



Technology Assessment in Congress: History and Legislative Options

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Summary

Congress created the Office of Technology Assessment (OTA) in 1972, P.L. 92-484, and terminated its funding in 1995. The pros and cons of reviving OTA or re-creating a similar body have been examined. Since 2002, at congressional direction, the Government Accountability Office (GAO) has conducted several pilot technology assessments. Legislation was proposed during the 108th Congress to restore OTA's funding; to create an entity to conduct assessments for Congress; to conduct technology assessments in GAO; and to create a technology assessment capability in GAO or under its direction. In 2006, the House Science Committee held hearings on the issue of providing science and technology advice to Congress. Policy issues under discussion include the need for assessments, funding, the utility of GAO's technology assessment work, and options for design of an advisory body. This report will be updated as needed.

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Office of Technology Assessment

Congress established OTA in 1972 with passage of P.L. 92-484. It was mandated to assess the consequences of applying technology by preparing comprehensive reports that discussed the pros and cons of policy options about an issue. The law effectively augmented existing congressional resources by creating a support agency dedicated to providing Congress with objective and authoritative analysis of complex scientific and technical issues to aid in policymaking. It was intended to facilitate congressional access to expertise and permit legislators to consider objectively information presented by the executive branch, interest groups, and other stakeholders to controversial policy questions. From 1973 until 1995, OTA conducted technology assessments, requested by committee chairmen for themselves, ranking minority members, or a majority of the committee, by the Technology Assessment Board (a body which was composed of equal numbers of House and Senate members and of members from both parties), or by the OTA Director in consultation with the Board. OTA had authority to hire staff and to contract for personnel and studies. Peak funding in the early 1990s totaled over \$20 million annually, with about 140 hired staff plus additional contractors. OTA was effectively eliminated when Congress did not appropriate funds for FY1996 for its continued operation and appropriated funds to close down the office. Its archived reports are available via the Internet at <http://www.wws.princeton.edu/~ota/>.

Several reasons were given for terminating OTA's funding and numerous studies have been written about the rise and fall of the agency. Critics of OTA cited such factors as difficulty in completing reports in time to meet congressional schedules, lack of utility to congressional decisionmaking, alleged bias toward "liberal" solutions, or partisan politics.¹ Some say that Congress can turn to and fund studies by The National Academies, composed of the National Academy of Sciences (NAS), the National Academy of Engineering, the Institute of Medicine, and the National Research Council (NRC), or utilize the services of GAO and the Congressional Research Service (CRS) for information and analysis on science and technology issues.² Others disagree and cite the utility of OTA studies to decisionmaking and the need for Congress to maintain its own support agency devoted to assessing technology.³ Some former OTA staff members and science policy analysts⁴ have called for resumption of funding for OTA or creation of a legislative organization to perform OTA-like functions or to contract with outside groups to

¹ See "OTA Reconsidered, Letter by Robert S. Walker," *Issues in Science and Technology*, Spring 2001; Bruce Bimber, *The Politics of Expertise in Congress, The Rise and Fall of the Office of Technology Assessment*, State University of New York Press, 1996, 128 p.; Bruce Bimber and David H. Guston, "Technology Assessment: The End of OTA," in *Technological Forecasting and Social Change, Special Issue*, Nos. 2 and 3, February/March 1997, whole issue; *Science and Technology Advice for Congress*, M. Granger Morgan and Jon Peha, eds., Washington, Resources for the Future, 2003, 236 p.

² See M. Davis, "A Reinvented Office of Technology Assessment May Not Suit Congressional Information Requirements ...," *Washington Fax*, June 18, 2001.

³ See Daryl E. Chubin, "Filling the Policy Vacuum Created by OTA's Demise," *Issues in Science and Technology*, Winter 2000, 31-32; "OTA Reconsidered, Letter From John H. Gibbons, Letter From Roger Herdman" *Issues in Science and Technology*, Spring 2001; John A. Alic, "OTA Assessments Were Tailored for Congress," *Science*, Feb. 1, 2002; Rep. Amo Houghton, "In Memoriam: The Office of Technology Assessment, 1972-95," Extension of Remarks, *Congressional Record*, Sept. 28, 1995, E1868-E1870.

⁴ M. Granger Morgan, Amo Houghton, and John H. Gibbons, "Improving Science and Technology Advice for Congress," *Science*, Sept. 14, 2001; David H. Guston, "Prospects of a Revived OTA for Congress," *Science*, July 13, 2001; and D. Malakoff, "Memo to Congress: Get Better Advice," *Science*, June 23, 2001.

perform such functions. Some Members of Congress and others have said that if the OTA were still operating it might have provided Congress with information required to make important program and policy decisions relating to technological issues.⁵

Legislation to Fund OTA

In the 107th Congress, Representative Rush Holt introduced H.R. 2148, the OTA Re-establishment Act. It would have authorized funding OTA at \$20 million annually for FY2002 to FY2007. No further action was taken. Similar legislation, H.R. 125, was introduced in the 108th Congress. It proposed to rename the Technology Assessment Act of 1972 as the Office of Technology Assessment Reestablishment Act of 2003 and to authorize OTA appropriations at \$20 million annually for FY2004 to FY2009. The bill was referred to the House Science Committee. Representative Holt sought, in 2002, to introduce an amendment to H.R. 5121, the Legislative Branch Appropriations Act FY2003, to provide \$4 million to fund OTA for FY2003. He made a similar attempt in 2003 to amend the FY2004 Legislative Branch Appropriations bill, H.R. 2657, to fund OTA at \$7 million. Both times the Rules Committee ruled the amendment not in order.⁶

Legislation to Create An OTA-like Organization for Congress

Since 2001 proposals have been made to create an OTA-like office in the legislative branch to provide technology assessment-related support.

Science and Technology Assessment Service

Section 153 of S. 1716, “The Global Climate Change Act,” introduced in 2001 by Senator John F. Kerry, would have created a Science and Technology Assessment Service to provide ongoing independent science and technology advice “within ... the legislative branch.” Assessments would have been conducted using experts selected in consultation with the National Research Council (NRC), the policy research arm of The National Academies.⁷ OTA had focused on providing information about technology’s *impacts*, notably “early indications of the probable beneficial and adverse impacts of the applications of technology” and other information. In contrast, the proposed Service would have developed information on “the uses and applications of technology to address current national science and technology policy issues.” It would have incorporated some features of OTA, including a bipartisan and bicameral congressional board to govern activities; a Director to carry out policies and manage activities; and a process to select studies

⁵ For example, “Need for Reestablishing the Office of Technology Assessment,” Extensions of Remarks of Hon. Rush D. Holt, *Congressional Record*, Dec. 5, 2001, p. E2212 and Ellis Mottur, *Technology Assessment in the War on Terrorism and Homeland Security: the Role of OTA*, Report Prepared at the Request of Hon. Ernest F. Hollings, Chairman, Senate Committee on Commerce, Science, and Transportation, 107th Cong. 2nd Sess., S. Prt. 107-61, Apr. 2002.

⁶ Statement of Rep. Holt, “Providing for Consideration of H.R. 5121, Legislative Branch Appropriations Act, 2003,” on the Floor of the House, July 18, 2002, p. H4880. Statement of Rep. Holt, *Congressional Record*, July 9, 2003, pp. H 6427-H6428.

⁷ Remarks Upon Introduction of S. 1716, *Congressional Record*, Nov. 15, 2001, p. S11957.

using Committee chairmen, the Board, or the Director. But the Assessment Service would have used NRC to select experts to conduct assessments, a provision that was not in the OTA law; it would not have OTA's Deputy Director and Technology Assessment Advisory Council, the latter which was composed of private experts, the Comptroller General, and the CRS Director, to advise the Board on OTA operations and on assessment reports. It would have had authority to contract and use personnel, but would have had less specific authority than OTA to purchase and hold property, detail personnel from other agencies, or obtain information from them. It would not have had OTA's authority to seek assistance from CRS and the National Science Foundation, nor to distribute reports.

Language to create an Assessment Service was included as Title XVI of S. 1766, introduced in December 2001. S. 1766 was incorporated as substitute amendment (SA) 2917 to S. 517, the Energy Security Policy bill. The language relating to the Assessment Service in S. 517 was identical to that in S. 1716 and S. 1766. On April 10, 2002, during floor consideration, Senator John McCain submitted S.Amdt. 3089 to delete language to create the Assessment Service from S.Amdt. 2917. However, on April 25, 2002, Senator McCain said on the floor of the Senate⁸ that he would withdraw his amendment and urged the Chairman of the Senate Commerce, Science, and Transportation Committee to hold hearings on the proposal in order to assess "the needs and benefits" of such a Service to Congress. On April 25, 2002, the Senate incorporated S. 517, amended, into H.R. 4 as passed in the House, and passed the bill. The conference committee did not complete action. During the first session of the 108th Congress, the Senate could not reach agreement on energy legislation (S. 14) and acted on a substitute amendment to the energy bill passed in the House (H.R. 6). The substitute was the energy bill (H.R. 4, 107th Congress) passed in 2002, which contained Title XVI to create the Science and Technology Assessment Service. H.R. 4 (2002), was introduced as S.Amdt. 537 to H.R. 6, as passed in the House. The Senate agreed to S.Amdt. 1537, and H.R. 6 incorporating it was passed. The Assessment Service provision was not in the conference report on H.R. 6, H.Rept. 108-375, which the House agreed to. No further action occurred on this bill.

Center for Scientific and Technical Assessment

H.R. 4670 was introduced in June 2004, by Mr. Holt, with 15 bipartisan co-sponsors and referred to the House Science Committee. It proposed a center that would consist of a Technical Assessment Board, with 12 Members of Congress, 6 from each party and each body; the Comptroller General; and as non-voting members, the CRS Director and the center's director. Operating the center would be a director and deputy director empowered to act, with the permission of the Comptroller General, to hire staff and enter into contracts to perform assessments. The director would have been authorized to establish an advisory panel for each assessment; the panels would not be subject to the Federal Advisory Committee Act (FACA; 5 U.S.C.App.). Different from the earlier OTA, any Member of Congress would have been able to make requests to the board for assessments. Requests would have had priority as follows: "requests with bipartisan and bicameral support; requests with bipartisan support; requests from other members." Each assessment report would have been subject to rigorous external peer review before delivery to the director, who would have sought release approval from the board. The bill would have authorized \$30 million annually to the Comptroller General for the center for the fiscal years 2005 to 2007. In 2004, Representative Holt offered H.Amdt. 667 to H.R. 4755,

⁸ *Congressional Record*, Apr. 25, 2002, pp. S3407-S3408.

the House's FY2005 Legislative Branch Appropriations bill, to add \$30 million to GAO's account for a Center for Scientific and Technical Assessment; the House rejected the amendment.

Technology Assessment in GAO

Congress has directed GAO to conduct technology assessments on a pilot basis; legislation was introduced to make the program permanent or to authorize an assessment office in GAO.

FY2002

H.Rept. 107-259, the conference report to accompany H.R. 2647, the Legislative Branch Appropriations Bill for FY2002, enacted as P.L. 107-68, directed that up to \$500,000 of GAO's appropriation be obligated to conduct a technology assessment pilot project and that results be reported to the Senate by June 15, 2002. The provision had originated in the Senate, sponsored by Senator Jeff Bingaman.⁹ S. 1172 would have authorized \$1 million for the study; it was amended by S.Amdt. 1026, and passed in the Senate. The provision seemed to focus on a study to be conducted by The National Academies and on a model that might lead to possible funding for a small OTA-like organization to conduct assessments largely by issuing contracts to non-profit groups. The enacted Legislative Branch Appropriations bill did not contain this language. The conference report did not specify an assessment topic, but three Senators requested GAO to assess technologies for U.S. border control together with a review of the technology assessment process. At the same time, six House Members wrote to GAO supporting the pilot technology assessment project. After consulting congressional staff, GAO agreed to assess biometric technologies. It used its regular audit processes and also its standing contract with The National Academies to convene two meetings which resulted in advice from 35 external experts on the use of biometric technologies and their implications on privacy and civil liberties. The resulting report was issued in November 2002 as *Technology Assessment: Using Biometrics for Border Security*, GAO-03-174.

FY2003

The FY2003 Senate legislative branch appropriations report noted the utility of GAO's work and said it provided \$1 million for three studies in order to maintain an assessment capability in the legislative branch and to evaluate the GAO pilot process (S.Rept. 107-209, on S. 2720, pp. 49-50.) This language was not included in the Senate bill (S. 2720); the House bill (H.R. 5121) or the accompanying report; or in H.J.Res. 2, enacted as P.L. 108-7, which included Legislative Branch Appropriations for FY2003; or in the accompanying conference report. Although funds were not provided for a study, GAO conducted a technology assessment that was published as *Cybersecurity for Critical Infrastructure Protection*, May 2004, GAO-04-321, 214 pp.

⁹ Sen. Bingaman had proposed that CRS manage the pilot study because he said, CRS is "better suited to conduct and oversee this type of long-term research activity." He also expected "that oversight would be provided by the Senate Rules and House Administration Committees and through these Committees, the Joint Committee on the Library of Congress." He disagreed with suggestions that the GAO might be better suited to manage the pilot, but said that "it is better to start an initial pilot program ...rather than no pilot program at all." He envisioned "... a small legislative branch staff using outside non-profit groups to perform the in-depth research," rather than the larger OTA model with a staff of about 200 people and funding of about \$20 million. ("Office of Technology Assessment," *Congressional Record*, July 20, 2001, pp. S8008-S8009.)

FY2004

The House Appropriations Committee's report on Legislative Branch Appropriations for FY2004 directed GAO to "... allocate within existing resources funding that will permit three technology assessment studies that will be of relevance to the Congress's work in the upcoming fiscal year" (H.Rept. 108-186, on H.R. 2657, p. 25). The language was not in the House bill as passed. The Senate incorporated S. 1383 in H.R. 2657, and passed it, amended. The accompanying S.Rept. 108-88 recommended \$1 million for two or three assessments in FY2004 and said that the Appropriations Committee expected GAO's technology assessment work to be undertaken only if it were consistent with GAO's mission (p. 44). According to the Conference Committee, GAO's two-year evaluation of the need for legislative technology assessment showed that "such a capability would enhance the ability of key congressional committees to address complex technical issues in a more timely and effective manner." The conferees directed GAO to report by December 15, 2003 to the House and Senate Committees on Appropriations " ... the impact that assuming a technology assessment role would have on its current mission and resources" (H.Rept. 108-279). The bill became P.L. 108-83. GAO reported directly to the Appropriations Committees.

FY2005

GAO requested \$545,000 in FY2005 appropriations for four new FTE positions and contract support to establish "a baseline technology assessment capability," allowing GAO to conduct one assessment per year. The House Appropriations Committee in H.Rept. 108-577, to accompany the Legislative Branch Appropriations Bill, FY2005, H.R. 4755, did not address funding, but encouraged GAO to "... retain its core competency to undertake additional technology assessment studies as might be directed by Congress" (p. 27). In spring 2004, consistent with prior congressional directive, GAO initiated two assessments, one on cargo/port security (reportedly released in a classified version), and one published in April 2005 as *Technology Assessment: Protecting Structures and Improving Communication During Wildland Fires*, GAO-05-380. Representative Holt offered H.Amdt. 667 to H.R. 4755, to add \$30 million to GAO's account for a Center for S&T Assessment; the House rejected the amendment on July 12, 2004. S.Rept. 108-307, to accompany S. 2666, indicated that while the Senate Appropriations Committee supported GAO doing technology assessments, it did not intend to appropriate specific funding for this purpose, and that the topics of GAO assessments should be supported by both House and Senate leadership and should address issues of national scope. GAO was instructed to consult with the committee regarding definitions and procedures to conduct technology assessment.

In 2004 Senator Bingaman, introduced S. 2556, co-sponsored by Senator Joseph Lieberman, to establish a technology assessment capability in GAO. The bill, referred to the Governmental Affairs Committee, proposed to mandate the Comptroller General to initiate technology assessment studies himself or at the request of the House, Senate, or any committee; to establish procedures to govern the conduct of assessments; to avoid duplication of effort with other entities; in consultation with The National Academies to establish a five-member technology assessment advisory panel; and to have contracting authority to conduct assessments. It would have authorized \$2 million annually to GAO to conduct assessments.¹⁰ No further action was taken. See also H.R. 4670 above.

¹⁰ *Congressional Record*, June 22, 2004, S7180-S7182. Sen. Bingaman also documented several reviews of GAO's (continued...)

FY2006

In July 2006, the House Science Committee held background hearings on the issue of providing scientific and technical advice to Congress. The URL for the hearing is <http://www.house.gov/science/hearings/full06/July%2025/index.htm>.

Policy Issues

The following issues could be considered when evaluating alternative technology assessment proposals: (1) analysis of the need for more technology assessment information and advice; (2) evidence of political support for enhancing legislative capabilities for technology assessment; (3) with respect to augmenting GAO's "core capability" to conduct technology assessment, the availability of funds, the timing, and the utility of GAO's technology assessments for congressional decisionmaking, and the pros and cons of locating a large assessment center within GAO, including its impact on other GAO functions, including auditing and evaluation activities; and (4) the potential benefits and costs of establishing a more independent legislative technology assessment function, such as in a separate OTA-like support activity or in an existing congressional support agency.

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pilot technology assessments. He added "... GAO requested additional legislative authorities so that the assessments could be part of their annual budget process."

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