

qualified contractors with experience in many of the major technology problem areas are being compiled.

We have been considering possible issues for study and, for this reason, we invite expressions of interest from the chairmen of congressional committees as a starting point in identifying tasks OTA may most usefully pursue. Your comment as to the immediate and most pressing assessment priorities would be most welcome and appreciated.

The nature of the services to be performed by OTA is to develop reliable technical information and evaluations of issues concerning the Congress and, particularly, the congressional committees responsible for recommending legislative action on such issues. Essentially, the OTA is directed toward opportunities and problems of potentially large impact and public concern.

Under the statute establishing the Office of Technology Assessment, assessment activities may be initiated upon request of the chairman of any standing, special, or select committee of either House of the Congress, or by the chairman of any joint committee of the Congress, acting for himself or at the request of the ranking minority member, or a majority of the committee members; or the Technology Assessment Board ; or the Director of the Office of Technology Assessment, in consultation with the Board.

Priorities will have to be established in the selection of projects, consistent with available revenues and the issues of primary concern to the Congress. Moreover, it is essential that in the first phase of OTA's operation, special care be exercised to build competence and experience in this new and largely unfamiliar field of technology assessment.

I and the other Board members are confident that you share the hopes and promises of this new (Congressional institution and, with your support and guidance, it will become a useful and constructive tool to inspire and shape new and productive public policy decisions.

Sincerely,

EDWARD M. KENNEDY,
Chairman, Technology Assessment Board.

III. CONGRESSIONAL REQUESTS FOR ASSESSMENTS

As of March 15, 1974, OTA has received the following requests for assessments from the committees of the Congress:

CONGRESS OF THE UNITED STATES,
COMMITTEE ON THE JUDICIARY,
HOUSE OF REPRESENTATIVES,
Washington, D. C., December 19, 1973.

Hon. EMILIO Q. DADDARIO
*Director, Office of Technology Assessment,
House of Representatives, Washington, D.C.*

DEAR MIM: The Subcommittee on Immigration, Citizenship, and International Law of the Committee on the Judiciary has undertaken a comprehensive review of the operation of the Outer Continental Shelf Lands Act of 1953.

During the course of these hearings the Subcommittee intends to scrutinize the administration of this Act by the Department of the Interior and to determine the social, political, economic and environmental impact of existing offshore oil and gas operations as well as the Administration's proposed plan to "accelerate the leasing of Outer Continental Shelf lands for oil and gas production to a level triple the present annual acreage by 1979".

In order to assist the Subcommittee, I wish to request a detailed technology assessment of these activities on the outer Continental Shelf. In this regard, I am aware that a technology assessment of Outer Continental Shelf oil and gas operations has already been prepared by the University of Oklahoma under a grant from the National Science Foundation.

In the event additional information is needed concerning this request, please contact the staff of Chairman Eilberg's Subcommittee on Immigration, Citizenship, and International Law.

Kind regards.

Sincerely,

PETER W. RODINO, Jr., *Chairman.*

U.S. SENATE,
COMMITTEE ON COMMERCE,
Washington, D.C., January 14, 1974.

Hon. EMILIO Q. DADDARIO,
*Director, Office Of Technology Assessment,
Congressional Annex, Washington, D.C.*

DEAR MI: Very shortly, the Committee on Commerce will be undertaking a new examination of United States policy and programs involving the oceans. Senate Resolution 222, which is enclosed, will authorize the Committee to investigate our national commitment to a sound oceans policy and make reports and recommendations to the Senate in a timely manner. In conducting its study, the Committee will be working with six other standing committees of the Senate which share an interest in the oceans.

Now that the Office of Technology Assessment has been funded and begun operation, it can commence planning, organizing and staffing to provide Congress with better and more complete information. The purpose of this letter is to request OTA to examine specific problems in preserving the vitality of the world's oceans while permitting man to avail himself of the sea's riches and pleasures.

For centuries, we have feared and enjoyed, explored and exploited the sea with little concern for our impact on it. But today, that has changed. The world population will approach seven billion by the year 2000. The United States' population will be around 300 million, Thirty states, with more than 75 percent of the nation's population, lie on the coasts of the Atlantic and Pacific Oceans, the Gulf of Mexico, and the Great Lakes. The increase in population and the expansion of man's use and abuse of the sea may surpass the environment's toleration level. Therefore, we can no longer continue the thoughtless or individual initiation of new technologies or practices without considering those longer range, interactive and cumulative impacts. This is true in general, but it is a matter of human survival to recognize it with respect to the oceans and coastal zones.

Because of this, it is imperative to develop a comprehensive, viable national ocean and coastal zone policy and, secondly, to initiate the requisite technology assessments upon which that policy can be decided.

Some elements of this need are clear. One involves the right of access of all nations to the high seas and protection of their own contiguous areas, the so-called Law of the Sea problem. Another critical area concerns relations among the several levels of government and between public and private interests in the coastal zone. Planned use and protection of both the living and

non-living resources of the seas and estuaries must also be considered in this comprehensive policy. Arrangements for monitoring the global environment for prediction, management and modification purposes must be an integral part of the larger policy along with incentives and procedures for the conduct of research and development and the use of technology at sea and on the shore. For these policies to be meaningful, we must create appropriate international, inter-governmental and public and private organizational and management schemes. Finally, we must strike an acceptable balance of assigning benefits and costs and risks and responsibilities among the parties at interest.

A few ocean-related technology assessments have been completed, including the University of Oklahoma report, *Energy Under the Oceans: A Technology Assessment of Outer Continental Shelf Oil and Gas Operations*. This study, however, is open to criticism on various levels. Assessments on a very limited basis have occurred on offshore man-made structures, such as airports, and aquaculture (fish farming).

I propose, however, that OTA now undertake the following ocean-oriented assessments to avoid any more crises similar to the one we are now experiencing in energy.

The first crisis prevention assessment ought to be on the technology of offshore oil drilling, production, transportation, and environmental and socio-economic impact upon the oceans, coastal waters and land portions of the affected coastal zones, including State-Federal efforts in coastal zone land use management under the recently enacted National Coastal Zone Management Act (P.L. 92-582). We cannot afford to be stamped by the energy crisis into an ocean and coastal zone pollution crisis. We should carefully assess the state of the art of existing and expected ocean engineering and operations technology to assure that it will perform the functions required within acceptable environmental risks.

Second, can technology assessment help us avoid a "protein crisis"? It is alarming that a maritime nation such as ours has a trade deficit in our fisheries account reaching \$1.3 billion annually. Our present fisheries management practices, our archaic institutional and statutory constraints, on the national as well as local levels, hinder rational and effective fisheries operations. Fishing industry technology demands assessment of almost the opposite type to that normally considered. It is not the exotic and new technology that is of highest concern, but the relics of past generations still in use that need hard-nosed assessment as to effectiveness and the nature of delayed impacts.

Third, I propose that OTA assist the Committee in avoiding a crisis of indecision and inaction with respect to deepwater ports. Although we will still need time to debate the economic, environmental, trade balance and other value-oriented tradeoffs concerning deepwater ports, it would be possible through adequate technology assessment to provide a sound information base for proper political debates, and for well-founded decision making. We should have available to us clear identification of the nature of the various tradeoffs and of the respective impacts of this developing technology.

There are other areas needing technology assessment, but perhaps do not demand the immediacy of the three mentioned above. These include ocean mining for both inshore minerals such as sand and gravel and for offshore minerals such as those available in manganese nodules. Weather modification is an emerging technology with substantial social, economic and legal implications. Aquaculture is now developing for a number of commercially important species, and space technology holds promise of completely revolutionizing our ability to monitor ocean conditions.

On behalf of the Committee, I appreciate very much your attention to these matters of concern to Congress and to the people of the United States.

Sincerely,

ERNEST F. HOLLINGS, Chairman
Subcommittee on Oceans and Atmosphere.

CONGRESS OF THE UNITED STATES,
HOUSE OF REPRESENTATIVES
Washington, D. C., January 15, 1974.

Hon. EDWARD M. KENNEDY,
U.S. Senate,
Washington, D.C.

DEAR SENATOR KENNEDY: Thank you very much for your recent letter advising me of the activities contemplated by the newly established Office of Technology Assessment. I am delighted to know that my former colleague, Emilio Q. Daddario, will be the director and look forward to working with him in the future.

In the next session of Congress, the Committee on Ways and Means will be working on a number of subjects of national concern and included will be the problems associated with energy, tax reform, national health insurance and budget control. We will be interested in any information the OTA might develop on these subjects as well as hearing about its activities as they develop.

Sincerely,

HERMAN T. SCHNEEBELI,
Member of Congress.

CONGRESS OF THE UNITED STATES,
COMMITTEE ON FOREIGN AFFAIRS,
HOUSE OF REPRESENTATIVES,
Washington, D. C., January 18, 1974.

Hon. EDWARD M. KENNEDY,
U.S. Senate,
Washington, D. C.

DEAR SENATOR KENNEDY: Thank you for your recent letter inquiring about tasks which the new Office of Technology Assessment might pursue which could be of benefit to the Committee on Foreign Affairs.

Since receiving your letter, I have asked the Committee staff to identify areas in which technology assessment might usefully be accomplished from the standpoint of our Committee jurisdiction and interests. Of the suggestions which have been forthcoming, I believe the following represent the principal items:

1. Arms control. As you know, the Congress will be asked within the next few months to make major decisions on several strategic weapons systems. Each system will have its own impact on attempts to achieve some measure of arms control in strategic nuclear weapons, both offensive and defensive. In the past, little has been done to assess the positive or negative effects which new technology in strategy weaponry will come to have on opportunities for arms limitations, or on past arms control agreements to which the United States is a party.

2. Food. With food and its distribution becoming an increasingly important issue, OTA could do valuable work in assessing developments in agricultural technology which will affect the production and use of agricultural products on a worldwide basis. Are breakthroughs in agriculture possible which will alleviate, if not solve, the problem of world hunger? How can they or existing technology best be implemented?

3. Technology transfer. To many students of development, the transfer of appropriate technology from the developed to the less-developed countries is an essential factor in insuring growth and progress for poor peoples. There remain many questions about such technology transfer. What kinds of technology can best be transmitted in this way? What types of institutions can most effectively achieve this objective? What can be learned from past experience at making such transfers ?

4. Family planning/population. Rapid population growth threatens to rob the less-developed countries of all hope of progress in national economic growth unless it is checked. The technology of fertility regulation is an important factor in achieving more rational population growth rates. What are the short-term advantages and drawbacks to present technology? What are the likely long-term effects of present programs of fertility control using present technology? Will new scientific developments which can be foreseen now change the picture significantly ?

It is my hope that these suggested areas of inquiry will be of assistance to you as the OTA begins its activities. I am sure that you understand these suggestions do not represent a formal request at this time by the Committee on Foreign Affairs for such studies to be undertaken.

My best wishes to you in your role of leadership for the OTA. I look forward to working with you, former Congressman Daddario, and the Office of Technology Assessment on matters of mutual interest in the days to come.

With best wishes, I am

Sincerely yours,

THOMAS E. MORGAN, *Chairman.*

UNITED STATES SENATE,
Washington, D. C., January 22, 1974.

Hon. EMILIO Q. DADDARIO,
*Director, Office Of Technology Assessment,
Congressional Annex, Washington, D.C.*

DEAR MIM: Formation of the Office of Technology Assessment comes at a most opportune time. A myriad of pressing questions confront the Congress, many of which lend themselves to technology assessment.

The purpose of this letter is to request an OTA assessment of agricultural information systems and their adequacy for agricultural policy planning. We must be assured that our nation has adequate planning mechanisms to deal with the cause and effect relationships of specific actions such as price changes, export sales, varied demand and fuel availability.

For instance, how does all-out production affect land use policy in the various parts of the nation? Should farm credit policy be changed as a result of a change in production policy? How do these actions affect the price of a loaf of bread?

Too, often the information that has led to a policy decision has not taken into account the many consequences of that decision—consequences that follow one another like a row of dominoes that falls after the first one is pushed. In view of the current world food supply situation and an impending World Food Conference next fall, in which the United States will play a major role, adequate information for important policy decisions is essential.

I believe that OTA could begin a project which would help Congress draft legislation to take the guesswork out of the agriculture policy formulation in the United States, and help prepare our government for meaningful contributions toward solving international agricultural problems, such as those to be considered at the World Food Conference. The specific technology assessment which

I am proposing could be used as the framework for preparation of an agricultural planning model.

Good agricultural planning is dependent first upon the adequacy and accuracy of information retrieval systems. Secondly, it is dependent upon the way such information is analyzed to show how it relates to the entire agricultural system.

I am proposing that OTA assess food and agriculture information gathering and retrieval systems, comparing the current system with practical alternatives. An assessment of the "state of the art" of such systems could tell the Congress whether our policymakers have adequate information on which to base their decisions.

For example, an important new component in agricultural information gathering is the data retrieval resulting from the new ERTS (Earth Resources Technology Satellite) system. An assessment of how best to use this information source is urgently needed.

After an initial assessment of agriculture information systems is made, there are a number of vital elements in the field of agriculture which also can be addressed, either separately or as a whole.

OTA could address itself to an assessment of current fertilizer technology. This conceivably could lead to a recommendation for legislation which would promote the development of fertilizers which would use less petroleum.

Food processing and storage techniques also are vital to modern agriculture. An OTA review of the need for improved technology in methods of grain drying, commodity storage and protein processing for human consumption would be most useful, particularly with regard to nonrefrigeration storage techniques.

An OTA evaluation of the adequacy of farm-to-market roads in this country might lead to a legislative recommendation. Such an assessment could form part of an agricultural planning model.

The possibilities for OTA projects in the agricultural field are limitless. But first, I believe OTA should assess basic problems to lay the groundwork for later, more sophisticated assessments.

This request for an evaluation of the adequacy of agricultural information systems is made with the intention of providing the Congress with information that can help in formulation of intelligent, forward-looking legislation.

Sincerely,

HUBERT H. HUMPHREY.

COMMITTEE ON SCIENCE AND ASTRONAUTICS,
HOUSE OF REPRESENTATIVES,
Washington, D. C., January 22, 1974.

Hon. EMILIO Q. DADDARIO,
Director, Office of Technology Assessment,
House Office Building Annex, Washington, D.C.

DEAR MIM : The schedule which lies ahead for the Committee on Science and Astronautics leads us to believe that the Office of Technology Assessment can be of singular utility in helping resolve some of the problems inherent in that schedule.

Basically, while the assistance that we could use is not limited to these, we would like to emphasize four areas where OTA could be helpful to us. These are as follows:

1. A detailed inquiry into many of the facts surrounding the energy problem which have, to this point, never been carefully delineated.
2. An inquiry into the feasibility of establishing a technological data bank for the Congress.

3. An inquiry into those research and development programs which ought to be undertaken to lessen the critical materials which the United States must now or in the future import in significant quantities.

4. How and what new technology can be developed and applied to help alleviate some of the serious unemployment problems which the Congress is sure to face in years ahead.

Let us go back now and describe in slightly greater detail what kinds of things we have in mind in each of the foregoing categories.

Energy R&D

Several major areas of concern regarding energy must be investigated, each in detail and all of them taken together. For example:

- (a) How much energy do we need to maintain or improve our quality of life?
- (b) What energy costs can be borne by our economy without causing undue disruption?
- (c) How much energy can we obtain from present energy sources as a function of time and price?
- (d) What future energy sources can be developed and when will they have an effect?
- (e) What effects do other resource bases and limitations of peripheral systems have on our energy supply and distribution?
- (f) What are the true costs associated with each of the foregoing scenarios?

Determining the answers to these questions will require meticulous attention to the pervasive nature of the problem. Thorough as the analyses must be by themselves, they will be of value only if they have been carefully coordinated with each other. Needless to say, it would be extremely helpful if, as a result of the outcome of the above studies, relative priorities and funding magnitudes could be assigned to the various options of our research and development effort. A somewhat more detailed description of this part of the request is attached.

Potential Data Bank

In suggesting that OTA take a look at the feasibility of establishing data bank processes and techniques for the Congress, we are in no way implying that this inquiry should impinge upon the very excellent data information systems already in operation under the aegis of the House Administration Committee and the Senate Committee on Rules and Administration. Those activities are devoted largely to legislation per se and to making available to Members and committees, upon short notice, the provisions and status of various bills as they proceed along the legislative route.

What is intended here is a beginning study of the feasibility of establishing a data bank of technological information. This might incorporate not only the state of the art of existing and developing technology but up to date and complete summaries of research underway in new technological areas.

Additionally, it would be helpful to have some indications of where such a repository might be located and by whom operated.

Materials R&D

As you know, this Committee began several preliminary studies into materials in 1972, as a result of which a special report on "Industrial Materials" was issued in December of that year. We now have a follow-on study underway designed to disclose the nature and probable pace of materials research as it is currently proceeding throughout the world. We are receiving assistance in this not only from the Congressional Research Service but from the National Federation of Materials Societies.

Meanwhile, we have the final report of the National Commission on Materials Policy issued in June 1973 as a result of the National Materials Policy Act of 1970. We now also have, issued in December 1973, the report on "Materials Science and Engineering" by a special committee of the National Academy of Sciences. Both of these reports provide excellent preliminary information and background. Moreover, they show conclusively how important the materials R&D issue is, and they point inescapably to the fact that our current fuel crisis is merely an acute symptom of the larger materials-shortage syndrome.

We would like to have the OTA focus particularly on what materials problems are likely to develop in the next five to ten years with regard to those metals, rare earths and other materials on which the United States predictably will have to depend for a substantial part of its needed supply through imports. We would also like to know what magnitude of materials R&D should be launched in the relatively near future in order to alleviate problems of this kind.

Technology-Unemployment

The Technology Assessment Act states that: "The basic function of the Office shall be to provide early indications of the probable *beneficial* and adverse impacts of the applications of technology . . ." We think the positive attributes of the Act have been much underplayed to this point, but believe that the OTA can provide considerable guidance in endeavoring to pinpoint how technology—which admittedly is responsible for many of our employment difficulties today, through automation, etc.—can be utilized equally to help provide new markets, new styles of living and new jobs.

We recognize that this kind of a study is necessarily going to involve a good deal of digging and probably a good deal of original thinking in the social sciences.

Nonetheless, we point to the relationship between the space program and its effect on the nation's economy as an example of how a fresh national interest and a willingness to put funding into new technology can be put to excellent use with regard to unemployment. In spite of the slowed funding for the space program, it is significant to note that this effort created a custom built-type market which used many people and consumed very little in the way of precious materials. Something like three-fourths of all the money used in the space program went into salaries and labor costs; probably 20% or more was returned to government—Federal, state and local—in the way of taxes. Most of the balance of labor costs went into the purchase of the necessities of life and helped to keep the economy healthy.

We would be pleased if the OTA would devote some effort, as its program and funding permit, to isolate and describe other areas where technological endeavor can help in the production of jobs without an unnecessarily high consumption of goods.

We recognize that a great deal of work and study has been done by many people, many agencies and many organizations and institutions in the foregoing areas. But it is our impression that, out of the efforts of the so-called "futurists" thus far, very little has materialized in the nature of genuinely helpful guideposts.

Hopefully, the OTA can help alter this trend. Although most of the foregoing requests have long-range implications, they nonetheless offer possibilities for

interim findings and reports which could be of great assistance to this Committee as it proceeds with its program.

Sincerely yours,

OLIN E. TEAGUE,
Chairman.

CHARLES A. MOSHER,
Ranking Minority Member.

CONGRESS of THE UNITED STATES
HOUSE of REPRESENTATIVES,
COMMITTEE ON Public Works,
Washington, D.C., *January 23, 1974.*

Hon. EMILIO Q. DADDARIO,
*Director, Office of Technology Assessment,
HOB Annex, Washington, D.C.*

DEAR MIM: I greatly appreciate the time you took today to meet with the professional staff members of the House Committee on Public Works to discuss our interest in OTA assistance to this Committee.

In accordance with that discussion, the Committee will review its priorities for legislative activity, both short term and long term, and will—in the very near future—submit to you a detailed plan of action specifically indicating subjects of interest to this Committee and precise issues and problems on which we would welcome technological and scientific assistance.

For your general guidance, the principal areas of interest are: national public investment policy and population distribution; transportation policy; water resources; and pollution abatement.

We will be in touch with you again as soon as we have a specific outline of our needs and, again, want to thank you for your interest and your splendid cooperation.

With warmest personal regards,
Sincerely,

JOHN A. BLATNIK, *Chairman,*
Committee on Public Works.

CONGRESS OF THE UNITED STATES,
HOUSE of REPRESENTATIVES,
COMMITTEE on Public Works,
Washington, D.C., January 88, 1974.

Hon. Edward M. Kennedy,
*U.S. Senate,
Washington, D.C.*

Dear SENATOR KENNEDY: Since your December 21 letter, we have been in contact with the Office of Technology Assessment, and my staff is working closely with Mr. Daddario and his staff. We hope to avail ourselves fully of the uses and operations of 01%

I appreciate very much your interest in this matter.

Sincerely,

JOHN A. BLATNIK, *Chairman,*
Committee on Public Works.

U.S. SENATE
COMMITTEE ON COMMERCE,
Washington, D. C., January 24, 1974.

Hon. EDWARD M. KENNEDY,
Chairman, Technology Assessment Board,
Washington, D.C.

DEAR SENATOR KENNEDY: In response to your recent request, I am furnishing you with a list of suggested projects to be undertaken by the Office of Technology Assessment. The first five items on the list are considered to be of priority:

1. *Energy Savings in Manufacturing Processes.*—Industry utilizes 40% of the total energy in this country. Examples of opportunities for industrial energy conservation are the recent announcements by Aluminum Company of America of a new aluminum refining process that requires 30 percent less electricity than current practices, and by DuPont of new plant procedures which conserve up to 15 percent of total plant energy requirements. DuPont has offered its services to assist other companies to achieve similar savings. A survey of potential energy savings through improved manufacturing processes needs to be performed, including an evaluation of the immediate savings achievable by application of improved plant management procedures and existing technologies, as well as a long term assessment of the potential for major advances in the energy efficiency of manufacturing processes.

2. *Safety Problems Posed by Disposal of Nuclear Wastes.*—The accelerating nuclear power plant program and particularly the forthcoming fast breeder reactor program raise serious questions of the hazards of disposing of the extremely lethal waste products of such facilities. In view of such dangers, is it wise to continue investing such a high percentage of energy research and development funds in the fast breeder reactor program?

3. *Resource Recovery and Energy Recovery Systems.* — The most frequently mentioned alternative approaches to coping with the solid waste problem focus on the following steps:

- (a) Reduction of waste at source.
- (b) Recycling and resource recovery.
- (c) Energy recovery.

Evaluations of the potential of any specific proposal, particularly in categories (b) and (c), assume that conservation or recovery efforts are not made in earlier phases of product life. For example, estimates for the BTU content of municipal waste usually are based on the assumption that food waste and paper waste have not been separated prior to the energy recovery phase. It is necessary to be able to evaluate various solid waste management proposals which include some or all of the steps outlined above and consider the tradeoffs between these steps.

In addition to an overall study of the solid waste management problem, an assessment of the feasibility of two specific proposals are needed.

The State of Oregon recently introduced a ban on non-returnable beverage containers. An analysis of the Oregon experience and its relevance to possible Federal legislation is needed. Also, a substantial reduction of solid wastes and water quality management problems could be accomplished if a significant portion of household wastes were processed prior to entering the sewers or garbage cans. Some work has been done, particularly in India, on household methane generators. These units, similar to septic tanks, would process food wastes,

human wastes, newspapers, and garden wastes through an anaerobic bacterial action to produce sufficient methane gas for heating water and for cooking. The practicality of installing such units in new houses and retrofitting existing houses needs to be investigated.

4. *Upgrading of Railroad Tracks.*—One of the most perplexing problems facing the nation in any attempt to improve rail passenger service is the need to upgrade track and roadbed. Even on the best roadbeds in the country, passenger trains are limited as to speed because of poor track (e.g., Washington to New York, the 170 mph Metroliners cannot travel over 105 mph because of track deterioration).

The Amtrak Improvement Act of 1973 granted the National Railroad Passenger Corporation the power to upgrade tracks. However, if Amtrak spends money to improve a given segment of track, the railroad which owns that segment benefits from those improvements and is able to provide better freight service. Railroads competing with that line suffer what they perceive as a competitive disadvantage provided through what in effect would be a government subsidy. What is needed is a system of cost allocation which would divide the costs for improvements between Amtrak and the railroad whose line is being improved, based upon such factors as train miles, the degree of wear and tear exerted by the various types of rolling stock involved, the benefits to be derived by Amtrak and the railroad, etc. England has been developing a computer model which attempts to allocate wear and tear on a given section of track between freight and passenger trains (at British Rail's research and development centre in Darby, England), but no productive research has been done on this subject in the United States.

5. *Crisis of the Oceans.*—It is proposed that OTA undertake the following ocean-oriented assessments to avoid any more crises similar to the one we are now experiencing in energy.

The first crisis prevention assessment ought to be on the technology of offshore oil drilling, production, transportation, and environmental and socio-economic impact upon the oceans, coastal waters and land portions of the affected coastal zones, including State-Federal efforts in coastal zone land use management under the recently enacted National Coastal Zone Management Act (P.L. 92-582). We should carefully assess the state of the art of existing and expected ocean engineering and operations technology to assure that it will perform the functions required within acceptable environmental risks.

Secondly, can technology assessment help us avoid a "protein crisis"? It is alarming that a maritime nation such as ours has a trade deficit in our fisheries account reaching \$1.3 billion annually. Our present fisheries management practices, our archaic institutional and statutory constraints, on the national as well as local levels, hinder rational and effective fisheries operations. Fishing industry technology demands assessment of almost the opposite type to that normally considered. It is not the exotic and new technology that is of highest concern, but the relics of past generations still in use that need hard-nosed assessment as to effectiveness and the nature of delayed impacts.

Third, it is proposed that OTA assist the Committee in avoiding a crisis of inaction and inaction with respect to deepwater ports. Although we will need time to debate the economic, environmental, trade balance and other value-oriented tradeoffs concerning deepwater ports, it would be possible through adequate technology assessment to provide a clear identification of the nature of the various tradeoffs and of the respective impacts of this developing technology.

There are other areas needing technology assessment, but perhaps do not demand the immediacy of those mentioned above. These include:

6. *Feasibility of Retrofitting Existing Office and Residential Buildings with Energy Conservation Equipment.*—Heating and cooling of buildings requires 22%

of the total energy utilized in this country. Major savings and energy requirements are possible in existing buildings by increasing insulation, installing heat recovery systems, and other modifications. A cost benefit analysis of instituting such a program on a nationwide scale needs to be performed.

7. *Alternative Energy Sources for Automobiles.*—The gasoline shortage has intensified interest in alternatives to gasoline as an automobile fuel. The use of methanol as a gasoline additive or gasoline substitute has been proposed. An assessment of the practicality of producing methanol from cellulose or agricultural wastes and establishing a distribution network to gasoline stations needs to be investigated. Also, renewed interest in the electrical automobile for urban driving requires a reevaluation of the technological state of the art. In addition, a cost-benefit analysis is needed of the EPA regulations on lead content in gasoline and other possible lead reduction schemes. As part of this analysis, particular attention should be given to the alternative of removing lead through lead traps installed in cars rather than removing it from gasoline at the manufacturing stage.

8. *Mutagenic Testing.*—We need to evaluate whether accelerated testing for mutagenesis, teratogenesis, and carcinogenesis will pay off in terms of consumer safety.

9. *Detergents.*—It would be very helpful to update our detergent study to determine which laundry product is best from the standpoint of environmental protection, consumer safety, cost, and effectiveness.

10. *Predator Poisons.*—Much needed is a definitive analysis of whether poisons are in fact essential to control predator populations and if so how can they be used so as to increase the selectivity of the poison used. Particularly, is the M-44 device for applying cyanide the best we can do under an interest balancing approach ?

11. *Pollution and Conservation Taxes.*—Can we quantify environmental damage and/or the problems caused by shortages of energy and materials so as to form the basis for (1) a pollution, energy, or general severance tax system or (2) a more refined system of environmental or shortage-prevention regulation.

The establishment of OTA heralds in a new era for Congressional involvement in the evaluation of complex technological issues. Best wishes for an extremely innovative and productive year.

Sincerely yours,

WARREN G. MAGNUSON, *Chairman.*

UNITED STATES SENATE
COMMITTEE ON FINANCE,
Washington, D. C., January 28, 1974.

Hon. EMILIO Q. DADDARIO,
*Director, Office of Technology Assessment,
Congressional Hotel, Washington, D.C.*

DEAR CONGRESSMAN DADDARIO: Please accept my congratulations on your appointment as Director of the Office of Technology Assessment. I believe that the OTA will become a most valuable arm of the Congress on which we will all come to rely during the coming years.

I would like to propose that OTA consider examining the impact of technology on the future growth and development of the Nation. Such information would be invaluable to the Congress in considering the establishment of a national growth policy.

I am enclosing a copy of my National Growth Policy Planning Act, S. 1286, which discusses the need for a national growth policy. I believe that we will see

an increasing interest in this subject within the next few years as Congress comes to the realization that events such as the energy crisis should be anticipated and avoided if possible.

I recognize that this issue is a rather broad one, but its impact reaches every single American household. I hope that your office will be able to lend its services to the debate on this important topic.

With my best wishes, I am

Sincerely,

VANCE HARTKE,
U.S. Senator.

UNITED STATES SENATE,
COMMITTEE ON APPROPRIATIONS,
Washington, D. C., February 15, 1974.

Hon. EDWARD M. KENNEDY,
*Chairman, Technology Assessment Board,
House Annex, Washington, D.C.*

DEAR MR. CHAIRMAN: On behalf of Senator Robert C. Byrd, Chairman of the Transportation Subcommittee, and Senator Clifford P. Case, the Subcommittee's Ranking Minority Member, I am transmitting the attached technology assessment request to you.

With kindest personal regards, I am

Sincerely,

JOHN L. McCLELLAN, *Chairman.*

Enclosure.

UNITED STATES SENATE,
Washington, D.C., February 6, 1974.

Hon. JOHN L. McCLELLAN,
*Chairman, Senate Appropriations Committee, New Senate Office Building,
Washington, D.C.*

DEAR MR. CHAIRMAN: We would like to enlist your support for a prompt and thorough study of automation in federally supported urban rail transit projects.

This matter of increasing concern to our Subcommittee arises because several large cities, including Baltimore and Atlanta, are planning automated train systems and are or will be seeking substantial federal funding within the next two years.

At the same time, serious questions have arisen as to whether and to what degree Automated Train Control (ATC) should be used in rail transit.

The recent experience with San Francisco's new rail transit system, known as BART, has helped focus attention on this problem.

Original plans for 13 ART called for a fully automated system requiring no on-board train operator. This has not worked out because of a series of malfunctions in the ATC system. Costly patch-up work, with substantial federal help, is underway, but complete automation of BART now appears out of the question.

In light of the BART experience we should be alert to see to it that the same expensive mistakes are not made in other federally supported urban rail transit projects involving Automated Train Control.

At present, there is *no* means of assuring that the mistakes made in the BART project will not be repeated.

A draft study just completed by the Department of Transportation's Transportation Systems Center states that train control "typically receives little priority and emphasis" even though—as the study emphasizes—this choice of

system greatly affects revenue, safety, including, we add, the serious matter of crime prevention, and operation. and maintenance costs. The DOT study did not purport to deal with cost and cost savings in detail, but it did state that there seemed to be an "intuitive conclusion that an automated system should be more economical than a man-operated system in achieving or surpassing a given level of service or safety."

The Congress and this Committee should not accept an "intuitive" judgment on matters of such cost and complexity.

There are at least two questions that require particular study: (1) to what extent should urban rail transit systems be automated? and (2) how should these projects be planned and executed?

The appropriate body to carry out such an independent, in-depth study for this Committee is Congress' Office of Technology Assessment. Under the provisions of the "Technology Assessment Act of 1972" (P.L. 92-482, Sec. 3(d), (1)), we ask that you transmit to the Chairman of the Technology Assessment Board our request for a study that would:

1. Assess the state of automated train control technology and its application to existing and planned rail transit systems.—What major research is underway and what is its objective? What train control systems are being considered for transit projects now in the planning stage? What are the characteristics of these systems and how are they similar to or different than those of BART and other highly automated systems in use?

2. Assess the testing methods by which the workability of automated train projects is determined.—To what extent are prototypes built and tested? What has been the lesson of BART and other recent projects concerning the necessity for system testing during development? What provisions have been made for the testing of train control systems now being planned?

3. Assess the process by which new rail transit systems or extensions of existing systems are planned and executed; evaluate the adequacy and professionalism of cost, safety, including crime prevention, and other analyses used.—What criteria are used, particularly in determining degree of automation? To what extent are economic tradeoffs (i.e., cost of partially manual vs. fully automated system) explicitly considered? How and to what extent is public oversight maintained throughout the project? What federal requirements, if any, apply to these federally assisted projects?

Your assistance in transmitting this request will be appreciated.

Sincerely,

ROBERT C. BYRD,

Chairman, Transportation Appropriations Subcommittee.

CLIFFORD P. CASE

Ranking Minority Member, Transportation Appropriation Subcommittee.

U.S. HOUSE OF REPRESENTATIVES,
COMMITTEE ON MERCHANT MARINE AND FISHERIES,
Washington, D. C., March 15, 1974.

HON. EDWARD M. KENNEDY,
Chairman, Technology Assessment Board,
Washington, D. C.

DEAR MR. CHAIRMAN: We have been very interested in the early plans of the Office of Technology Assessment and the fields of inquiry which it proposes to investigate. As you will recall, Vice Chairman Mosher and the Chairman of the House Science and Astronautics Committee directed a letter to Mr. Daddario on