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Review of the Office of Technology Assessment Activities

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The Technology Assessment Act of 1972, Public Law 92-484, established the Office of Technology Assessment for the United States Congress as an aid in the identification and consideration of existing and probable impacts of technological applications. In November 1973 the OTA statue organized this advisory arm for the 93rd Congress, 2nd session, under a politically non-partisan policy Board comprised of six Senators and six Representatives evenly divided by party, who are appointed, respectively, by the President Pro Tempore of the Senate and the Speaker of the House.

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Review of the Office of Technology Assessment Activities

LeROY PAGANO

TECHNOLOGY ASSESSMENT BOARD

At the end of the first year of operations, a unanimous vote of the six House members of the OTA Board elected Congressman Olin E. Teague (D-Tex.) to succeed the first Board Chairman, Senator Edward M. Kennedy (D-Mass.). In a personal and candid letter to the incoming House-Member Chairman, Senator Kennedy assessed the operations of the OTA in the 93rd Congress as follows:

> The Office of Technology Assessment is an experiment in Congressional thought and action. The questions it addresses are critical.
>
> - Can we shape modern technology to meet human needs?
> - Can we create energy sources which are cheap and non-polluting?
> - Can we expand productivity while generating more jobs, and jobs which are more meaningful?
> - Can we transform the wonders of modern medical science into the delivery of excellent health care to all our citizens?
> - Can we find a way to feed the hungry throughout the world, while meeting the needs of our farmers and consumers here at home?
> - Can we design practical mass transit systems for our cities and suburbs?
>
> In every technical area there are questions like these crying for solution; and there is important legislation which hinges on the answers that are uncovered.

The new Chairman, Congressman Teague, has served on the House Science Committee since its inception in 1959, and has had a preeminent role in guiding legislation for the United States manned space flight program. Teague's long and intense involvement in science and science policy issues included an active part in championing the passage of the Technology Assessment Act.

The six Senate members unanimously elected Senator Clifford P. Case (R-N.J.) Vice Chairman of the OTA Board. Case succeeded Congressman Charles A. Mosher (R-Ohio). The outgoing Vice Chairman reported on the OTA's record to the Speaker of the House:

> The Office of Technology Assessment is still in its infancy ... For all practical purposes it has been in business really for only about eight months...
>
> Viewed in the perspective of the confusions and difficult growing pains characteristic of every new government unit, I believe OTA's record to date deserves high marks. I believe it has earned confident, continuing support by the Congress, with full reason to expect from it increasingly useful, constructive results of great practical value. Those of us who are close to it are confident that the OTA is a productive investment that will pay excellent dividends...
>
> It is a new arm of the Congress, created by the Congress, responsible only to it; it is unique, unprecedented, though somewhat analagous to the General Accounting Office and the Library of Congress in that they also are of, by and for the Congress, even though not a part of Congress per se ... they all perform an intimate service for the Legislative Branch.

The principal purpose of OTA is to respond to the increasingly urgent needs of the Senate and House Committees for adequate, accurate, evaluated information; it is expected to provide expert and objective data and useful information concerning problems, questions and opportunities in areas of science and technology. Today, in almost every policy decision required of the Congress there are baffling technological questions. Many Members of both Houses have long felt an urgent need for a much more adequate source of expert and independent information, independent of the Executive Branch and responsive only to the Congress. We definitely

need a more accurate, confident understanding of the consequences of technological proposals and opportunities before we decide, not only the probable immediate consequences, but perhaps more importantly, the broader secondary and tertiary consequences. Thus we may better define and understand our options and the alternatives.

It was to meet such basic needs that OTA finally was created by statute in October, 1972, after going through a gestation period of more than six years. But it was November, 1973, before this new Office was funded and former Congressman Emilio Q. Daddario became its Director. It had little really usable office space until March, 1974, and no significant staffing until April of that year. Hence, only eight busy months have passed since the Office became operational. By the time the Board held its final meeting of the 93rd Congress, in December, the Office had received 43 requests for assessments of varying kinds; six had been funded or had received beginning funding; funds had been earmarked for an additional six; and still another half dozen were in the organizational stage; one had been completed.

Merely to suggest their great diversity, note that our first assessments being attempted address a wide range of subjects, from drug bioequivalence to problems of coastal oil drilling, to solar energy, auto emissions, food production systems, automated mass transportation problems...and what next?

From the time of its first meeting in April of 1973, to the present the OTA Board itself has "shaken down" considerably. It is, nevertheless, still in the process of determining its internal procedures and its methodology for setting priorities.

In my opinion, the Board has done remarkably well in maintaining its politically bipartisan approach without serious conflicts. I suppose no better example of this exists than the fact mentioned above, that it now appears the Board will follow in the 94th Congress the precedent we established this year of having its Chairman from the Majority party and its Vice Chairman from the Minority party.

Similarly, the Technology Assessment Advisory Council, after some understandable early uncertainty as to its mission, now has begun to carve out a useful and much needed supportive role in cooperation with the Board.
In addition, each of OTA's assessment programs includes a special Consulting Advisory Committee of expert private citizens in the field to be covered. We are grateful to those who have provided such assistance to OTA so far. They have worked hand-in-hand with the OTA staff and have invaluable contributions.

...in our new OTA there are these several important and difficult problems. But I am optimistic, and with good reason. I interpret the total situation as consisting of many more pluses than minuses. And if there is one thing which I believe merits special emphasis it is this: in the Office of Technology Assessment, the Legislative branch has a new tool of great potential. But those of us who are in Congress must keep in mind that we are all just learning to use it. This is going to require trial and error practice on the part of OTA, and patient support from Congress and the public. It is also going to require some faith on the part of each of us.

The Vice Chairman for the 94th Congress, Senator Case, has served in the Congress for nearly 30 years. He is the ranking minority member of the Senate Foreign Relations Committee where he has been concerned with problems and issues of international environment and law, multinational corporations, and arms control. He is also a senior member of the Senate Committee on Appropriations, and the second ranking member of the Joint Committee on Atmoic Energy. The two posts, Chairman and Vice Chairman, rotate between Senate and House in alternate Congresses with the Chairman chosen from the majority party, and the Vice Chairman from the minority party.

The current Technology Assessment Board also includes the following Senators and Representatives: Edward M. Kennedy (D-Mass.), Ernest F. Hollings (D-S.C.), Hubert H. Humphrey (D-Minn.), Richard S. Schweiker (R-Pa.), Ted Stevens (R-Alaska), Morris K. Udall (D-Ariz.), Charles A. Mosher (R-Ohio), and Marvin L. Esch (R-Mich.).

George E. Brown, Jr. (D-Calif.) and Marjorie S. Holt (R-Md.) were appointed at the start of the 94th Congress to fill vacancies. This Congressional Board sets the policies of the OTA and is the sole and exclusive oversight body governing OTA.

TECHNOLOGY ASSESSMENT ADVISORY COUNCIL

For broader consultation, the Board may request advice on technology assessment matters from its 12-member Citizens Advisory Council, a group established by statute, which includes as ex-officio members, the Comptroller General of the United States, Elmer B. Staats, and the Director of the Congressional Research Service of the Library of Congress, Lester S. Jayson. The Chairman of the Advisory Council is Harold Brown, President of the California Institute of Technology. The Vice Chairman is Edwary Wenk, Jr. of the University of Washington. The following members complete the Council:

- Mr. Fred J. Bucy, executive vice president, Texas Instruments, Inc.
- Mrs. Hazel Henderson, author and lecturer on environmental and social issues, Princeton, N. J.
- Dr. J. M. Leathers, executive vice president, Dow Chemical Corporation
- Dr. John McAlister, Jr., associate professor, department of Engineering Economic Systems, Stanford University
- Dr. Eugene P. Odum, director, Institute of Ecology, University of Georgia
- Dr. Frederick C. Robbins, dean, School of Medicine, Case Western Reserve University
- Dr. Gilbert F. White, director, Institute of Behavioral Science, University of Colorado
- Dr. Jerome B. Wiesner, president, Massachusetts Institute of Technology.

THE EXECUTIVE DIRECTOR

The statute mandates an OTA Director, a deputy Director, and such other employees and consultants as may be necessary for conducting the task of the Office. The Director, appointed to the Board for a six-year term, is the chief executive officer responsible for the implementing of the Board's broad policies. He is solely responsible to the Board.

The first Director of the OTA, Emilio Q. Daddario, a former member of Congress from Connecticut, has served as Chairman of the House Subcommittee on Science, Research and Development. In 1967, after a year of hearings, he introduced a forerunner of the present law. During the following four years, the Subcommittee explored the scope and process of technology assessment, and its implementation by the Executive and Legislative branches of the Federal Government. At this time, Congress was deeply concerned with the adverse social, environmental, economic, and political effects that resulted from incomplete assessment of technological changes. The federal government had dealt with technology assessment issues piecemeal, and had conducted about six assessments including studies for Project Independence, the SST, and the Alaska Pipeline. Legislation for the establishment of an agency to assess technological impacts was actively sought in both houses of Congress. On September 13, 1972, the Senate Committee on Rules and Administration unanimously accepted H.R. 10243, the House's version of the Technology Assessment Act. The House of Representatives approved the Senate action on October 4, 1972. On October 13th, the President of the United States signed the Technology Assessment Act of 1972 and it became Public Law 92-484. In this process, Director Daddario was instrumental in the development of the OTA in its present form and scope. The Deputy Director is Daniel DeSimone, a former White House science policy assistant.

ESTABLISHMENT OF THE OTA

Before the establishment of the OTA Legislators, needing technical information concerning the possible outcomes of legislation or funding that resulted in technological changes, were dependent upon their own or committee staffs, the Legislative Research Service of the Library of Congress, or data from the General Accounting Office. This specific advisement will now come from the OTA, which has as its function the duty of assisting legislative policy-makers anticipate and plan for the consequences of technological changes, and to examine the various impacts, anticipated and unforeseen, that these changes may bring to our society. In November, 1973, the OTA began the work of gathering together administrative and scientific expertise for the assessment of physical, biological, economic, social and political impacts, both beneficial and damaging, which can result from applications of scientific knowledge. With these studies, the OTA is to provide Congress with independent and timely information concerning the potential primary, secondary and higher order results, and effects of technological applications on which it legislates or appropriates funds.

CONGRESSIONAL REQUESTS FOR ASSESSMENTS

Since its inception, less than two years ago, the OTA has received more than 50 requests

from the various committees and members of Congress for assessments on the impacts of technological changes in a wide variety of areas. These requests for the period December 1973 through February 1975 are tabulated in the following:

House Committee on Appropriations

*11/19/74 Chairman Mahon, on behalf of Chairman McFall and Ranking Minority Member Conte of the Subcommittee on Transportation Appropriations, requests a technology assessment with regard to automobile crash recorders.

House Committee on Foreign Affairs

1/18/74 Chairman Morgan suggests assessements concerning:
1 Arms control
2 Food
3 Technology transfer
4 Population/family planning

House Committee on Judiciary

**12/19/73 Chairman Rodino requests assessment of:
**1 Existing offshore oil and gas operations
**2 Effects of tripling present acreage of leases for oil and gas production on Outer Continental Shelf
3 Detailed assessment of oil and gas operations on Outer Continental Shelf

House Committee on Merchant Marine and Fisheries

3/15/74 Chairman Sullivan, jointly with Chairman Teague, Committee on Science and Technology, express interest in assessment of international shipping, including:
1 Fundamental shipping technology
2 Utilization of nuclear technology
3 Airfoil techniques
4 Fast sailing vessels

**4/3/74 Chairman Sullivan requested assessments concerning:
**1 Exploration and exploitation of resources of Continental Shelf and deep seabed beyond
**2 Fisheries
3 Aquaculture and mariculture
4 Oceans pollution — monitoring
5 Oceans pollution — removal
6 Submersible vessels
7 Undersea habitats

*9/18/74 Chairman Sullivan expresses interest in TAAC National Growth Policy Study and Committee's deep interest in long-term growth and its implications.

House Committee on Public Works

1/23/74 Chairman Blatnik suggests following areas of interest:
1 National public investmant policy and population distribution
2 Transportation policy
3 Water resources
4 Pollution abatement

House Committee on Science and Technology

**1/22/74 Chairman Teague and Ranking Minority Member Mosher request assessments concerning:
**1 Energy R&D
2 Technology data bank
3 Materials R&D
4 Technology of unemployment

3/15/74 Chairman Teague, jointly with Chairman Sullivan of the Committee on Merchant Marine and Fisheries, expresses strong interest in international shipping, including:
1 Fundamental shipping technology
2 Utilization of nuclear technology
3 Airfoil techniques
4 Fast sailing vessels

*12/13/74 Chairman Teague and Ranking Minority Member Mosher update of previous request of 1/22/74, with emphasis on assessements involving:
1 Materials
*a Information system
*b National stockpile
*c Reuse
**2 Five-year R&D

*12/17/74 Chairman Teague and Ranking Minority Member Mosher request, or emphasize urgency of, assessments involving:
*1 Planning and programming energy R&D — as contained in required ERDA reports
2 Identifying size of energy resources and unassociated uncertainties

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* Assessments currently being performed.

** Assessments planned for FY 1975 and 1976.

3 Materials technology and availability
*4 Tracking energy studies and data
*5 Uncertainties which inhibit development of new energy

House Committee on Ways and Means

**1/29/75 Chairman Ullman, jointly with Ranking Minority Member Schneebeli and Chairman Rostenkowski and Ranking Minority Member Pettis of the Subcommittee on Health, requests assessments concerning:
**1 Medical malpractice
**2 Long-term medical care
3 Adverse drug reactions

Senate Committee on Aeronautical and Space Sciences

*1/21/74 Chairman Moss, acting for Senator Goldwater, requests assessemnt concerning solar energy.

**10/10/74 Chairman Moss requests assessment of means of determining research and development priorities.

Senate Committee on Agriculture and Forrestry

**6/25/74 Chairman Talmadge requests assessment of use of broadband two-way telecommunications in rural areas.

Senate Committee on Appropriations

*2/15/74 Chairman McClellan, on behalf of Chairman Byrd and Ranking Minority Member Case of the Transportation Subcommittee, requests assessments concerning automation in urban rapid transit.

*9/27/74 Chairman McClellan, on behalf of Chairman Byrd and Ranking Minority Member Case of the Transportation Subcommittee, requests expansion of mass transit assessment.

Senate Committee on Commerce

*1/14/74 Senator Hollings' National Oceans Policy Study requests assessments concerning:
*1 Impact of technology on coastal zone
2 Ocean engineering technology
**3 Fisheries
*4 Deepwater ports
**5 Ocean mining
6 Weather modification
7 Acquaculture
8 Oceans monitoring

*1/24/74 Chairman Magnuson suggests assessments concerning:
1 Energy savings in manufacturing
2 Safety in disposal of nuclear waste
*3 Resource and energy recovery
4 Upgrading railroad tracks
*5 Oceans technology, including
**a Fisheries
*b Deepwater ports
6 Retrofitting offices and residences for energy savings
7 Alternative energy sources for autos
8 Mutagenic testing
9 Detergents
10 Predator poisons
11 Population and conservation taxes

*2/11/74 Senator Hollings' National Oceans Policy Study requests assessment on utilization of U.S. Continental Shelf.

*8/13/74 Chairman Magnuson, jointly with Chairman Hollings of Subcommittee on Oceans and Atmosphere, request assessment of:
*1 National growth policy
*2 Projected effect of economic and demographic growth of coastal zone.

10/10/74 Chairman Magnuson, acting for Chairman Tunney of the Subcommittee on Science, Technology and Commerce, requests assessment of computer-managed technology

10/17/74 Chairman Hart of the Subcommittee on the Environment requests assessment of cost and benefit of enivronmental protection regulations and equipment on the automobile industry.

**1/15/75 Chairman Magnuson, acting for Senator Tunney, recommends assessment involving materials wastage.

*1/23/75 Chairman Magnuson, jointly with Chairman Jackson, Committee on Interior and Insular Affairs, requests assessment of feasibility of separating consideration of leasing for exploration from leasing for development and production on Outer Continental Shelf.

**2/19/75 Chairman Magnuson, on behalf of Senator Tunney, requests comprehensive assessment of technology and world trade.

Senate Committee on Foreign Relations

*9/19/74 Chairman Fulbright, acting for Chairman Muskie and Ranking Minority Member Case

Table 1 Budget (Actual Expenditures) Office of Technology Assessment Detail of Estimate by Program Area and Major Class

By Program	FY 1974 Actual	FY 1975 Estimate	FY 1976 Estimate	FY 1975 FY 1976 Change
	(In thousands of dollars)			
Energy	$ 322	$ 447	$ 858	$ +411
Food	16	377	1,008	+631
Health	162	413	566	+153
Materials	---	1,117	779	-338
Oceans	12	823	998	+175
Transportation	472	358	794	+436
Tech. & World Trade	---	43	205	+162
Exploratory Assessments	32	256	293	+ 37
TAAC	37	97	105	+ 8
Public Affairs and Public Participation	8	126	159	+ 33
Office of the Director	136	224	225	+ 1
Administration; Information Services	150	415	510	+ 94
Totals	$1,345	$4,696	$6,500	$+1,804
By Major Objects				
Salaries & Benefits	$ 292	$1,669	$1,974	$ +305
Contracts & Other Services	965	2,599	3,884	+1,285
Travel	30	273	435	+162
Other	58	155	207	+ 52
Totals	$1,345	$4,696	$6,500	$+1,804

Note: Detail may not add to totals because of rounding.

of the Subcommittee on Arms Control, International Law and Organization, requests an assessment of the accuracy of DOD estimates of potential effects of limited nuclear warfare on U.S. society.

Senate Committee on Interior and Insular Affairs

*12/30/74 Chairman Jackson indicates need for comprehensive assessment of energy technology and joins request of House Committee on Science and Technology for that purpose.

*1/23/74 Chairman Jackson, jointly with Chairman Magnuson, Committee on Commerce, requests assessment of feasibility of separating consideration of leasing for exploration from leasing for development and production on Outer Continental Shelf.

Senate Committee on Labor and Public Welfare

**12/11/74 Chairman Williams, jointly with Senator Javits and Congressmen Rogers, Nelsen, and Carter of the House Subcommittee on Public Health and Environment, Committee on Interstate and Foreign Commerce, request assessments in:

**1 Spiraling costs of health care

2 Uneven quality of health care

**2/6/75 Chairman Williams, on behalf of Chairman Kennedy and Ranking Minority Member Javits of the Health Subcommittee, requests technology assessments on the following:

**1 Cost and quality of clinical laboratories

2 Medical record information requirements

**3 Cost control studies, i.e., effect of regulation of price, effect of deductibles and coinsurance on utilization of health care, efficacy of new technology and procedures, productivity measures, and cost of administering health insurance.

Senate Committee on Public Works

1/29/75 Chairman Randolph requests assessment of Federal assistance to energy and coal

Table 2 Fiscal Year 1974

Number and contractor		Obligated
OTA-C-1:	Family Health Care, Inc.	$ 149,409
OTA-C-2:	Midwest Research Institute: Honeywell, Black & Veatch, University of Pennsylvania, and Spectrolab-Textron.	311,300
OTA-C-3:	Battelle Memorial Institute.	218,501
OTA-C-4:	Skidmore, Owings and Merrill: Systems Design Concepts, Inc.	232,604
	Subtotal.	911,814
	U.S. General Accounting Office	12,000
	Total fiscal year 1974	923,814
	Fiscal year 1975	
OTA-C-5:	Michigan State University.	72,936
OTA-C-6:	The Futures Group.	18,527
OTA-C-7:	Sidney M. Cantor Associates, Inc.	35,725
OTA-C-8:	Braddock, Dunn and McDonald: Hittman Associates, and Ecological Analysts, Inc.	523,261
OTA-C-9:	Skidmore, Owings and Merrill	98,738
OTA-C-10:	IBM.	327,869
OTA-C-11:	Economics and Science Planning, Inc.	42,905
	Total fiscal year 1975	$1,119,961

research facilities in Appalachia and West Virginia.

Senate Select Committee on Nutrition and Human Needs

**2/7/75 Chairman McGovern asks OTA to determine whether protein is being wasted by being fed as grain to livestock, and if so, what government policy changes are necessary to remedy this waste.

Joint Economic Committee

9/10/74 Chairman Patman, acting for Chairman Bentsen of the Subcommittee on Economic Growth, requests assessment of industrial innovation in enhancing productivity and constraining prices with respect particularly to:

1 Housing
2 Power generation
3 Transportation
4 Basic metals and machine tools

2/11/75 Chairman Humphrey requests assessment of feasibility of improving and enlarging defense research and production facilities.

OTA BUDGETS AND EXPENDITURES

For the technology assessment projects selected the Congress appropriated $2 million for a part year operation in BY 1974. The OTA budget estimate for FY 1975 was $5 million and $4 million was appropriated, with the provision that the unobligated balance of 1974 funds (over $600,000) would be made available for use in FY 1975. The Technology Assessment Board has approved and submitted a FY 1976 estimate totaling $6.5 million, a 38 percent increase above the funds made available in FY 1975 (Table 1).

The funded projects were selected by the Technology Assessment Board on the basis of priority criteria which includes the advice of recognized experts. Upon Board approval of a technology assessment project request, OTA may respond in one of several ways:

1 By internal staff — if basic data and resources are generally available and alternatives and related issues are amenable to assessment by skills available or obtainable in-house. The cost involved is salary, plus 10 percent benefits, nominal travel, and other costs.

2 By OTA staff and consultant panels — if basic data are available and expert examination and analysis of this data is found to be necessary. The consultant cost includes a maximum of $138.45 per day, plus travel and subsistence expenses.

3 By OTA staff and contractors — if new data must be developed or existing data significantly restructured and analyzed in order to assure a conclusion of the assessment. The contractor costs include direct costs, overheads, general and administrative expenses and fee (if any).

4 By a combination of the foregoing as may be found necessary for a timely and useful

Table 3 Detail of Estimates (In Thousands of Dollars)

By Projects	FY 1974 Actual	FY 1975 Estimate	FY 1976 Estimate
Solar Energy	$311.3	$ 15.5	$ 13.0
Energy Plans & Programs	-	56.0	129.5
Energy Status & Review	-	235.0	75.0
Energy Priorities	-	-	425.0
Project Management	11.0	140.8	215.7
TOTALS	$322.3	$ 447.3	$ 858.2
By Object Class			
Salary & Benefits	$ 8.0	$ 196.2	$ 297.2
Contracts	311.3	210.0	486.9
Travel	3.0	35.6	68.1
Printing	-	5.5	6.0
TOTALS	$322.3	$ 447.3	$ 858.2

By Requesting Committee

Solar Energy: House Committee on Science and Technology
Senate Committee on Aeronautical and Space Sciences

Energy Plans and Reviews: House Committee on Science and Technology
Senate Committee on Interior and Insular Affairs

Energy Status and Review: House Committee on Science and Technology
Senate Committee on Interior and Insular Affairs

Energy Priorities: House Committee on Science and Technology
Senate Committee on Interior and Insular Affairs

response to a requesting Committee. Assessment projects are structured with the aid of Citizens Advisory Committee, program advisory committees, and project advisory panels.

OTA CONTRACTORS

OTA contracts in the specified funding were awarded to the following (Table 2):

Contract Awards and Control

The OTA procedures for handling contracts place a Project Manager in charge of each activity. A panel of experts assist the Manager in the review of the project. While the Director has the final responsibility for the selection of contractors, OTA needs are advertised to attract interested and qualified contractors. These respondents provide their qualifications and the OTA has compiled lists of contractor capabilities. The prospective contractor's response to the OTA project definition is reviewed by the project staff, including the panels associated with each of these activities, by the OTA in-house staff, and occasionally highly qualified individuals from other government agencies. The interested contractors are culled down to three to five best competitors. These contractors are brought in and examined more thoroughly on their proposals. Then the review group makes a recommendation to the OTA Director, who questions the review group about their decision making process and, in all cases to date, has accepted the reviewers' choice. As the program is initiated, a contract control mechanism is established. The contractor is required to submit the first report for analysis and review of the work statement and task definition within a six-week period. Any required corrective action on problem areas follows regular daily monitoring and monthly reports to both OTA staff and the expert panels. Staff personnel visit the contractors at the work site and interact with contractor personnel.

PROGRAM STATUS

The status of each of the programs undertaken by the OTA follows:

Energy Assessment Program

Two major assessments, requested by the House Committee on Science and Technology and the Senate Committee on Interior and Insular Affairs, account for about 90 percent of the estimated

FY 1976 budget of the OTA Energy Assessment Program. The first of these stuides, an assessment of national Energy Plans and Programs, was commenced during the current fiscal year and already is assisting Congressional analysis and assessment of the FY 1976 proposal of the Energy Research and Development Administration. The second project will be a comprehensive assessment of key questions regarding the setting of national Energy Priorities. The remainder of the proposed OTA FY 1976 energy budget is for completion of the Solar Energy Assessment, performed for the House Science and Technology Committee and the Senate Aeronautical and Space Sciences Committee, and to assess energy R&D needs and factors restraining energy solutions for the House Science and Technology and Senate Interior Committees.

OTA's Energy Assessment Program was initiated by the January 1974 request from Senator Clifford P. Case for a study of on-site solar electric systems. The staff was assisted in the management and performance of this study by a Solar Energy Advisory Panel, consultants, and an outside contractor. The broader OTA energy studies have been guided by a prestigious group of consultants and ad hoc Energy Advisory Panel. Through the end of FY 1976, $1.6 million has been allocated for energy programs. Funding requirements for approved or authorized projects under the Energy Assessment area are as shown in Table 3:

Consultants on Energy Plans and Programs

- Dr. Jack Gibbons, Environmental Engineering Department, University of Tennessee
- Dr. Don Kash, Director, Science and Public Policies, University of Oklahoma
- Dr. Fred Kruger, Professor, Mineral Economics, Stanford University
- Mr. Lester Lees, Environmental Quality Laboratory, California Institute of Technology
- Mr. John Moody, Private Energy Consultant, New York, N. Y.
- Dr. Frederick H. Morse, Mechanical Engineering Department, University of Maryland
- Mr. Harry Perry, Private Energy Consultant, Washington, D.C.
- Dr. David Rose, Nuclear Engineering Department, Massachusetts Institute of Technology
- Professor James L. Whittenberger, School of Health, Harvard University
- Dr. Herbert Woodson, Chairman, Department of Electrical Engineering, University of Texas.

Solar Advisory Panel

- Dr. Jerry Grey, Chairman, Research and Engineering Consultant, New York, N. Y.
- Mr. William W. Caudill, Partner, Caudill, Rowlett & Scott, Houston, Texas
- Mr. John J. Gunther, Executive Director, United States Conference of Mayors, Washington, D. C.
- Dr. Klaus P. Heiss, President, ECON., Inc., Princeton, N. J.
- Mr. Morton Hoppenfeld, Director of Planning and Design, The Rouse Company, Columbia, Md.
- Mr. Charles Lutman, Principal Project Manager, Ralph M. Parsons, Inc., Washington, D. C.
- Dr. James J. MacKenzie, Massachusetts Audubon Society, Boston, Mass.
- Professor Marjorie Meinel, University of Arizona, Tuscon, Ariz.
- Dr. L. T. Papay, Director of Research and Development, So. California Edison Company, Rosemead, Calif.
- Dr. Paul Rappaport, Director, Process and Applied Materials, Research Laboratory, RCA-David Sarnoff Research Center, Princeton, N. J.
- Mr. Floyd E. Smith, President, Int. Assoc. of Machinists, Washington, D. C.
- Professor E. M. Sparrow, University of Minnesota, Minneapolis, Minn.

Ad Hoc Energy Panel on Energy Plans and Programs

- Professor Milton Katz (Chairman), Harvard Law School
- Mr. Eugene G. Fubini, Pasadena, Calif.
- Professor Jack B. Howard, Dept. of Chemical Engineering, Massachusetts Institute of Technology
- Dr. William H. Miernyk, Director, Regional Research Institute, West Virginia University
- Mr. Leland F. Sillin, Jr., Chairman and President, Northwest Utilities, Hartford, Conn.
- Dr. Robert Socolow, Center for Environmental Studies, Princeton University
- Mr. William E. Zeiter, Esq., Morgan, Lewis & Bockius, Philadelphia, Pa.

Food Assessment Program

The OTA Food Assessment Program for FY 1976 includes the second phase of the comprehensive Food Information System assessment being performed for the Senate Committee on Agriculture & Forestry and the initiation of a major new assessment of

Table 4 Detail of Estimates (In Thousands of Dollars)

By Projects	FY 1974 Actual	FY 1975 Estimate	FY 1976 Estimate
Agricultural Act Extension	$ -	$ 10.0	$ -
Food Information System	-	256.0	-
(a) Grain Production & Demand	-	-	366.7
(b) Input Resource Requirement	-	-	108.7
(c) Domestic Food Consumption and Nutrition	-	-	141.9
Food and Agricultural Waste Conversion	-	-	248.7
Project Management	16.1	110.8	141.5
TOTALS	$16.1	$376.8	$1,007.5
By Object Class			
Salary & Benefits	$14.3	$139.7	$ 184.7
Contracts	-	207.0	754.6
Travel	1.8	27.1	58.1
Printing	-	3.0	10.1
	$16.1	$376.8	$1,007.5

By Requesting Committee

Agricultural Act Extension:
Senate Committee on Agriculture and Forestry

Food Information System:
Senate Committee on Agriculture and Forestry

Food and Agricultural Waste Conversion:
Senate Select Committee on Nutrition and Human Needs

Food and Agricultural Waste Conversion, requested by the Senate Select Committee on Nutrition and Human Needs. The new phase of the Food Information System assessment, building on information developed in the initial phase, will concentrate on identifying policy action alternatives in three key information areas: (a) grain production and demand; (b) input requirements for such resources as land, water, energy, fertilizer and pesticides; and (c) domestic food consumption patterns and nutrition.

The overall Food Program was initiated as one of OTA's highest priorities in response to a January 1974 request from Senator Hubert A. Humphrey. Since then, the Congressional Technology Assessment Board has allocated planned expenditures of $1.4 million in OTA funds for project management and performance of food studies, with slightly over two-thirds of this amount for contract costs.

Funding requirements for authorized or approved programs in the Food Assessment area are as shown in Table 4:

Food Advisory Panel

- Dr. Clifton R. Wharton, Jr., Chairman, President, Michigan State University
- Dr. Martin E. Abel, Professor, University of Minnesota
- Dr. W. D. Buddemeir, Director, International Agricultural, Programs and Associate Dean, College of Agriculture, University of Illinois
- Dr. David Call, Food Nutrition Economist and Director, of Cooperative Extension, Cornell University
- Dr. D. Gale Johnson, Chairman, Department of Economics, University of Chicago
- Dr. Chester O. McCorkle, Executive Vice President, University of California
- Dr. Max Milner, Director, United Nations Protein, Advisory Group
- Dr. Robert Nesheim, Vice President, Research and Development, Quaker Oats Company
- Mrs. Ester Peterson, President, National Consumer League and Consumer Advisor to the President, Giant Food, Inc.
- Dr. Roger Revelle, Director, Center for Population Studies, Harvard University
- Mr. Leon Schachter, International Vice President, Amalgamated Meat Cutters and Butcher Workmen of North America
- Mr. Lauren Soth, Editorial Writer and Farm-Agriculture Specialist, Des Moines Register and Tribune
- Dr. E. T. York, Jr., Interim President, University of Florida

Table 5 Detail of Estimates (In Thousands of Dollars)

By Projects	FY 1974 Actual	FY 1975 Estimate	FY 1976 Estimate
Drug Bioequivalence	$149.4	$ -	$ -
Cost & Quality Clinical Labs	-	190.0	47.9
Medical Malpractice	-	104.0	-
Health Care Cost Control	-	-	306.5
Long-term Care	-	-	100.5
Project Management	12.3	119.0	111.5
TOTALS	$161.7	$413.0	$566.4
By Object Class			
Salary & Benefits	$ 11.2	$123.0	$119.9
Contracts	149.4	275.0	417.5
Travel	1.1	11.0	22.8
Printing	-	4.0	6.2
TOTALS	$161.7	$413.0	$566.4

By Requesting Committee

Drug Bioequivalence:
Senate Committee on Labor and Public Welfare

Cost and Quality Clinical Labs:
Senate Committee on Labor & Public Welfare

Medical Malpractice:
House Committee on Ways and Means

Health Care Cost Control:
Senate Committee on Labor and Public Welfare

Long-term Health Care:
House Committee on Ways and Means

Health Assessment Program

Two new assessment projects are planned in FY 1976 by the OTA Health Assessment Program: a study of Health Care Cost Control, requested by the House Committee on Interstate and Foreign Commerce and the Senate Committee on Labor and Public Welfare, and a second study concerning long-term care at the request of the House Committee on Ways and Means. In addition, the Health Program's FY 1976 estimated budget includes funds for completion of a study begun during the current fiscal year on Clinical Laboratory Costs and Quality, which also was requested by the Senate Labor and Public Welfare Committee.

The Health Assessment Program produced OTA's first final report transmitted to the Congress, a study on Drug Bioequivalence, which was requested in February 1974 by Senator Edward M. Kennedy, Chairman of the Senate Health Subcommittee. The Drug Bioequivalence report was completed and delivered in approximately three months time in order to meet a specific Congressional deadline. The Technology Assessment Board has approved the planned allocation of a total of $1.1 million through the end of FY 1976 for program management and performance of the overall OTA Health Program. These plans provide for the completion of six studies for Congressional Committees.

Funding requirements for projects which have been included in work plans are shown in Table 5:

Drug Bioequivalence Study Panel

- Dr. Robert W. Berliner, Chairman, Dean, School of Medicine, Yale University
- Dr. Leighton E. Cluff, Chairman, Dept. of Medicine, University of Florida
- Dr. James T. Doluisio, Dean, College of Pharmacy, The University of Texas
- Dr. Kenneth L. Melmon, Chief, Division of Clinical, Pharmacology, University of California
- Dr. Alexander S. Nadas, Chief, Cardiology Department Children's Hospital Medical Center, Boston
- Dr. John A. Oates, Professor, Medicine and Pharmacology, Vanderbilt University
- Dr. Sidney Riegelman, Chairman, Depart-

Table 6 Detail of Estimates (In Thousands of Dollars)

By Project	FY 1974 Actual	FY 1975 Estimate	FY 1976 Estimate
Materials Information System	$ -	$ 384.0	$ 23.7
National Stockpile	-	320.0	16.0
Minerals Accessibility	-	300.0	10.0
Materials Recycling	-	60.0	280.0
Conservation	-	-	333.7
Project Management	.4	53.3	115.9
TOTALS	$ .4	$1,117.3	$779.3
By Object Class			
Salary & Benefits	$ .2	$ 67.2	$144.3
Contracts	-	1,030.0	591.8
Travel	.2	16.1	33.9
Printing	-	4.0	9.3
TOTALS	$ .4	$1,117.3	$779.3

By Requesting Committee

Materials Information System:
House Committee on Science and Technology

National Stockpile:
House Committee on Science and Technology

Materials Recycling:
House Committee on Science and Technology

Minerals Accessibility:
House Committee on Science and Technology
Technology Assessment Board - Senator Stevens

Conservation:
Senate Committee on Commerce
House Committee on Science and Technology

ment of Pharmacy, University of California

- Dr. Frederick E. Shideman, Head, Department of Pharmacology, University of Minnesota
- Dr. Marvin Zelen, Director, Statistical Laboratory, State University of New York, Buffalo
- Dr. Frederick C. Robbins, Dean, Case Western Reserve Medical School.

Materials Assessment Program

Approximately 90 percent of the estimated FY 1976 expenditures for the OTA Materials Assessment Program will support two major new studies: Materials Recycling, and Conservation of Materials through Reduced Wastage. These studies were requested by the House Committee on Science and Technology and by the Senate Commerce Committee. The remainder is budgeted for project management and completion of three projects begun in FY 1975; Materials Information Systems, National Stockpile Policies, and Domestic Minerals Accessibility, all requested by the House Science and Technology Committee.

The overall OTA Materials Program was developed in response to written requests from Representatives Olin E. Teague and Charles A. Mosher, received in January and November, 1974. Individual studies and their order of priority were developed by the OTA Materials Program staff, with assistance from the 16-member Materials Advisory Committee and the service of expert consultants. Five materials assessments have been approved by the Congressional Technology Assessment Board which has included a total $1.9 million in OTA funds for this purpose through the end of FY 1976. More than 85 percent of this amount is for contract costs.

Funding requirements for Materials Assessment projects, which have been approved or authorized to be included in work plans, are shown in Table 6:

Materials Advisory Panel

- Mr. James Boyd, Chairman, President, Materials Association
- Dean Earl H. Beistline, College of Earth Sciences and Mineral Industry, University of Alaska
- Dr. Seymour Blum, Director, The MITRE Corp.
- Mr. Lloyd M. Cooke, Corporate Director,

Table 7 Detail of Estimates (In Thousands of Dollars)

By Projects	FY 1974 Actual	FY 1975 Estimate	FY 1976 Estimate
Coastal Zone	$ -	$552.0	$ 42.9
Public Participation	-	50.0	25.0
Energy Siting	-	108.0	193.7
Tankers	-	28.0	-
Fisheries	-	-	249.7
LNG Coastal Facilities	-	-	200.0
OCS Oil & Gas Exploration Alternatives	-	-	142.7
Project Management	11.6	84.6	144.0
TOTALS	$11.6	$822.6	$998.0

By Object Class	FY 1974 Actual	FY 1975 Estimate	FY 1976 Estimate
Salary & Benefits	$10.0	$127.9	$194.8
Contracts	-	652.0	729.1
Travel	1.6	33.7	64.5
Printing	-	9.0	9.6
TOTALS	$11.6	$822.6	$998.0

By Requesting Committee

Coastal Zone and Public Participation:
Senate Committee on Commerce, National Oceans Policy Study

Energy Siting:
House Committee on Interior and Insular Affairs
Senate Committee on Commerce

Tankers:
Senate Committee on Commerce

Fisheries:
House Committee on Merchant Marine and Fisheries
Senate Committee on Commerce, National Oceans Policy Study

LNG Coastal Facilities:
Senate Committee on Commerce, National Ocean Policy Study

OCS Oil and Gas Exploration Alternatives:
Senate Committee on Commerce
Senate Committee on Interior and Insular Affairs
House Committee on the Judiciary

University Relations Union Carbide Corp.

- Mr. Frank Fernbach, Economist, United Steelworkers of America, Washington, D. C.
- Dr. Edwin A. Gee, Vice President, Director and Member of Executive Committee. E. I. Dupont de Nemours & Co.
- Dr. Bruce Hannay, Vice President, Research, Bell Laboratories
- Dr. William Harris, Jr., Vice President, Association of American Railroads
- Dr. Julius Harwood, Assistant Director, Materials Science, Ford Motor Co.
- Mr. Harry H. Herman, Jr., Consulting Engineer
- Mr. Hans H. Landsberg, Director, Energy and Minerals Program, Resources for the Future
- Dr. Elburt Osborn, Distinguished Professor, Carnegie Institution of Washington, Geophysic Laboratory
- Mr. N. E. Promisel, Consultant/Acting Executive Director Federation of Materials Association
- Mrs. Lois Sharpe, Coordinator, League of Women Voters, Educational Fund
- Mr. George A. Watson, Executive Director, Ferroalloys Association
- Dr. J. H. Westbrook, Manager, Materials Information System, General Electric Company
- Dr. R. Talbot Paige, Research Association for Resources for the Future
- Dr. James A. Kent, Dean, College of Engineering, Michigan Technological University

- Dr. Bruce Hannon, Center for Advanced Computation, University of Illinois (Urbana).

Oceans Assessment Program

Four major new assessment projects account for 86 percent of the FY 1976 funds requested for the OTA Oceans Assessment Program. These assessments, and the Congressional Committees they are to be performed for, are: Status of the U.S. Fishing Industry, for House Merchant Marine & Fisheries and Senate Commerce; Impacts of Energy Facilities Siting, Including the Coastal Zone, for House Interior and Insular Affairs and Senate Commerce; Liquefied Natural Gas Facilities and Transportation, for Senate Commerce; and Alternative Approaches to Outer Continental Shelf Oil and Gas Exploration, for House Judiciary, Senate Commerce and Senate Interior and Insular Affairs. The remainder is for program management and completion of the assessment begun in FY 1975 of New Use Demands on the New Jersey-Delaware Coastal Region, requested by Senate Commerce.

The overall OTA Oceans Program was initiated in response to a January 1974 request from Senator Ernest F. Hollings, Chairman of the Senate National Ocean Policy Study. With the assistance of a strong Oceans Advisory Committee and expert consultants, the OTA Oceans Program staff has since developed six programs responding to the needs of five Congressional Committees. Cumulative projected expenditures for Oceans assessments through the end of FY 1976 are estimated at $1.8 million, nearly three-fourths of which is contract costs.

Plans require the following funds for Oceanic Assessment work (Table 7):

Coastal Zone Advisory Panel

- Dr. Richard Sullivan, Chairman, Center for Environmental Studies, Princeton University
- Mr. David J. Bardin, Commissioner of Environmental Protection, Trenton, N. J.
- Mr. E. C. Brown, Jr. Vice President, Market Development, Dresser Industries, Houston
- Dr. Francis T. Christy, Jr., Director of Programs, Resources for the Future, Washington, D. C.
- Mr. John Daniello, Secretary of Community Affairs and Economic Development, State of Delaware
- Dr. John Mark Dean, Associate Professor of Marine Science and Biology, University of South Carolina, Columbia
- Mr. Richard M. Eckert, Vice President, Engineering and Construction, Public Service Electric and Gas Company, Newark, N. J.
- Dr. Don E. Kash, Director, Science and Public Policy Programs, University of Oklahoma, Norman
- Dr. H. W. Menard, Scripps Institute of Oceanography, La Jolla, Calif.
- Mr. Charles C. Mollard, Seafarers International Union, AFL-CIO, Brookly, N. Y.
- Dr. James Sullivan, Director, Center for Science in the Public Interest, Washington, D. C.

Transportation Assessment Program

FY 1976 plans for the OTA Transportation Assessment Program call for the establishment of a capability to perform major new assessments in the areas of railroad technology and the future of the automobile. Interest in both subjects has been expressed to OTA by the Senate Committee on Commerce. Accordingly, the proposed FY 1976 budget for this program area allocates almost $800,000 for program management and performance of two comprehensive assessments.

The initial focus of the overall OTA Transportation Program was on urban mass transportation, with the first two full-scale assessments performed at the request of Senator John L. McClellan, Chairman of the Senate Appropriations Committee. The activities in this program area have since been expanded to include an automobile safety study performed for the House Committee on Appropriations and expanded studies for the Senate Appropriations Committee on personal rapid transit systems, and the impact of recent economic and energy developments on mass transit planning. From its inception through the end of FY 1976, the Congressional Technology Assessment Board has approved plans to allocate $1.6 million in OTA funds for transportation studies, nearly three-fourths of it for contract costs.

Fund requirements for Transportation Assessment projects, which have been approved or authorized to be included in work plans, are shown in Table 8:

Urban Mass Transportation Advisory Panel

- Mr. George Krambles, Chairman, General Operations Manager, Chicago Transit Authority
- Mr. Walter J. Bierwagen, Member, General Executive Board, Amalgamated Transit Union

Table 8 Detail of Estimates (In Thousands of Dollars)

By Projects	FY 1974 Actual	FY 1975 Estimate	FY 1976 Estimate
Automatic Train Control	$218.5	$ 55.4	$ -
Urban Mass Transit	232.6	106.7	-
Crash Recorder	-	46.9	-
Personal Rapid Transit	-	49.0	-
Railroad Technology	-	-	357.8
Automotive Assessment	-	3.0	336.0
Project Management	20.5	96.9	100.5
TOTALS	$471.6	$357.9	$794.3
By Object Class			
Salary & Benefits	$ 17.6	$154.5	$150.3
Contracts	451.1	142.0	598.0
Travel	2.9	53.4	43.7
Printing	-	8.0	2.3
TOTALS	$471.6	$357.9	$794.3

By Requesting Committee

Automatic Train Control:
Senate Committee on Appropriations

Urban Mass Transit:
Senate Committee on Appropriations

Crash Recorder:
House Committee on Appropriations

Personal Rapid Transit:
Senate Committee on Appropriations

Railroad Technology:
Senate Committee on Commerce

Automotive Assessment:
Senate Committee on Commerce

- Dr. Robert A. Burco, Public Policy Analyst, Public Policy Research Associates, Berkeley, Calif.
- Mrs. Jeanne J. Fox, Senior Researcher, Joint Center for Political Studies, Washington, D. C.
- Dr. Lawrence A. Goldmuntz, Chairman, Economics and Science Planning, Washington, D. C.
- Dr. Dorn C. McGrath, Professor, Urban Planning, George Washington University
- Dr. Bernard M. Oliver, Vice President, R&D Hewlett-Packard Corp., Palo Alto, Calif.
- Mr. Simon Reich, Train Control Consultant, Gibbs and Hill, New York, N. Y.
- Mr. Frederick P. Salvucci, Secretary of Transportation and Construction, State of Massachusetts
- Dr. Thomas C. Southerland, Jr., Assistant Dean, School of Architecture and Urban Planning, Princeton University
- Dr. Stewart F. Taylor, Director, Transportation Systems, Sanders and Thomas, Inc., Pottstown, Pa.

Technology and World Trade Assessment Program

The technology and World Trade Assessment Program focuses on the evaluation of the existing institutional structure and policy framework within which U. S. international trade in technology-intensive products, processes, and services occurs. The program area considers the impact of U.S. policies on international trade in technology, in the areas of taxation, tariffs, business regulation, antitrust, patents, licensing, export restrictions, international standards, technology transfer, turnkey arrangements, international investment restrictions, international consulting arrangements, and Federal R&D and procurement policies. In addition, the program includes intensive case study analyses in the areas of East-West trade; trade with Japan and OECD countries; trade with OPEC nations; and trade with LDC countries.

The assessment builds on preliminary staff and consulting work conducted in FY 1975, which is concerned with the impact of international standards on U.S. trade in technology-intensive items.

The assessment is designed to be responsive

Table 9 Detail of Estimates (In Thousands of Dollars)

By Project	FY 1974 Actual	FY 1975 Estimate	FY 1976 Estimate
Existing Policies	$ -	$ 4.0	$ 95.0
Case Studies	-	-	62.3
Project Management	-	38.9	47.6
TOTALS	$ -	$ 42.0	$ 204.9
By Object Class			
Salary & Benefits	$ -	$ 41.3	$ 58.9
Contracts	-	-	124.1
Travel	-	1.6	19.9
Printing	-	-	2.0
TOTALS	$ -	$ 42.9	$ 204.9

By Requesting Committee

Existing Policies:
Joint Economic Committee
Senate Committee on Commerce

Case Studies:
Joint Exonomic Committee
Senate Committee on Commerce

to requests from the Congressional Committees: the Joint Economic Committee and the Senate Committee on Commerce. The issue of international technology transfer will be included in the assessment in response to a House Committee on Foreign Affairs suggestion.

The funding requirement for assessments in the technology and world trade assessment area is as shown in Table 9:

Exploratory Assessments Program

The Exploratory Assessments Program is conducted by senior staff members and expert consultants as well as by an ad hoc advisory panel. Unlike other OTA programs that address specific subject areas, the Exploratory Assessments Program provides a systematic process for defining certain assessment proposals submitted to OTA, and for conducting mini-assessments of emerging issues. During the current fiscal year, the EA group began a mini-assessment of rural tele-communications, requested by Senator Herman Talmadge, Chairman of the Senate Committee on Agriculture and Forestry. Additional Congressional requests, including one for an assessment of national research and development priorities, are being studied.

Expenditures of $293,000 are planned for FY 1976.

Fund requirements for this essential function, which have been included in work plans, are shown in Table 10:

LIMITATIONS AND PROBLEMS

At the end of the first year of OTA's operations, the Vice Chairman of the Board, Congressman Mosher, made a succinct report of the Office's limitations and problems.

Limitations

Budgets. OTA's beginning budgets are relatively small: $2 million for fiscal year '74; $4.6 million for fiscal '75; $6.5 million is being requested for "76. This limitation, of course, works both ways, and as yet it should not be considered a handicap. It does keep OTA from moving too fast, from being easily "pressured;" it forces us to be carefully selective. On the other hand, and in order to provide some perspective to our budget, let me point out that before OTA came into being, the government spent $20 million or so on a largely incomplete and meaningless assessment of the SST before abandoning it. Also, the Project Independence energy assessment cost over $10 million for a six-month period, more than 20 times the amount OTA has available for energy assessments on a half year basis. Similarly, the assessment for an Alaska Pipeline ran somewhere between $10 to $16 million, depending on whose figures are used. These figures are useful in suggesting to Members the real modesty of the OTA program.

Space. While many people felt it desirable for OTA to have, or at least predicted it would

Table 10 Detail of Estimates (In Thousands of Dollars)

By Project	FY 1974 Actual	FY 1975 Estimate	FY 1976 Estimate
Exploratory Assessments	$ -	$ 54.4	$ 97.5
Rural Telecommunications	-	41.0	0.0
Program Management	31.7	160.5	195.7
TOTALS	$ 31.7	$255.9	$293.2
By Object Class			
Salary & Benefits	$ 29.5	$209.6	$216.0
Contracts	-	6.0	58.2
Travel	2.2	39.8	18.7
Printing	-	.5	.3
TOTALS	$ 31.7	$255.9	$293.2

By Requesting Committee

Exploratory Assessments
(Reviews new requests by Congressional Committees)

Rural Telecommunications:
Senate Committee on Agriculture and Forestry

have a staff of 90 or more by this time, the actual staff today is about half that size. Undoubtedly, it still should grow, but I insist slowly and very selectively, only on the basis of fully justified need.

OTA is for the moment effectively locked in because of space limitations. When additional staff help is needed in the months ahead, we must recognize the importance, especially for this sort of organization, to avoid having the working staff physically scattered. Yet there simply seems nowhere to go at the present time! This is a handicap and could become a serious one.

OTA is presently located in a few rooms on the top floor of the old Immigration Building on D Street, a somewhat discouraging, inefficient, inconvenient working environment. In my view, it is very important that we succeed now in reserving for OTA appropriate space in the new Madison Building now going up near the Library.

Staff Role. The role and technique of the OTA's staff, I suggest, need further definition and study. As planned from the beginning, our assessments are done mainly out-of-house; and while the present system of bringing in specialists to serve as principal investigators for the duration of any particular assessment seems to be working well, there is nonetheless continuing need for high quality assistance from the OTA staff. This means that internal staff functions are demanding; flexibility, versatility, managerial skills, and a variety of professional experience are required; and also an understanding of legislative politics, procedures and policies is very desirable.

Problems That Need Attention

1 Appropriate relationships must be achieved for effective liaison and assistance with both the Congressional Research Service and the General Accounting Office. A good start appears to have been made here in the time thus far available, but it is clear that maximum utility of these agencies as they interrelate with OTA has yet to be realized.

2 Another very important working relationship is that between OTA and the National Science Foundation, especially as to the utilization of the latter in the techniques and methodologies of technology assessment. The organic act creating OTA provided specifically for this sort of reciprocity with NSF. It may be that before long OTA will wish to create a permanent division devoted exclusively to promotion of assessment techniques which are as yet uncertain, unproved.

3 We must also be aware that OTA has a statutory responsibility under P.L. 93-344 to assist the new Congressional Budget Office in review and analysis of the Federal R&D budget. And OTA must work closely with Executive agencies to assemble relative and available facts. It is my impression at this point that this liaison has been very constructive thus far.

4 I think it imperative that the relationships between the Technology Assessment Board and the Advisory Council be mutually helpful and effective including a better understanding between them regarding procedures, assignments, and authority. Again, a good deal has been accomplished, but much remains to be done. This is particularly important in view of the rotation of terms of Advisory Council members, and inevit-

able changes in the Board, which require awareness and effort to maintain continuity in healthy relations between the two groups.

5 I suggest that we House Members of the OTA Board have not, as yet, participated as fully and effectively in the Board's decisions as we should. In the OTA's first year, the Senate definitely was the dominate partner.

I am not suggesting that OTA Board members should ever think of themselves primarily as spokesmen for the House or Senate, respectively. Quite the opposite! I believe every member of the Board should attempt to avoid all parochialism, should be concerned primarily for the best interests of the Congressional process and the national interest as a whole. But I do emphasize the need for a healthy balance between Senate and House Members, working together, in the OTA Board's operations, initiatives, and decisions, a balance that so far is lacking I hope and expect that we House Members will correct our deficiencies under the leadership of Chairman Teague.

6 I also suggest that the Board, in its sense of priorities in approval of assessments, tends too easily to ignore the smaller assessment requests and concentrates largely on those which are directed toward the bigger, more compelling issures of the moment. This is understandable, but I believe some of the less conspicuous, less "fascinating" requests are of considerable importance and usefulness to the Congress, and perhaps a certain percentage of OTA funds in the future should be earmarked for such smaller purposes.

Necessarily, we must be very selective in our Board approvals; and I believe it essential that we constantly emphasize, above all else, our basic, all important mission, to serve the needs of the Committees of Congress.

Dangers

It is not difficult to conjure up a variety of pitfalls lying in OTA's path. I am especially concerned about three.

1 A possibility that the OTA may choke itself by succumbing to pressures to accept tasks that are at present too vast, complex and difficult, or inappropriate. Examples of the former might include efforts to assess the nation's general socio-technological growth patterns and alternate policies which might be used to control them, or assessments of the impacts of nuclear weapons or other major military systems. Examples of the latter might include such problems as land-leasing policies arising from environmental difficulties, or assessment of the general or special impacts of taxation.

2 The matter of adequate liaison between OTA and Congressional committees and their staffs. If we look at the assessment requests made thus far of OTA, it is clear that a large proportion have come through Board members themselves or their own Committee Chairmen colleagues. Hopefully this will continue. Yet it is important that there be an increased percentage of requests that originate through sources not so directly connected with the Board, especially requests which genuinely originate in the Congressional committees.

There is no ducking the fact that, while recognition of the OTA has been increasing, a very large part of the Congress still knows very little about it, or cares. This seems to be true especially at the Committee staff level. Ordinary tact and prudence dictate that this situation, to whatever extent it exists, be corrected. Staff awareness and understanding is vital. I believe they have been improving significantly as assessments have picked up, a trend which must continue.

3 Most important, the Board-Director-Council functions and relationships. As I have indicated, it takes time to develop relationships in an organization such as OTA, particularly to develop and understand the appropriate roles among the statutory elements of OTA: the Board, the Director, and the Advisory Council.

An effective enterprise can have only one Board of Directors; in OTA, this function is vested exclusively in its Congressional Board.

The Director of OTA is the chief executive officer of this enterprise. He can be effective in marshalling resources and executing the broad policies and decisions of the Board, only if he has sufficient authority and discretion. OTA's Director must not be subjected to multiple lines of direction; he must be responsible solely to the Congressional Board Members of the Board, particularly its Chairman and Vice Chairman, should insure that, having laid down broad policies, authority remains in the Director to execute these policies.

The Advisory Council performs a very necessary, valuable function for OTA, providing expert advice, guidance and constructive criticism. As I have said, this kind of relationship is developing and will improve as OTA matures. I also believe the Advisory Council is the key to providing a forum for public participation in technology assessment. I hope it will be possible for the Council to incorporate the participation of public interest and other groups into its

activities. This will take a great deal of work on the Council's part, but it is a vitally important task.

The Outlook

Yes, Mr. Speaker, in our new OTA there are these several important and difficult problems. But I am optimistic, and with good reason. I interpret the total situation as consisting of many more pluses than minuses. And if there is one thing which I believe merits special emphasis it is this: in the Office of Technology Assessment, the Legislative branch has a new tool of great potential. But those of us who are in Congress must keep in mind that we are all just learning to use it. This is going to require trial and error practice on the part of OTA, and patient support from Congress and the public. It is also going to require some faith on the part of each of us.

Given a reasonable effort in these matters, there is no doubt in my mind that OTA will become what its progenitors envisioned for it.

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