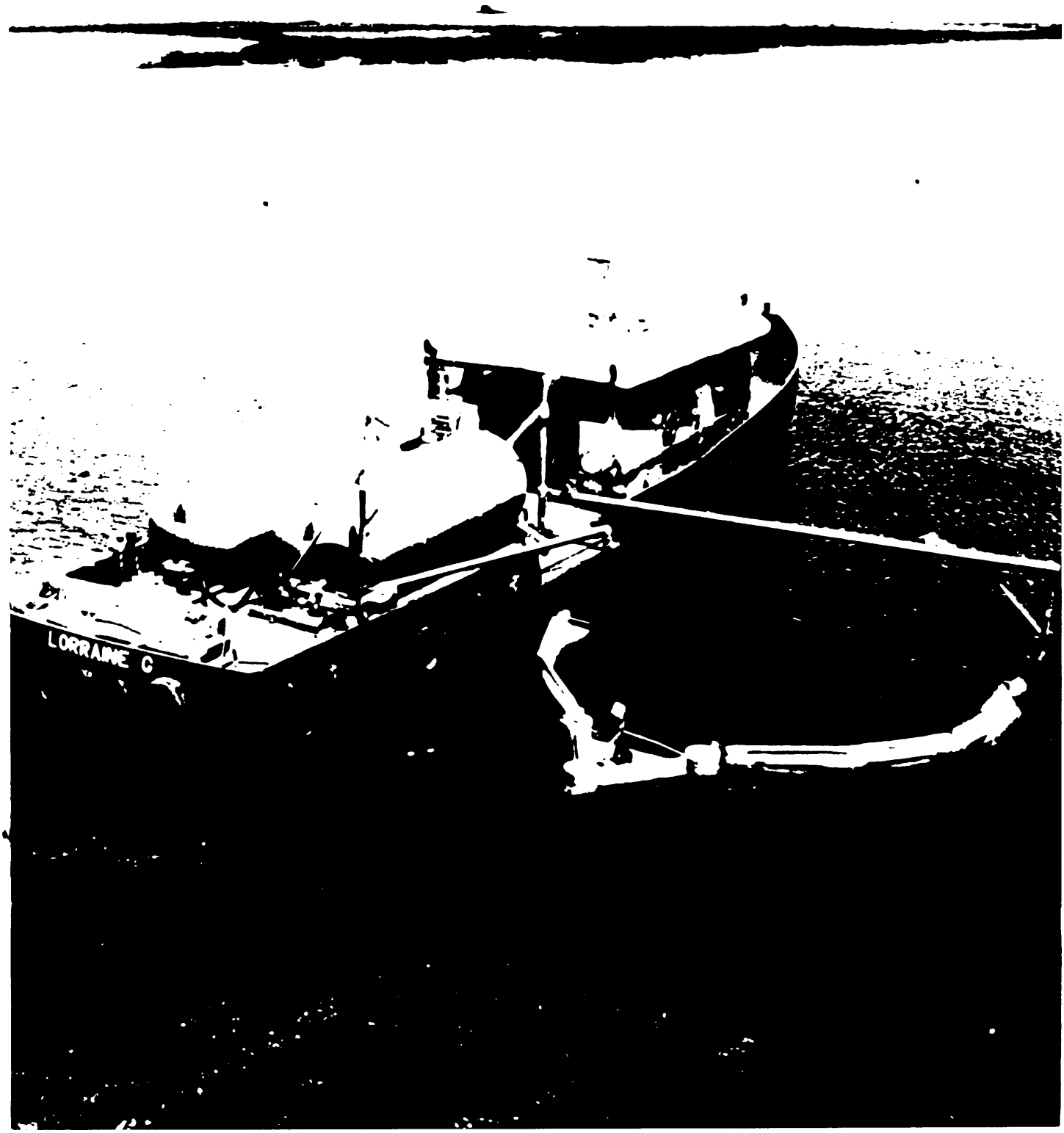
The public participation activities, which included workshops, questionnaires, interviews, and review comment, were important factors in this technology assessment. Information obtained from these activities was analyzed and evaluated throughout the assessment. These data provided valuable guidance as to appropriate modification, emphasis or elaboration of the analysis by the OTA study team. The public participation findings were one of the important elements used by the OTA team for determining which issues would be emphasized in the assessment.

The results of this public-participation effort confirmed that such a program can add a useful and essential dimension to the assessment of technology for the U.S. Congress. It also confirmed that reliable information on how citizens perceive they will be affected by new technologies can best be obtained by direct contact with those citizens.

Finally, the public participation effort provialed some experience on the basis of which public participation activities could be extended to other OTA assessments.

Footnotes: Chapter V

1. Chapter IV, Development of Offshore Oil and Gas in the Mid-Atlantic.
2. Working Paper #6.
3. Working Paper #10.
4. Working Papers #2 and #3.
5. Working Papers #4.
6. Op. Cit., Chapter IV.
7. Working Paper #8.
8. Working Papers #9.
9. Working Paper #5.
10. Chapter IV, Alternatives to the Three Technologies Studied.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