
APPENDICES

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APPENDIX A

Technology Assessment Act of 1972



Public Law 92-484
92nd Congress, H. R. 10243
October 13, 1972

An Act

06 STAT. 797

To establish an office of Technology Assessment for the Congress as an aid in the identification and consideration of existing and probable impacts of technological application; to amend the National Science Foundation Act of 1950; and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Technology Assessment Act of 1972".

Technology
Assessment Act
of 1972.

FINDINGS AND DECLARATION OF PURPOSE

SEC. 2. The Congress hereby finds and declares that:

(a) As technology continues to change and expand rapidly, its applications are-

(1) large and growing in scale; and

(2) increasingly extensive, pervasive, and critical in their impact, beneficial and adverse, on the natural and social environment.

(b) Therefore, it is essential that, to the fullest extent possible, the consequences of technological applications be anticipated, understood, and considered in determination of public policy on existing and emerging national problems.

(c) The Congress further finds that:

(1) the Federal agencies presently responsible directly to the Congress are not designed to provide the legislative branch with adequate and timely information, independently developed, relating to the potential impact of technological applications, and

(2) the present mechanisms of the Congress do not and are not designed to provide the legislative branch with such information.

(d) Accordingly, it is necessary for the Congress to-

(1) equip itself with new- and effective means for securing competent, unbiased information concerning the physical, biological, economic, social, and political effects of such applications; and

(2) utilize this information, whenever appropriate, as one factor in the legislative assessment of matters pending before the Congress, particularly in those instances where the Federal Government may be called upon to consider support for, or management or regulation of, technological applications.

ESTABLISHMENT OF THE OFFICE OF TECHNOLOGY ASSESSMENT

Sec. 3. (a) In accordance with the findings and declaration of purpose in section 2, there is hereby created the Office of Technology Assessment (hereinafter referred to as the "Office") which shall be within and responsible to the legislative branch of the Government.

(b) The Office shall consist of a Technology Assessment Board (hereinafter referred to as the "Board") which shall formulate and promulgate the policies of the Office, and a Director who shall carry out such policies and administer the operations of the Office.

Technology
Assessment
Board.

(c) The basic function of the Office shall be to provide early indications of the probable beneficial and adverse impacts of the applications of technology and to develop other coordinate information which may assist the Congress in carrying out such function, the office shall:

Duties.

(1) identify existing or probable impacts of technology or technological programs;

- (2) where possible, ascertain cause-and-effect relationships;
- (3) identify alternative technological methods of implementing specific programs;
- (4) identify alternative programs for achieving requisite goals;
- (5) make estimates and comparisons of the impacts of alternative methods and programs;
- (6) present findings of completed analyses to the appropriate legislative authorities;
- (7) identify areas where additional research or data collection is required to provide adequate support for the assessments and estimates described in paragraph (1) through (5) of this subsection; and
- (8) undertake such additional associated activities as the appropriate authorities specified under subsection (d) may direct.
- (d) Assessment activities undertaken by the Office maybe initiated upon the request of:
- (1) the chairman of any standing, special, or select committee of either House of the Congress, or 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;
- (2) the Board; or
- (3) the Director, in consultation with the Board.
- Information availability.** (e) Assessments made by the Office, including information, surveys, studies, reports, and findings related thereto, shall be made available to the initiating committee or other appropriate committees of the Congress. In addition, any such information, surveys, studies, reports, and findings produced by the Office may be made available to the public except where—
- (1) to do so would violate security statutes; or
- (2) the Board considers it necessary or advisable to withhold such information in accordance with one or more of the numbered paragraphs in section 552(b) of title 5, United States Code.
- 81 Stat. 54,**

TECHNOLOGY ASSESSMENT BOARD

- Membership.** **SEC. 4. (a)** The Board shall consist of thirteen members ~~as~~ follows:
- (1) six Members of the Senate appointed by the President pro tempore of the Senate, three from the majority party and three from the minority party;
- (2) six, Members of the House of Representatives appointed by the Speaker of the House of Representatives, three from the majority party and three from the minority party; and
- (3) the Director, who shall not be a voting member.
- Vacancies.** (b) Vacancies in the membership of the Board shall not affect the power of the remaining members to execute the functions of the Board and shall be filled in the same manner as in the case of the original Appointment.
- Chairman and vice chairman.** (c) The Board shall select a chairman and a vice chairman from among its members at the beginning of each Congress. The vice chairman shall act in the place and stead of the chairman in the absence of the chairman. The chairmanship and the vice chairmanship shall **alternate** between the Senate and the House of Representatives with each Congress. The chairman during each even-numbered Congress shall be selected by the Members of the House of Representatives on the Board from among their number. The vice chairman during each

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Congress shall be chosen in the same manner from that House of Congress other than the House of Congress of which the chairman is

(d) The Board is authorized to sit and act at such places and times during the sessions, recesses, and adjourned periods of Congress, and upon a vote of a majority of its members, to require by subpoena or otherwise the attendance of such witnesses and the production of such books, papers, and documents, to administer such oaths and affirmations, to take such testimony, to procure such printing and binding, and to make such expenditures, as it deems advisable. The Board may make such rules respecting its organization and procedures as it deems necessary, except that no recommendation shall be reported from the Board unless a majority of the Board assent. Subpenas may be issued over the signature of the chairman of the Board or of any voting member designated by him or by the Board, and may be served by such person or persons as may be designated by such chairman or member. The chairman of the Board or any voting member thereof may administer oaths or affirmations to witnesses.

Meetings.

Subpena.

DIRECTOR AND DEPUTY DIRECTOR

Sec. 3. (a) The Director of the Office of Technology Assessment shall be appointed by the Board and shall serve for a term of six years unless sooner removed by the Board. He shall receive basic pay at the rate provided for level III of the Executive Schedule under section 5314 of title 5, United States Code.

Appointment.

Compensation.

83 Stat. 863.

(b) In addition to the powers and duties vested in him by this Act, the Director shall exercise such powers and duties as may be delegated to him by the Board.

(c) The Director may appoint with the approval of the Board, a Deputy Director who shall perform such functions as the Director may prescribe and who shall be Acting Director during the absence or incapacity of the Director or in the event of a vacancy in the office of Director. The Deputy Director shall receive basic pay at the rate provided for level IV of the Executive Schedule under section 5315 of title 5, United States Code.

(d) Neither the Director nor the Deputy Director shall engage in any other business, vocation, or employment than that of serving as such Director or Deputy Director, as the case may be; nor shall the Director or Deputy Director, except with the approval of the Board, hold any office in, or act in any capacity for, any organization, agency, or institution with which the Office makes any contact or other arrangement under this Act.

Employment
restriction.

AUTHORITY OF THE OFFICE

SEC. 6. (a) The Office shall have the authority, within the limits of available appropriations to do all things necessary to carry out the provisions of this Act, including, but without being limited to, the authority to-

(1) make full use of competent personnel and organizations outside the Office, public or private, and form special ad hoc task forces or make other arrangements when appropriate;

(2) enter into contracts or other arrangements as may be necessary for the conduct of the work of the Office with any agency or instrumentality of the United States, with any State, territory,

Contracts.

86 STAT. 800

or Possession or any Political subdivision thereof, or with any person, firm, association, corporation, or educational institution, with or without reimbursement, without performance or other bonds, and without regard to section 3709 of the Revised Statutes (41 U.S.C. 5) :

(3) make advance, progress, and other payments which relate to technology assessment without regard to the provisions of section 3648 of the Revised Statutes (31 U.S.C. 529) ;

80 Stat. 499;
83 Stat. 190.

(4) accept and utilize the services of voluntary and uncompensated personnel necessary for the conduct of the work of the Office and provide transportation and subsistence as authorized by section 5703 of title 5, United States Code, for persons serving without compensation;

(5) acquire by purchase, lease, loan, or gift, and hold and dispose of by sale, lease, or loan, real and personal property of all kinds necessary for or resulting from the exercise of authority granted by this Act; and

(6) prescribe such rules and regulations as it deems necessary governing the operation and organization of the Office.

Recordkeeping.

(b) Contractors and other parties entering into contracts and other arrangements under this section which involve costs to the Government shall maintain such books and related records as will facilitate an effective audit in such detail and in such manner as shall be prescribed by the Office, and such books and records (and related documents and papers) shall be available to the office and the Comptroller General of the United States, or any of their duly authorized representatives, for the purpose of audit and examination.

(c) The Office, in carrying out the Provisions of this Act, shall not, itself operate any laboratories, pilot plants, or test facilities.

Agency cooperation.

(d) The Office is authorized to secure directly from any executive department or agency information, suggestions, estimates, statistics, and technical assistance for the purpose of carrying out its functions under this Act. Each such executive Department or agency shall furnish the information, suggestions, estimates, statistics, and technical assistance directly to the Office upon its request.

Personnel detail.

(e) On request of the Office, the head of any executive department or agency may detail, with or without reimbursement, any of its personnel to assist the Office in carrying out its functions under this Act.

(f) The Director shall, in accordance with such policies as the Board shall prescribe, appoint and fix the compensation of such personnel as may be necessary to carry out the provisions of this Act.

ESTABLISHMENT OF THE TECHNOLOGY ASSESSMENT ADVISORY COUNCIL**Membership.**

Sec. 7. (a) The Office shall establish a Technology Assessment Advisory Council (hereinafter referred to as the "Council"). The Council shall be composed of the following twelve members:

(1) ten members from the public, to be appointed by the Board, who shall be persons eminent in one or more fields of the physical, biological, or social sciences or engineering or experienced in the administration of technological activities, or who may be judged Qualified on the basis of contributions made to educational or public activities;

(2) the Comptroller General; and

(3) the Director of the Congressional Research Service of the Library of Congress

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(b) The Council, upon request by the Board, shall-

Duties.

(1) review *and* make recommendations to the Board on activities undertaken by the Office or on the initiation thereof in accordance with section 3(d) ;

(2) review and make recommendations to the Board on the findings of any assessment made by or for the Office; and

(3) undertake such additional related tasks as the Board may direct.

(c) The Council, by majority vote, shall elect from its members appointed under subsection (a) (1) of this section a Chairman and a Vice Chairman, who shall serve for such time and under such conditions as the Council may prescribe. In the absence of the Chairman, or in the event of his incapacity, the Vice Chairman shall act as Chairman.

Chairman and
Vice Chairman.

(d) The term of office of each member of the Council appointed under subsection (a) (1) shall be four years except that any such member appointed to fill a vacancy occurring prior to the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term. No person shall be appointed a member of the Council under subsection (a) (1) more than twice. Terms of the members appointed under subsection (a) (1) shall be staggered so as to establish a rotating membership according to such method as the Board may devise.

Term of
office.

(e) (1) The members of the Council other than those appointed under subsection (a) (1) shall receive no pay for their services as members of the Council, but shall be allowed necessary travel expenses (or, in the alternative, mileage ~~for use~~ of privately owned vehicles and a per diem in lieu of subsistence at not to exceed the rate prescribed in sections 5702 and 5704 of title 5, United States Code), and other *necessary* expenses incurred by them in the performance of duties vested in the Council, without regard to the provisions of subchapter 1 of chapter 57 and section 5731 of title 5, United States Code, and regulations promulgated thereunder.

Travel expenses.

80 Stat. 498;
83 Stat. 190.
5 USC 5701.

(2) The members of the Council appointed under subsection (a) (1) shall receive compensation for each day engaged in the actual performance of duties vested in the Council at rates of pay not in excess of the daily equivalent of the highest rate of basic pay set forth in the General Schedule of section 5332(a) of title 5, United States Code, and in addition shall be reimbursed for travel, subsistence, and other necessary expenses in the manner provided for other members of the Council under paragraph (1) of this subsection.

Compensation.

UTILIZATION OF THE LIBRARY OF CONGRESS

Sec. 8. (a) To carry out the objectives of this Act, the Librarian of Congress is authorized to make available to the Office such services and assistance of the Congressional Research Service as may be appropriate and feasible.

(b) Such services and assistance made available to the Office shall include, but not be limited to, all of the services and assistance which the Congressional Research Service is otherwise authorized to provide to the Congress.

(c) Nothing in this section shall alter or modify any services or responsibilities, other than those performed for the Office, which the Congressional Research Service under law performs for or on behalf

of the Congress. The Librarian is, however, authorized to establish within the Congressional Research Service such additional divisions, groups, or other organizational entities as may be necessary to carry out the purpose of this Act.

(d) *Services* and assistance made available to the office by the Congressional Research Service in accordance with this section may be provided with or without reimbursement from funds of the Office, as agreed upon by the Board and the Librarian of Congress.

UTILIZATION OF THE GENERAL ACCOUNTING OFFICE

Sec. 9. (a) Financial and administrative services (including those related to budgeting, accounting, financial reporting, personnel, and procurement) and such other services as may be appropriate shall be provided the Office by the General Accounting Office.

(b) Such services and assistance to the Office shall include, but not be limited to, all of the services and assistance which the General Accounting Office is otherwise authorized to provide to the Congress.

(c) Nothing in this section shall alter or modify any services or responsibilities, other than those performed for the Office, which the General Accounting Office under law performs for or on behalf of the Congress.

(d) Services and assistance made available to the office by the General Accounting Office in accordance with this section may be provided with or without reimbursement from funds of the Office, as agreed upon by the Board and the Comptroller General.

COORDINATION WITH THE NATIONAL SCIENTIFIC FOUNDATION.

Sec. 10. (a) The Office shall maintain a continuing liaison with the National Science Foundation with respect to-

(1) grants and contracts formulated or activated by the Foundation which are for purposes of technology assessment; and

(2) the promotion of coordination in areas of technology assessment, and the avoidance of unnecessary duplication or overlapping of research activities in the development of technology assessment techniques and programs.

Scientific
programs,
financing,
92 Stat. 360.

(b) Section 3(b) of the National Science Foundation Act of 1950, as amended (42 U.S.C. 1862(b)), is amended to read as follows:

64 Stat. 156;
32 Stat. 365.
42 USC 1873.

"(b) The Foundation is authorized to initiate and support specific scientific activities in connection with matters relating to international cooperation, national security, and the effects of scientific applications upon society by making contracts or other arrangements (including grants, loans and other forms of assistance) for the conduct of such activities. When initiated or supported pursuant to requests made by any other Federal department or agency, including the Office of Technology Assessment, such activities shall be financed whenever feasible from funds transferred to the Foundation by the requesting official as provided in section 14(g), and any such activities shall be unclassified and shall be identified by the Foundation as being undertaken at the request of the appropriate official."

ANNUAL REPORT

Sec. 11. The Office shall submit to the Congress an annual report which shall include, but not be limited to an evaluation of technology assessment techniques and identification, insofar as may be feasible, of technological areas and programs requiring future analysis. Such report shall be submitted not later than March 15 of each year.

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86 STAT. 803

APPROPRIATIONS

SEC. 12. (a) To enable the Office to carry out its powers and duties, there is hereby authorized to be appropriated to the Office, out of any money in the Treasury not otherwise appropriated, not to exceed \$5,000,000 in the aggregate for the two fiscal years ending June 30, 1973, and June 30, 1974, and thereafter such sums as may be necessary.

(b) Appropriations made pursuant to the authority provided in subsection (a) shall remain available for obligation for expenditure, or for obligation and expenditure for such period or periods as may be specific in the Act making such appropriations.

Approved October 13, 1972.

LEGISLATIVE HISTORY:

HOUSE REPORTS: No. 92-469 (Comm. on Science and Astronautics) and No. 92-1436 (Comm. of Conference).
 SENATE REPORT No. 92-1123 (Comm. on Rules and Administration).
 CONGRESSIONAL RECORD, Vol. 118 (1972):
 Feb. 8, Considered and passed House.
 Sept. 14, considered and passed Senate, amended.
 Sept. 22, Senate agreed to Conference report.
 Oct. 4, House agreed to conference report.

APPENDIX B

Listing of OTA Publications

Published Works of the Office of Technology Assessment

Publication Number	Publication Description	Available through:			
		U.S. Government Printing Office		National Technical Information Service	
		Stock Number	Cost	Stock Number	Cost
OTA-A-	Annual Report, March 15, 1974	5270-02426	\$0. 60	PB 246191	\$3. 75
	Annual Report covering the activities of the Office of Technology Assessment during the 12-month period ending March 15, 1974.				
OTA-A-2	Technology Assessment Activities of the National Science Foundation, June 12 and 13, 1974. (Hearings before the OTA Congressional Board.)		.....	PB 248382	
	Record of hearings held by the Technology Assessment Board, June 12, and 13, 1974, including statements of National Science Foundation Director H. Guyford Stever and NSF staff members Alfred J. Eggers, Jr., H. Kenneth Gayer, and Joseph F. Coates. Includes written responses from NSF to 20 OTA interrogatories.				

See footnotes at end of table.

Published **Works of the Office of Technology Assessment-Continued**

Publication Number	Publication Description	Available through:			
		U.S. Government Printing Office		National Technical Information Service	
		Stock Number	Cost	Stock Number	Cost
OTA-H-3.	Drug Bioequivalence, June 1974 Examines the relationship between the chemical and therapeutic equivalence of drug products that meet the same official standards for chemical composition, but which are produced at different times or by different processes. Also examined is the capability of current technology-short of therapeutic trials in man-to determine whether such drug products produce comparable therapeutic effects.	052-003-00037-7	\$0.95	PB 244862	\$4.75
OTA-M-4.	Requirements for Fulfilling a National Materials Policy, August 1974.	.....	.....	PB 250631	7.75

	<p>Proceedings of a conference organized by the Federation of Materials Societies, August 11-16, 1974, at Henniker, New Hampshire, for OTA. Includes task force reports: Management of Materials Information; The Increasingly International Character of Materials Issues; Design Improvements to Increase Efficient Utilization of Materials; Mobilizing Economics and Technology for Materials Recycling; and The Role of the Technical Community in National and International Management of Materials.</p>				
OTA-T-5	<p>Automobile Collision Data—Assessment of Needs and Methods of Acquisition, February 1975.</p> <p>Examines the need for—and means to assemble—detailed data on automobile collisions to develop automobile safety standards. Examines the desirability, utility, design, and cost of crash recorders and of alternative approaches to gathering collision information, including computer crash simulation, controlled laboratory crashes, as well as methods to improve the accuracy of accident investigation reporting and to increase the utility of national crash data files.</p>	. . . . .	. . . . .	PB 244861	. . . . .

See footnotes at end of table.

Published Works of the (Mice of Technology Assessment--Continued

Publication Number	Publication Description	Available through:			
		U.S. Government Printing Office		National Technical Information Service	
		Stock Number	Cost	Stock Number	Cost
(1) ~0	<p>*An Analysis of the Department of the Interior's Proposed Acceleration of Development of Oil and Gas on the Outer Continental Shelf, March 5, 1975.</p> <p>Prepared in cooperation with the staff of the Senate National Ocean Policy Study, this report, based on information developed by OTA, addresses questions as to the feasibility and desirability of an accelerated program to grant leases for offshore oil and gas exploration and development involving 10 million acres of lands along the U.S. Outer Continental Shelf during a proposed four-year period.</p>	.....	.....	PB 252202	\$4.00
(2).....	An Analysis Identifying Issues in the Fiscal Year 1976 ERDA Budget, March 1975.	.....	.....	PB 244863	5.25

	Considers the major energy-policy questions raised by the Energy Research and Development Administration's (ERDA) proposed budget for fiscal year 1976. The OTA analysis includes a memorandum report by the OTA Ad Hoc Energy Panel and 69 concise issue papers dealing with specific policy questions raised by the proposed ERDA budgetary allocations. Prepared to assist the Congressional budget authorization process, the report identifies areas of inquiry where additional information might be elicited from ERDA.				
OTA-A-6	Annual Report, March 15, 1975.	052-070-03050-3	\$1.15	IPB 244833	4.25
	Annual Report covering the activities of the Office of Technology Assessment during the 12-month period ending March 15, 1975.				
OTA-O-7	An Analysis of the Feasibility of Separating Exploration From Production of Oil and Gas on the Outer Continental Shelf, May 1975.	052-003-00095-4	2.80	IPB 248381	.....
	Considers alternative procedures for carrying out off-shore oil and gas exploration prior to the sale of leases for development and production. The report examines potential means for determining the extent of petroleum resources in areas to be leased, so as to assist state and local planning, improve federal energy policy plans, and ensure an equitable return for leases granted.				

See footnotes at end of table.

Publication Number	Publication Description	Available through:			
		U.S. Government Printing Office		National Technical Information Service	
		Stock Number	Cost	Stock Number	Cost
OTA-T-8.	<p>Automated Guideway Transit: An Assessment of PRT and Other New Systems, June 1975.</p> <p>Examines advanced urban public transportation systems which come under the common heading of "automated guideway transit." Three specific technologies, two of them already in use in specialized settings, are considered with special attention given to the social and economic implications of their potential introduction into more general urban use.</p>	052-0024M02(P6	\$3.65	PB 244854	\$10.25
OTA-O-9.	Oil Transportation By Tankers: An Analysis of Marine Pollution and Safety Measures, July 1975.	052-070-03091-7	2.80	PB 244457	9.25

	Provides background information about transportation of oil by tankers, including supertankers, and a discussion of issues related to the safety of tanker operations and of ocean oil pollution caused by tankers. The report focuses on technical alternatives involved in the design and construction of tankers and in the regulation of their operations.			
(³)	Analyses of Effects of Limited Nuclear Warfare, September 1975.	.....	.....	.....
	This Committee Print of the U.S. Senate Committee on Foreign Relations includes two reports by the OTA Ad Hoc Panel on Nuclear Effects, reviewing Defense Department casualty estimates for limited nuclear attacks against U.S. military installations, and analyzing related strategic issues.			
OTA-T-IO.	The Financial Viability of ConRail, September 1975.	.....	PB 250630	5.00
	Povides background analysis for Congressional consideration of the United States Railway Association's proposal that a Consolidated Rail Corporation (ConRail) be formed. The report examines the financial outlook for ConRail between now and 1985 and identifies critical financial questions to be considered by the Congress with regard to the Con-Rail proposal.			

See footnotes at end of table.

Published Works of the Office of Technology Assessment—Continued

Publication Number	Publication Description	Available through:			
		U.S. Government Printing Office		National Technical Information Service	
		Stock Number	Cost	Stock Number	Cost
OTA-T-11	<p>A Review of Alternative Approaches to Federal Funding of Rail Rehabilitation, September 1975.</p> <p>Provides a conceptual framework for the evaluation of alternative approaches to federal assistance for the rehabilitation of the nation's railroad fixed plant, i.e. roadbeds and tracks, signalling systems, yards, and terminals. The report identifies the major issues, and arguments pro and con, raised by alternative rehabilitation proposals.</p>	.....	1	PB 250632	\$5.00
			..		
OTA-E-12	An Analysis of the ERDA Plan and Program, October 1975.	052-010-00457-3	\$3.85	PB 250636	00

	Executive Branch national energy R. & D. policies, as reflected in the plan presented to the Congress by the Energy Research and Development Administration (ERDA) in June 1975, are analyzed. The OTA report includes 83 concise issue papers, divided among the five major ERDA program areas: fossil energy; <i>nuclear energy</i> , <i>solar</i> , geothermal and advanced technologies; conservation; and environment and health; and 16 papers addressing overview issues.				
OTA-E-13	<p>An Analysis of the impacts of the Projected Natural Gas Curtailments for the Winter 1975-76, November 1975.</p> <p>Examines projections of natural gas curtailments for the winter of 1975-76; the extent to which those projections reflect the actual situation; and what the impacts and potential danger points might be as the result of the natural gas shortage. The overall problem of natural gas shortages, and issues which need to be addressed <i>in determining solutions, are</i> discussed.</p>	. . . . .	. . .	PB 250623	. . . . .
See footnotes at end of table. .					

Published Works of the Office of Technology Assessment-Continued

Publication Number	Publication Description	Available through:			
		U.S. Government Printing Office		National Technical Information Service	
		Stock Number	cost	Stock Number	cost
OTA-T-14.	<p>A Review of National Railroad Issues, December 1975.</p> <p>Examines national railroad issues considered by the Congress in its deliberations over implementation of the final system plan submitted by the United States Railway Association for a Consolidated Rail Corporation (ConRail). Alternatives for meeting railroad financial problems and rehabilitation needs are explored.</p>	.....	.....	PB 250622	\$5.50

OTA-T-15.....

Energy, the Economy, and Mass Transit,
December 1975.

Examines the probable effects of changes in energy supplies on transit patronage and the transit industry; the potential role of public mass transit programs in stimulating a depressed economy; and the effect on the economy and urban transit if transit funds were sharply reduced. The study evaluates alternative transportation policies and the effect of transit incentives and automobile disincentives on transit patronage and automobile use.

6. 75

PB 250624

\$2. 00

052-003-00132-2

*Included in appendix in publication OTA-O-7.

¹ Published as Committee Print, Senate Committee on Commerce.

² Published as Joint Committee Print, House Committee on Science

and Technology, Senate Committee on Internal and Insular Affairs, and Joint Committee on Atomic Energy.

³ Published as Committee Print, Senate Foreign Relations Committee.

APPENDIX C

Listing of OTA Personnel
as of December 31, 1975

OFFICE OF TECHNOLOGY ASSESSMENT

Emilio Q. Daddario—Director
Daniel V. De Simone—Deputy Director

CORE STAFF PERSONNEL

Ames, Mary E.	Johnson, Peter
Angerman, Judith	Johnson, Robin Winters
Anthony, Robert	Kelly, Henry
Bacon, Barbara	Kirschten, J. Dicken
Banta, H. David	Kolsrud, Gretchen S.
Beil, Kathleen	Leffler, Dorothy
Bell, John	Manning, Mary Jo
Beresford, Spencer	Mason, Jane
Birdsall, William	Mason, Kathy
Boisclair, Suzanne	Massell, Benton F.
Cefkin, Judy	McGurn, Thomas P.
Chinni, Andy	Mercing, Cynthia
Coates, Joseph F.	Miles, Marese A.
Cordaro, J. B.	Miller, Dennis F.
Cornett, Sanford H.	Mills, William
Cotton, Tom	Milner, Max
Crane, Alan	Mottur, Ellis
Craw, Lola	Niblock, Robert
Daly, Robert F.	Norelli, Debbie
Datcher, Debra	Paladino, Albert E.
Davis, Evelyn	Parker, Linda
Davis, John	Potts, Charles A., Jr.
Digilio, V. Rodger	Poulton, Patricia
Fitzhugh, Marion	Rowberg, Richard
Fleming, Colleen	Russell, Judith C.
Fullerton, JoAnnalynn	Seder, Joanne
Gaganidze, T. Patrick	Sibley, Vicki L.
George, Jaime	Soper, Janet
Govan, Emilia	Sullivan, Cheryl
Guthrie, Yvonne	Taylor, Carl
Hallas, Goldie	Terpstra, Ellen
Hard, Patricia	Turnbull, Lucia .
Hirsch, Thomas E., 111	Vallianatos, Evan
Jenney, Larry L.	Van Sickels, G. Jean
Jennings, Thomas	Woodbridge, Ann
Johns, Lionel S.	Wright, Richard
Johnson, Beverly S.	

SUPPLEMENTAL STAFF*

Burby, Jack	Sauer, Jerry
Buyrn, Audrey	Schmitt, John
Cox, Dennis	Smith, Robert L., Jr.
Devine, Martin	Synder, Robert
Dugan, Mary Kate	Spiegel, Chariklia
Furber, John	Suzuki, George
Gieringer, Dale	Terselic, Richard A.
McLeod, Philip	Wachtman, John B.
Nash, Carl	Wilcox, Walter
Pollack, Herman	Wixom, Charles W.
Rossmassler, Steve	Wolf, Charles
Core Staff Professionals ----- 48	
Core Staff Support Personnel ----- 25	
Supplemental Staff ----- 22	
Total OTA staff (as of December 31, 1975)----- 95	

* (Consultants, fellows, and personnel on loan from other agencies.)

APPENDIX D

Listing of OTA Advisory Panelists

AD HOC NUCLEAR EFFECTS PANELS

Jerome B. Wiesner, *Chairman 1st Report*, President,
Massachusetts Institute of Technology

Jack Ruina, *Chairman 2nd Report*, Professor of Electrical Engineering,
Massachusetts Institute of Technology

Harold Brown
President
California Institute of Technology

Gerald E. Miller
Admiral, U.S. Navy, Retired

Sidney Drell
Deputy Director, Linear Accelerator
Center
Stanford University

James V. Neel
Professor of Human Genetics
University of Michigan

Richard L. Garwin
Senior Scientist
IBM Corporation

Charles Townes
Professor of Physics
University of California

Spurgeon Keeny
Director, Policy and Program
Development
MITRE Corporation

Archie Wood
Assistant Project Manager, Energy
TRW Systems, Inc.

Gordon MacDonald
Director, Environmental Studies
Program
Dartmouth College

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APPENDIX E

Listing of Assessment Proposals Received

During 1975

ASSESSMENT PROPOSALS RECEIVED DURING 1975

House Committee on Agriculture

February 13, 1975—Chairman Foley requests assessment of feasibility of using rice-blended food products as material eligible for export under Title 11 of the P.L. 480 program.

December 9, 1975—Chairman Foley supports requests for assessment of food processing technology as it relates to overseas assistance programs.

December 9, 1975—Chairman Foley requests priority for the assessment which will develop and assess alternatives in the U.S. food policy.

House Committee on the District of Columbia

May 23, 1975—Chairman Diggs, on behalf of Chairman Stuckey, Subcommittee on Housing, Commerce and Transportation, and Chairman Mazzoli, Subcommittee on Fiscal Affairs, requests assessment of the alternative technologies available for completing the Metro system at a reasonable cost.

House Committee on Government Operations

July 15, 1975—Chairman Brooks, on behalf of Chairman Moorhead and Ranking Minority Member Gude of the Conservation, Energy, and Natural Resources Subcommittee, requests: (1) OTA's judgment of the consequences of forecasted natural gas curtailment this winter, and (2) an assessment of the impacts that would result from the deregulation of the price of interstate natural gas.

House Committee on Interstate and Foreign Commerce

June 16, 1975—Chairman Staggers, on behalf of Chairman Van Deerlin of the Subcommittee on Consumer Protection and Finance, requests an assessment on the proposed requirements by DOT for installation of passive restraints in automobiles.

House Committee on Merchant Marine and Fisheries

March 17, 1975—Chairman Sullivan and Ranking Minority Member Ruppe request assessment of alternatives to unregulated ocean dumping and current status of related research and development.

House Committee on Science and Technology

May 16, 1975—Chairman Teague requests results of OTA assessment activity related to agricultural research oversight.

December 9, 1975—Chairman Teague, on behalf of Chairman Brown of the Subcommittee on Environment and the Atmosphere, requests assessment involving review of the EPA 5-year environmental research plan.

House Committee on Ways and Means

January 29, 1975—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, and (3) Adverse drug reactions.

April 22, 1975—Chairman Unman, on behalf of the Subcommittee on Health, requests a study of the involvement of technology-related injuries in medical malpractice litigation.

Senate Committee on Agriculture and Forestry

December 10, 1975—Chairman Talmadge endorses the requests for an assessment of alternatives leading to establishment of a national food policy.

Senate Committee on Commerce

January 15, 1975—Chairman Magnuson, acting for Senator Tunney, recommends assessment involving materials wastage.

January 23, 1975—Chairman Magnuson, jointly with Chairman Jackson, Committee on Interior and Insular Affairs, requests assessment of feasibility of separating leasing for exploration from leasing for development and production on Outer Continental Shelf.

February 19, 1975—Chairman Magnuson, on behalf of Senator Tunney, requests comprehensive assessment of technology and world trade.

March 20, 1975—Chairman Magnuson and Ranking Minority Member Pearson, jointly with Senators Hartke and Weiker, Chairman and Ranking Minority Member of the Surface Transportation Subcommittee, request review of U.S. Railway Association plan for reorganization of rail service in the 17-state region covered by the Regional Rail Reorganization Act of 1973 and the issues it raises about the future of rail service in this region.

April 18, 1975—Chairman Magnuson, on behalf of Senator Hart, requests assessment of the future role of the automobile in our society.

October 2, 1975—Chairman Magnuson, on behalf of Chairman Tunney of the Subcommittee on Science, Technology and Commerce, expresses interest in the R&D priorities assessment and requests establishment of continuing liaison on the project.

November 19, 1975—Senator Hollings, Chairman of the National Oceans Policy Study, requests assessment of potential ocean energy sources.

Senate Committee on Finance

February 27, 1975—Chairman Long, on behalf of Senator Talmadge, Chairman of the Subcommittee on Health, requests assessment of various technology-related factors, including cost of: (1) physicians' services, and (2) hospital outpatient services.

Senate Committee on Government Operations

April 7, 1975—Chairman Ribicoff and Senator Glenn request OTA to cooperate with the General Accounting Office in a comprehensive, independent study of the light-water reactor safety program and the LOFT reactor project.

Senate Committee on Interior and Insular Affairs

January 23, 1975—Chairman Jackson, jointly with Chairman Magnuson, Committee on Commerce, requests assessment of feasibility of separating leasing for exploration from leasing for development and production on Outer Continental Shelf.

Senate Committee on Labor and Public Welfare

February 6, 1975—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, and (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 Select Committee on Nutrition and Human Needs

February 7, 1975—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.

September 15, 1975—Chairman McGovern requests an assessment of the United States food grading system.

December 9, 1975—Chairman McGovern endorses the request for an assessment relating to the establishment of a national food policy and requests it be given priority.

Senate Committee on Public Works

January 29, 1975—Chairman Randolph requests assessment of Federal assistance to energy and coal research facilities in Appalachia and West Virginia.

Joint Economic Committee

February 11, 1975—Chairman Humphrey requests assessment of feasibility of improving and enlarging defense research and production facilities.

February 28, 1975—Chairman Humphrey and Representative Reuss, Chairman of the Subcommittee on International Economics, request a comprehensive study of technology and world trade with assessment of policy options to strengthen international trade positions.

October 17, 1975—Chairman Humphrey requests assessment of food processing and related technology in food nutrition.

Technology Assessment Board

February 26, 1975—Senator Schweiker requests review of U.S. Railway Association's ConRail plan.

August 8, 1975—Senator Stevens requests an assessment of the effect different policy initiatives by Congress could have in accelerating the development and implementation of new tertiary oil recovery methods.

December 3, 1975—Senator Humphrey requests assessment to develop a National Food Policy.

Other Members of the Congress

February 10, 1975—Congressman Wolfe requests analysis of study made on atmospheric effects of a fleet of supersonic transports.

June 10, 1975—Representatives Conte and McFall request OTA to employ independent contractor to audit safety of Washington Metropolitan Area Transit Authority.

July 21, 1975—Congressman Rooney, Chairman of the Subcommittee on Transportation and Commerce of the House Committee on Interstate and Foreign Commerce, requests continued support of assessments in the area of rail transportation.

October 21, 1975—Chairman Rooney, Subcommittee on Transportation and Commerce of the House Committee on Interstate and Foreign Commerce, requests assessment of the means of transporting coal from western fields.

December 1, 1975—Chairman Moss, Subcommittee on Oversight and Investigation of the House Committee on Interstate and Foreign Commerce, requests assessment of EPA use of socioeconomic research.

APPENDIX F

Exchange of Correspondence

**Between Harold Brown, Chairman of the OTA Advisory Council,
and Chairman Olin E. Teague of OTA's Congressional Board**

TECHNOLOGY ASSESSMENT ADVISORY COUNCIL,
OFFICE OF TECHNOLOGY ASSESSMENT,
CONGRESS OF THE UNITED STATES,
Washington, D. C., December 10, 1975.

Hon. OLIN E. TEAGUE,
*Chairman, Technology Assessment Board, Rayburn House Office Building,
Washington, D.C.*

DEAR MR. CHAIRMAN: AS indicated to you in my earlier letter, I am relinquishing my position as Chairman of the Technology Assessment Advisory Council as of January 1, 1976. It is perhaps appropriate that I use this occasion to give you my brief summary evaluation of the functioning of the Council during these past two years. Because the OTA, the Technology Assessment Board, and the Council are interacting components of a single enterprise, I will refer to the OTA and TAB operations. I do this with some diffidence, because I am fully aware that the chairman of a part-time advisory group can have only limited perspective on those central parts of the activity.

During the past two years, a number of OTA's assessments and other reports have been, by any standard, both of good quality and considerable utility. The bioequivalence study, the review of the ERDA budget and the nuclear effects study fall into this category. In addition, the auto-collision data study, the mass transit studies and several others have all contributed to the needed understanding in those areas. Various Congressional Committees, the primary customers for OTA's activity, have fully recognized the value of such products.

In terms of method of operation, there have also been substantial advances. An initial tendency to think almost solely in terms of contracted studies has been succeeded by a more balanced procedure involving advisory panels, contracted studies, and some (as yet rather little) in-house assessment work. Serious attempts have also been made to experiment with various kinds of public participation. Though I do not believe that this latter aspect of OTA's procedures can yet be judged to be totally satisfactory, it is a new area and OTA's efforts have been valuable. The more important functional areas that will require technological assessment have been reasonably well laid out, and some continuity in terms of staff, advisory panels, and contracting apparatus has been established.

Yet few of us on the Council, I believe, would say that we are satisfied with what has been accomplished, compared with what we hoped for and still believe possible. We would say this most of all about the work of the Council itself, for which we are most responsible. The wide diversity of

the Council membership provides needed inputs and avoids extreme or tendentious conclusions. At the same time it limits our ability to agree on how to go about things, and lengthens our discussions. Few of us have put in as much time as we should in order to carry out our function (I say this more strongly about myself than about anyone else) and that has been as great a limitation as any on our success. Perhaps some of the OTA activities in whose initiation the Council has played a substantial role and which are now just getting under way, such as the work on R&D priorities, will provide the Council with a new focus that will give us, if we succeed in carrying them out, more of a sense of accomplishment.

The OTA and its Director are to be commended for the services they have provided to the Board and to the Congress as a whole. It remains to be seen whether OTA can gain a reputation comparable with those of GAO and CRS, both of which have considerably longer histories, and corresponding accomplishments, behind them. I have a real concern that OTA's limited resources have been less efficiently used than would ideally have been the case. As I have pointed out to the Board on a number of occasions, I believe it would be desirable to respond negatively to more of the requests that are made for technology assessments. Many such requests are in fact for technical feasibility studies, or reviews of existing programs, or literature searches, or economic studies. Most of those might appropriately be done by one of the Congressional offices to which I have referred, each of which has very much greater resources than OTA, or by the newly established Congressional Budget Office. The staff of OTA has not hitherto been uniformly of a professional background such as to allow substantial studies to be done entirely in-house. I suggest that the Board may wish to consider whether it is not desirable to increase this component of OTA's capability, and the appointment procedures necessary to produce such a result.

In my view, the technology assessment enterprise within the U.S. Congress can realize its full potential only if communication and cooperation among the Board, the Office, and the Council is full and current. Of these three, the Council is probably the least important. Yet, because it is an outside group, it can bring to the work of the Board and of the Office a view that is variously representative of expert opinion and of public opinion. This cannot easily be gained in any other way. It is for this reason that during my term as Chairman I have not hesitated to express disagreement with individual Office and Board decisions, while at the same time recognizing that responsibility for decision lies with the Board and for execution with the Office. I know I speak for all members of the Council in expressing my keen appreciation for the interest which Board members have always shown on these occasions in the views of the Council.

Though I cannot speak from personal knowledge of the state of communication between the Board and the Office, I believe I speak for the

Council in saying that we have felt a need for better communication with both of the other components than has sometimes been the case. Often, Council members have had very little time to comment on proposed assessments before TAB approval. I understand that this may frequently be the result of a need for rapid response by the Board to Congressional Committee requests. Nevertheless, these and other such situations have led us to question the Council's effectiveness and value.

The OTA's reputation outside the Congress, among scientists, social scientists, technologists, industrial and business people, consumer and public advocacy groups, is mixed. Accordingly, the Council members try simultaneously to defend and to improve the work of the Office, much of which the Council believes has already proven useful and can play a vital role in illuminating the difficult decisions required by the present and potential impact of technology on society.

The world is full of groups of advisors who consider themselves unappreciated, and TAAC may be a case where more attention is paid to the advisers than they deserve. But at one time or another most Council members have expressed frustration about the relatively large amount of time, effort, and persistence that they have invested in terms of the effect that they feel they have had. I believe that the important task of strengthening communication between the Board and the Council needs to be faced during the coming year. To this end, I would recommend that regular breakfast or luncheon meetings of the Council and the Board together with the Director and Deputy Director of OTA take place at each of the Council meetings, which are scheduled about every other month. The dates of the Council meetings should be changed if necessary in order to accommodate them to the times when Board members are more likely to be available—for example, the days of TAB meetings. In addition, I believe it would be valuable for the new Council Chairman to attend Board meetings as an invited guest as often as possible.

To improve communication between Council members and the Office of Technology Assessment, and at the same time meet the goal, at least as important, of producing more in-house capability, I recommend that the OTA staff be more formally organized along functional lines. In line with a trend already initiated by Mr. Daddario, individuals should be designated as the principal OTA staff members for each of the half dozen or more general areas in which assessments are taking place. These individuals could also be the contact points for Council members concerned with issues in those areas.

In addition to a more selective approach to approving Congressional Committee requests for assessments, I would urge upon the Board careful consideration, as a policy matter, of the proper balance between long-term and short-term assessments and other studies. Inevitably, there are strong pressures on the Congress as well as on the Executive Branch to concentrate on immediate problems. Certainly those problems must be faced as they

arise. But there needs to be a balancing effort within the Congress to foresee problems of the medium and even the long-term future. The Council has always considered that one of OTA's (and the Council's) functions is to provide an early warning system for the Congress, so that the latter can consider the social and other impacts of technological advances, including their secondary and tertiary effects, before those effects are upon us.

To summarize, technology assessment in the Congress has made a real start during the past two years, but there are significant deficiencies compared to what can be, and needs to be, accomplished in the future. In completing my service as Chairman of the Technology Assessment Advisory Council, I know I speak for my colleagues in offering the Board and the Office continuing fullest cooperation to that end. In particular, I would be glad to meet with you or other members of the Board to elaborate on my views or to answer any questions you may have.

On a personal note, I wish to thank you and Senator Case, as well as Senator Kennedy and Congressman Mosher, for the great opportunity and privilege of working with you during this year and last. The interest that Board members have shown in the substantive work of the Office, their concern for the good of the nation and its people, have been most inspiring. I also am grateful for my association with Director Daddario, Dr. DeSimone, and the OTA staff, and with my TAAC colleagues. I wish I could have been more effective, and at the same time I share with you a degree of pride in our modest accomplishments to date.

With very best personal wishes.

Cordially,

HAROLD BROWN.

TECHNOLOGY ASSESSMENT BOARD,
OFFICE OF TECHNOLOGY ASSESSMENT,
CONGRESS OF THE UNITED STATES,
Washington, D. C., February 10, 1976.

Dr. HAROLD BROWN,

President, California Institute of Technology, Pasadena, Calif.

DEAR HAROLD: We are all much indebted to you for your letter of December 10 and for the thoughtful comments which you made. They were, in my view, perceptive and appropriate; they will be most useful in the days and months that lie ahead.

With the great majority of them I am in concurrence as, I am sure, are my colleagues on the Board.

May I respond with several observations somewhat in kind.

The initial years of any new institution are seldom without complexity, especially when the enterprise is unique, is planted in a political environment, and contemplates a certain amount of public participation. Laying the foundation for OTA has been more difficult than most persons can

imagine or appreciate, even those who spent over 6 years on the evolution of the OTA charter. There *have* been problems. Doubtless there are some things we would handle differently a second time around. But the bulk of OTA's work has been welcomed by the Committees of Congress. I do not know of a better gauge than that. Like you, I am proud of our accomplishments to date.

It would, I think, have been an error for us to proceed so cautiously that mistakes could not be identified nor lessons drawn. Certainly, a major difficulty has been that we have often concentrated on deficiencies and minimized the growing strengths and accomplishments of OTA. This is wrong. A new institution, especially one without precedent, needs support and encouragement.

With regard to methodology and procedures, much remains to be done. But, as the history of the OTA charter clearly delineates, no one expected to reach even moderate efficiency in these areas in less than 5 years *or so*. Nobody knew then, nor does anyone know now, the best way—or even a consistently good way—to do a technology assessment. There are so many variables in the equation. Dr. Wiesner summed up part of the problem at the last TAAC meeting when, touching on this subject, he said, “My reservations stem from my belief that the OTA function is a terribly important one, that we are still in an experimental or evolutionary shake-down stage, both with regard to questions of how one carries out technological assessment in the abstract, how one deals with these problems in Congress, where you have a lot of special organizational problems and problems of urgency, time-scale, and the many problems of relationships that have to be established between the staffs, Board, and Congress.” It is my belief that we should draw on empirical technology assessment data wherever it exists as well as competent theoretical sources—these to include the operational activities of the Director's office, the Council, the National Science Foundation, the Environmental Protection Agency, industry, academia, etc. I also incline toward an eventual separate division within OTA to deal exclusively with methodology and techniques.

We have something of a dilemma when it comes to the matter of in-house vs. contracted assessments. I agree that some mixture is desirable. I cannot agree that anything like a balance should be attempted. OTA was sold to the Congress from start to finish, House and Senate, as a *contract* operation. It was also sold on the basis of a small but highly capable in-house staff. I can say in all candor, as one who must justify OTA's budget to the Appropriations Committees each year, that OTA would be unfunded today without those assurances. When we began our work, it was only natural that we would have a larger percentage of outside than inside activities. Experience now suggests the need for a somewhat larger in-house capability than the initial concept but which may be a properly evolutionary step and within the statutory intent. It will, nonetheless, require very careful handling and should not be attempted rapidly.

I also believe that serious misunderstandings sometimes result from seemingly harmless perceptions. Thus, for example, there are some who believe the Technology Assessment Act created a Technology Assessment Board, an Advisory Council, and an OTA. Of course, it did not. Nevertheless, it seems necessary from time to time to remind a few that the Act created an Office of Technology Assessment, consisting only of the Technology Assessment Board and the Director, plus a statutory Advisory Council to assist the Board and help provide liaison with the public. It would be desirable, of course, for the Board and the Council to meet more frequently. But, as I know you are aware, this is very difficult because of the nature of Congressional schedules and because of the extremely limited number of times and places where such meetings can be held. It is always my hope, however, to foster as many such opportunities as possible.

Meanwhile, I should like to express my personal conviction that the Council can be of very significant aid to us if, among more immediate other things, it can help the Board get a grip on:

1. The National R&D Policy and Priorities Program which, as a centerpiece for OTA activities, has already received approval by the Board and appears to have enthusiastic support within the Council itself;

2. Identification of long-range assessments, the need for which may not yet be apparent to the Congress but which the Council may more readily and accurately foresee;

3. Specific problem areas of such assessments upon which OTA might reasonably begin to concentrate;

4. How other entities—business groups; educational institutions; local, State, and Federal agencies; national governments or international organization—may be making use of technology assessment;

5. The number and nature of the varying concepts of technology assessment; who holds which, what has their experience, if any, been in this area; how effective have they been; what lessons are in it for OTA?

We shall have the opportunity to exchange points of view over the next year, and I welcome any comments you may have on the above.

Sincerely,

O LIN E. TEAGUE,
Chairman.

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