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OA/ID Number: 62064
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International: Policy [1991]

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"CORRESPONDENCE TRACKING"

TYPE: INFORMATION

DOCUMENT NUMBER: 9121405

FROM: WATKINS, James D.: SECRETARY OF ENERGY

TO: DR. BROMLEY

DATE OF
CORRESPONDENCE: 05/08/91

SUBJECT: MEMORANDUM FOR DR. BROMLEY REGARDING INFORMATION ON
CONGRESSIONALLY DIRECTED PROJECTS ("PORK") AT THE
DEPARTMENT OF ENERGY.

ASSIGNED TO:

ACTION REQUIRED:

SENDER'S DUE DATE:

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DATE COMPLETED:

COPIES TO: D. Allan Bromley
Thomas Ratchford
Dr. Wong
Dr. Henderson

Dr. Phillips
Ken Yale

WHITE HOUSE TRACKING #:

CONTACT PERSON:

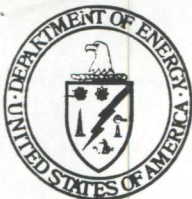
REMARKS:

DATE RECEIVED:

5/14

P-

FILE: PHYSICAL SCIENCES--ENERGY *
INTERNATIONAL - POLICY



The Secretary of Energy

Washington, DC 20585

RECEIVED

May 8, 1991

91 MAY 14 12:31

OFFICE OF THE
DIRECTOR

MEMORANDUM FOR THE HONORABLE D. ALLAN BROMLEY
ASSISTANT TO THE PRESIDENT FOR
SCIENCE AND TECHNOLOGY

SUBJECT: INFORMATION ON CONGRESSIONALLY
DIRECTED PROJECTS ("PORK") AT THE
DEPARTMENT OF ENERGY

Allan:

At our last FCCSET meeting, I promised to send you a list of the congressionally directed projects in DOE's FY 1991 budget. I have attached two papers that delineate the pork that was put in our budget.

Attachment I shows the pork that was added and the cuts in the legitimate science projects that we requested in the President's FY 1991 budget proposal. You will see that we lost a total of \$143.7 million in good science and gained \$141.6 million in pork. Attachment II shows how the congressionally directed funds are to be spent. As you will see, the vast majority are used for "bricks and mortar" projects.

As a first step toward a coordinated effort against "pork", I think it would be worthwhile to collect this type of data from all science agencies.

Jim
James D. Watkins
Admiral, U.S. Navy (Retired)

Attachments

p. s. "Directed Projects" = "Pork"

DEPARTMENT OF ENERGY
FY 1991 CONGRESSIONALLY DIRECTED PROJECTS ANALYSIS
(Dollars in millions)

	<u>FY 1991 REQUEST</u>	<u>FY 1991 APPROPRIATION</u>	<u>CHANGE</u>
Biological and Environmental Research			
R&D	\$338.8	\$321.7	-17.1
Directed Projects	--	72.2	+72.2
TOTAL:	\$338.8	\$393.9	+55.1
Basic Energy Sciences			
R&D	\$648.7	\$652.6	+3.9
Directed Projects	--	59.2	+59.2
TOTAL:	\$648.7	\$711.8	+63.1
University and Science Education			
DOE Program	\$34.7	\$36.4	+1.7
Directed Projects	--	10.2	+10.2
TOTAL:	\$34.7	\$46.6	+11.9
Fusion Energy	\$325.2	\$273.6 *	-51.6
Superconducting Super Collider	\$317.9	\$242.9	-75.0
* Excludes \$16 million reprogramming			
Summary:			
Cuts to R&D			-143.7
Adds for Directed Projects			+141.6

**DEPARTMENT OF ENERGY
1991 Congressionally Directed Projects**

UNIVERSITY AND SCIENCE EDUCATION

EPSCoR Planning Grants *	\$2,000,000
EPSCoR Graduate Traineeships *	2,000,000
Nuclear Engineering; University Nuclear Engineering Programs	5,000,000
Upgrading of University Reactors	1,000,000
Rural Enterprises, Inc.	200,000
Clark Atlanta University; Research Center for Science & Tech.	a/..

Total University and Science Education	\$10,200,000
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BIOLOGICAL AND ENVIRONMENTAL RESEARCH

Alabama, University of; Biomedical Research Facility	\$9,942,000
Case Western Reserve University; Biomedical Research Facility	9,942,000
Childrens Hospital, Detroit, MI; Equip to support demo on Position Electron Tomography	7,953,600
Laser Medical Applications Centers; Est. Cntrs. of Excellence	1,472,659
Louisiana State University; Biomedical Research Institute	12,427,500
Misericordia Hospital, Phila, PA; 6-MEV linear Accl. for Cancer	2,087,820
Oregon Health Sciences University; Neurosurgery Research Institute	12,427,500
South Carolina, Medical University of; Cardiac Research Institute	5,965,200
West Virginia University; Center for Nuclear Medicine in Alzheimers	9,942,000

Total-Biological and Environmental Research	\$72,160,279
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BASIC ENERGY SCIENCE**Material Sciences**

Fort Hayes State University; Physical Science Center	\$1,988,400
Oklahoma State Univ.; Advance Technology Research Center	4,971,000
Indiana State Univ.; Advanced Technology Center	4,814,414
Univ. Of New Orleans,; Center for Energy Resources Management	9,942,000
Boston College; Energy Sciences Research Facility	9,942,000
Purdue; Hqs. of Midwest Superconductivity Consortium	2,982,600
N. Iowa, University of; Center for Energy & Environmental Educ. Center of Excellence	4,971,000
Ames: Technical and Admin. Services Facility	2,982,600
West Virginia University; planning of proposed Research Center	248,550

ENGINEERING AND GEOSCIENCES

Fort Hayes State University; Physical Science Center	\$1,988,400
--	-------------

ADVANCED ENERGY PROJECTS

Louisiana Tech. University; Manufacturing Systems Engineering Research Center	\$745,650
Nebraska Univ. of; Nebraska Center for Science & Tech.	5,666,940
Diag. Instr. Anal. Lab., Miss. St. Univ.; Tech Transfer	3,976,800

Total-Basic Energy Science	\$59,197,154
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TOTAL CONGRESSIONALLY DIRECTED PROJECTS:	\$141,557,433
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a/ No amount specified, just language encouraging support

* EPSCoR, Experimental Program to Stimulate Competitive Research Programs

THE WHITE HOUSE
WASHINGTON

July 9, 1991

Dear Jim:

Many thanks for sending me the detailed breakdown of the "pork" in your Department. I agree totally that it will be important to get equivalent numbers for as many other departments as possible. Only by making very evident what is taking place can we hope to in fact force a more rational distribution of Federal funding.

I much appreciate your help in getting this documentation and I am looking forward to meeting with you in the very near future because there are a number of rather important topics that we should discuss.

With warmest best wishes,

Sincerely yours,



D. Allan Bromley
The Assistant to the President
for
Science and Technology

The Honorable James D. Watkins
Secretary
Department of Energy
Washington, D.C. 20585

"CORRESPONDENCE TRACKING"

TYPE: INFORMATION

DOCUMENT NUMBER: 9121165

FROM: HILL, Chris: THE MANUFACTURING FORUM

TO: DR. BROMLEY

DATE OF
CORRESPONDENCE: 04/17/91

SUBJECT: DISCUSSION PAPER ON TECHNOLOGY POLICY BY ERICH BLOCH

ASSIGNED TO:

ACTION REQUIRED:

SENDER'S DUE DATE:

OSTP DUE DATE:

DATE COMPLETED:

COPIES TO: D. Allan Bromley
Thomas Ratchford
Dr. Phillips

WHITE HOUSE TRACKING #:

CONTACT PERSON: PENNY GIBBS

REMARKS: Enclosures to DAB, TR, WP and the file.

DATE RECEIVED: 04/18/91

FILE: TECHNOLOGY*POLICY

Internation -

1121165

THE MANUFACTURING FORUM

National Academy of Engineering National Academy of Sciences
2101 Constitution Avenue, N.W.
Washington, D.C. 20418

91 APR 18 P 4: 47

Telephone: 202/334-1579
FAX: 202/334-2290
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April 17, 1991

OFFICE OF THE
DIRECTOR

MEMORANDUM

TO: Members of the Manufacturing Forum

FROM: Chris Hill, Executive Director *CTH/pg*

RE: Discussion paper on technology policy by Erich Bloch

Enclosed are five copies of the discussion paper by Erich Bloch entitled "Towards a U.S. Technology Strategy: Enhancing Manufacturing Competitiveness," which returned to us from the printer yesterday. You will recall that this paper was the foundation for a discussion of U.S. technology policy that Erich led at our January 11 meeting.

This is the first of a series of discussion papers prepared for the Manufacturing Forum that we will issue on a periodic basis. Each paper reflects the views of its author, and we intend that the series will reflect a diversity of viewpoints over time. The paper incorporates on the title page a disclaimer of the responsibility of individual members of the Forum, or of the Forum collectively, for the views expressed in this paper.

The paper series is being distributed to several hundred organizations and individuals from our office. Additional copies in modest number are available from the Forum office by calling Penny Gibbs at 202/334-1579.

Enclosures

"CORRESPONDENCE TRACKING"

TYPE: ACTION

DOCUMENT NUMBER: 9121063

FROM: KUNZ, Daniel W.: JUNIOR ENGINEERING TECHNICAL SOCIETY

TO: DR. BROMLEY

DATE OF
CORRESPONDENCE: 04/08/91

SUBJECT: REQUEST TO GENERATE TWO ARTICLES PER YEAR THAT
ADDRESS THE POLICY ISSUES AND PRO-CON ARGUMENTS
RELATED TO OSTP ENGINEERING RELATED INITIATIVES.

ASSIGNED TO: INTERNATIONAL/POLICY

ACTION REQUIRED: AS NECESSARY

SENDER'S DUE DATE: OSTP DUE DATE: 04/24/91

DATE COMPLETED: 4/29/91

COPIES TO: D. Allan Bromley
Dr. Wong
Steve Olson

WHITE HOUSE TRACKING #:

CONTACT PERSON:

REMARKS:

DATE RECEIVED: 04/10/91

P-INT-
FILE: POLICY



**JUNIOR ENGINEERING
TECHNICAL SOCIETY**

**1420 KING STREET
SUITE 405
ALEXANDRIA, VA
22314-2715
(703) 548-JETS**

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PAUL H. ROBBINS
Tau Beta Pi

DANIEL W. KUNZ
Executive Director

9121063
April 8, 1991

Dr. D. Allen Bromley
Science Advisor To The President
The White House (OEOB)
Washington, DC 20506

Dear Dr. Bromley:

Thank you for including JETS staff in your briefing. The information was useful and has the potential for generating a series of articles for the JETS Report newsletter (samples enclosed).

JETS thinks that its newsletter provides the type of information that is needed by high school students as they begin preparation for their careers. However, your presentation pointed out that we need to have another type of article in each issue (two per year).

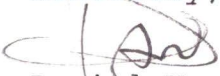
It is important that students begin to see both sides of each major issue and the implications of each view on national engineering policy decisions. For example, you mentioned six models for global warming--three which show one outcome and three which show the opposite. Students are rarely exposed to factual pro-con arguments on issues like this. We believe the newsletter can be one forum for this information.

Would it be possible for your office to generate two articles per year (needed in July and March) that address the policy issues and pro-con arguments related to your major engineering-related initiatives? These articles would enable students to see the type of analysis and the complexity of the decisions made at our national level.

We would devote one full page, possibly more, to your articles in each issue for as long as your office is able to provide them.

I look forward to your anticipated consideration of this request.

Sincerely,


Daniel W. Kunz, Ed.D.
Executive Director

OFFICE OF THE
DIRECTOR

APR 10 AM 10:00

RECEIVED

"CORRESPONDENCE TRACKING"

TYPE: INFORMATION

DOCUMENT NUMBER: 9121069

FROM: CHAO, Elaine L.: DEPUTY SECRETARY OF TRANSPORTATION

TO: DR. BROMLEY

DATE OF
CORRESPONDENCE: 04/08/91

SUBJECT: A COPY OF "A STATEMENT OF U.S. DEPARTMENT OF
TRANSPORATION RESEARCH & DEVELOPMENT POLICY."

ASSIGNED TO:

ACTION REQUIRED:

SENDER'S DUE DATE:

OSTP DUE DATE:

DATE COMPLETED:

COPIES TO: D. Allan Bromley
Thomas Ratchford
Michelle Van Cleave

WHITE HOUSE TRACKING #:

CONTACT PERSON:

REMARKS: Please note that although this is an INFORMATION item, please
forward any reactions or comments you may have. (Enclosure to
DAB)

DATE RECEIVED: 04/10/91

FILE: *Internat'l -* POLICY*NATIONAL SECURITY



THE DEPUTY SECRETARY OF TRANSPORTATION

WASHINGTON, D.C. 20590

April 8, 1991

91-210269
RECEIVED

91 APR 10 P5:11

OFFICE OF THE
DIRECTOR

Dr. Allan Bromley
Director, Office of Science
and Technology Policy
Executive Office of the President
Washington, DC 20506

Dear Allan:

I am enclosing a copy of A Statement of U.S. Department of Transportation Research and Development Policy. This statement is a key implementation element of the Statement of National Transportation Policy, issued by the President in March, 1990.

We will be using the document within the Department as a guide to program formulation by Research and Development (R&D) managers. We also intend to give the document a fair amount of exposure with the Congress, universities, the private sector, State and local governments, and the transportation community-at-large. We believe it provides a concise summary of the "ground rules" by which the Department makes its R&D decisions in support of the National Transportation Policy. Moreover, the Appendix to the document provides a detailed agenda of priority areas for research. We used this R&D Agenda last summer in a pilot project to screen the Department's FY 1992 budget requests prior to their submission to the Office of Management and Budget.

We believe this statement will help us assure effective identification of R&D activities and efficient utilization of our scarce R&D resources. I hope you find the document useful, and I look forward to any reactions or comments you may have.

Sincerely,


Elaine L. Chao

Enclosure

cc: Members of the Federal Coordinating Council
for Science, Engineering, and Technology



U. S. Department of
Transportation

***A STATEMENT OF
U.S. DEPARTMENT OF TRANSPORTATION
RESEARCH AND DEVELOPMENT POLICY***

JANUARY 1991

Moving America
New Directions, New Opportunities





THE SECRETARY OF TRANSPORTATION

WASHINGTON, D.C. 20590

January 22, 1991

STATEMENT OF THE SECRETARY OF TRANSPORTATION

When we issued the Statement of National Transportation Policy in March 1990, it was the first step in a process designed to bring our transportation system into the next Century. A key part of this process was to take full advantage of new and emerging transportation technologies to help improve our current systems, and to provide new options for improved transportation services.

This statement of research policy represents a key follow-on step in this process. It expands on the principles set forth in the policy statement and describes how they apply to the formulation of the Department of Transportation's research and development (R&D) program. Equally important, it sets forth priority areas for research in the transportation sector over the next several years, building on the directions set in the policy statement.

Within the Department we have already used the principles and priorities in the policy statement to evaluate FY-1992 budget proposals, and we will be using it in formulating future budgets and programs. The Statement of National Transportation Policy creates a framework that allows the Department to adjust and respond to changing problems and challenges. This policy statement for research and development is designed to provide the same flexible framework for the Department in technical areas.

Only the cooperative involvement of the entire transportation community -- Federal agencies, state and local governments, the private sector, and all the others -- can deal successfully with the problems we are facing. The cooperative relationships we forged during the development of the policy represent the start of a new era in transportation technical programs. I welcome your involvement in this exciting process.


Samuel K. Skinner

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**A STATEMENT OF
U.S. DEPARTMENT OF TRANSPORTATION
RESEARCH AND DEVELOPMENT POLICY**

EXECUTIVE SUMMARY

This document is designed to provide a broad policy base to support structuring a sound and effective Departmental research and development (R&D) program. It is also to serve as a conceptual checklist for program selection and design, both for individual operating administrations in development of their R&D programs, and at the Departmental level in the crossmodal review of submitted budgets.

The U.S. Department of Transportation's R&D program is one mechanism to help carry out the Departmental mission. The Statement of National Transportation Policy (the NTP) issued in March 1990 provides critical strategic guidelines for the Department in executing that mission. The NTP presented a set of six key themes which the Department's programs and activities serve. Each of these has specific implications for the conduct of research projects:

1. Maintain and expand the Nation's transportation: will be supported by projects to improve the capacity, condition, and utilization of existing transportation systems and infrastructure.
2. Foster a sound financial base for transportation: will be supported by projects to develop innovative approaches to public, joint, and private funding of transportation, assess existing mechanisms for funding transportation, and promote

private sector investment.

3. Keep the transportation industry strong and competitive: will be supported by projects to promote competition in and across modes, reduce system costs and foster the Nation's international competitiveness.
4. Ensure the transportation system supports public safety and national security: will be supported by projects to reduce the risk and severity of accidents in individual modes and across modes, and maintain the security of the Nation, its transportation system, and that system's users.
5. Protect the environment and the quality of life: will be supported by projects to minimize the adverse impacts of transportation operations and facilities, conserve energy and protect natural resources, and enhance transportation access and quality of life for all.
6. Advance U.S. transportation technology and expertise: will be supported by projects to develop, evaluate, and permit realization of technological advances in transportation operations, management, data and planning.

R&D undertaken by the Department to

address these concerns should be shaped by several key principles for program development:

1. It should be responsive to the directions established and the commitments made in the Statement of National Transportation Policy.
2. It should consider the potential users and problems involved in applying R&D outputs in program selection and design.
3. A portion of the research program should be directed to supporting the Department's operational missions.
4. A portion of the research program should be directed to improving the quality of transportation decisions in the Department and the transportation community.
5. A portion of the research program should be directed to stimulating action by the private sector, particularly in demonstrating the market for new technologies.
6. The program should balance meeting short-term needs and providing longer term options for system development.
7. The program should focus on projects that are wise investments, i.e. whose potential benefits are greater than their costs.
8. The program should include mechanisms to manage research programs effectively and prevent duplication.
9. The program should provide for

mechanisms to promote dissemination and application of its products.

This document also provides detailed design criteria for the R&D projects to be undertaken:

1. Base R&D program plans, to the degree possible, on defined and measurable goals.
2. Recognize that each transportation mode or technology is a part of a system.
3. Design programs, when possible, to be carried out and built upon incrementally.
4. Provide for effective management of ongoing research.
5. Provide for interaction with, as well as input and response to, the implementation process.
6. Have a strategy for disengagement.

A detailed agenda of priority areas for research is included as the Appendix to this document. It enumerates specific R&D efforts required by, or needed to support, the policy statement. Highlighted topics and technologies include construction techniques, safety and human factors, radionavigation (especially the Global Positioning System or GPS), congestion management, technology's link with productivity and competitiveness, intelligent vehicle/highway systems, magnetic levitation and high speed ground transportation, transportation data, simulation and modeling techniques, hazardous materials packaging, the environment, and energy. The process of technology transfer is also highlighted.

INTRODUCTION

This paper provides a broad policy base to support structuring a sound and effective departmental R&D program, building on the Statement of National Transportation Policy.¹ It also describes criteria for program selection and design, both for individual operating administrations in development of their R&D programs, and at the Departmental level in the crossmodal review of budget proposals.

The mission of the U.S. Department of Transportation (DOT) is to provide for "the development of national transportation policies and programs conducive to the provision of fast, safe, efficient, and convenient transportation at the lowest cost consistent therewith and with other national objectives, including the efficient utilization and conservation of the nation's resources." The services are...."to be provided by private enterprise to the maximum extent feasible."²

The Statement of National Transportation Policy (the NTP), released in March 1990, set directions for the future, created a framework for Departmental programs and decisions, and identified critical strategies for action. It presented six key themes the Department's programs are designed to serve:

1. Maintain and expand the Nation's transportation system.
2. Foster a sound financial base for transportation.
3. Keep the transportation industry strong and competitive.
4. Ensure that the transportation system supports public safety and national security.
5. Protect the environment and the

quality of life.

6. Advance U.S. transportation technology and expertise.

The DOT Research and Development (R&D) program is one instrument for carrying out the departmental mission. It provides a mechanism to explore new technologies and operating options, and improve existing systems and operations. The R&D program supports all the themes of the policy statement to some degree. In addition, the DOT R&D program is the key channel through which the Department supports the sixth theme of advancing U.S. technology and expertise.

Included as an appendix is an R&D Program Agenda developed from commitments in the policy statement. It indicates activities that appear to be of high priority at the present time. This list can assist officials in screening potential R&D activities during budget and program review processes. The Agenda may change as R&D efforts are concluded, new problems or priorities emerge, or new opportunities need to be explored.

MAJOR R&D POLICY PRINCIPLES

The payoff of investment in transportation R&D must compare favorably with that of other alternatives. Resources are scarce, and R&D competes with other avenues for investment by the Department in achieving its overall mission. It is important for DOT's R&D managers to make the purpose and payoff of their programs as visible, measurable, and focused as they can.

Careful selection of R&D to be undertaken

is critical. Attempting to solve all transportation problems simultaneously only serves to dilute the attention and resources applied to the important ones. The whole purpose of establishing priorities is to assure that programs focus on the significant problems and opportunities. The policy statement provides the basis for determining priority areas to emphasize.

DOT makes direct use of its own R&D in formulating regulations, standards, and policies in its various operating administrations. DOT's R&D also supports the operating functions of the Federal Aviation Administration (FAA) and Coast Guard. Another portion of the Department's R&D serves local, state, regional and private interests and individuals in and outside the transportation community. The Department's renewed attention to promoting effective implementation processes as part of R&D programs has important implications for selecting R&D projects.

It is DOT R&D Policy that the R&D programs undertaken by the Department be responsive to the directions established and the commitments made in the Statement of National Transportation Policy. Each of the six key themes of the policy statement implies the conduct of specific R&D efforts to support them:

1. Maintain and expand the Nation's transportation systems - will be supported by research to improve the capacity, condition, and utilization of existing transportation systems and infrastructure.
2. Foster a sound financial base for transportation - will be supported by research to develop and test

innovative approaches to public, joint, and private financing of transportation, assess the public and private benefits of existing funding options, and promote private sector investment.

3. Keep the transportation industry strong and competitive - will be supported by research to develop and evaluate operational techniques to reduce costs, promote competition in and across modes, and foster U.S. transportation industry competitiveness in the international market.
4. Ensure that the transportation system supports public safety and national security - will be supported by research to reduce the risk and severity of accidents and casualties in individual modes and across modes, maintain national security (including interdiction and control of illegal drugs and assuring availability of needed energy and other resources in emergencies), and maintain the security of transportation passengers.
5. Protect the environment and the quality of life - will be supported by research on means to minimize the adverse impacts of transportation operations and facilities, to conserve energy and protect natural resources, and enhance transportation access and quality of life for all.
6. Advance U.S. transportation technology and expertise - will be supported by research to develop, evaluate, and permit realization of technological advances in transportation and supporting

technologies, as well as innovative approaches for operations, management, data and planning.

A more detailed elaboration of specific research initiatives in support of the policy statement is included in the R&D Program Agenda attached as the Appendix to this document.

It is DOT R&D policy that the selection and design of R&D programs include consideration of the potential users and problems involved in applying the outputs of that R&D. This includes clear definition of the likely users of products resulting from research, the needs of those users, the criteria and constraints that will dominate their implementation decision (including the source[s] of funds for implementation), and the alternatives available to fund system implementation. The benefits of new technologies are unattainable if the options are unworkable in an operational environment, or no resources are available to finance application.

Implementation of the results of research and development activities is generally a long term process. Therefore, in considering a proposed R&D investment, the probable (and possible) future operational environment should be noted along with present constraints. For a development expected to be operational in a particular time period, a view of the possible circumstances that will exist at that time should be the backdrop for decision making. Effective strategic planning, taking into account both anticipated conditions and priorities, thereby supports effective R&D program development. The policy statement commits the Department to better use of strategic planning and management processes [NTP Page 125].

Innovative financing approaches may prove

key to the implementation of some new technologies, and as such are especially important. The policy statement calls for the Department to "encourage State and local governments to make use of innovative financing and funding options for transportation to supplement more conventional sources of funds, for example, joint public-private initiatives, benefit assessments on property owners, joint development rights, and other means for capturing the value of transportation projects [NTP Page 57]."

In addition to funding, the scarcity of energy and other resources necessary for system implementation will affect the implementation potential of future systems. In this light, new systems are inherently more desirable if they do not require dependency on outside parties for energy resources, or if materials in short supply or of high cost are not necessary to bring them to operation. Even significant advantages in a system's operational performance may be outweighed by the lack of key resources (energy or other kinds) necessary to construct or operate the system.

Failure to diligently assess future implementation conditions leads to at least two kinds of traps. First, an R&D program can be initiated which requires, for implementation and deployment, the future expenditure of resources that are not likely to be available. There may then be pressure to deploy the operational system components using whatever funding is available, including R&D funding. In the worst case, this leads to Federal hardware procurement, such as ordering an excessive number of "prototypes," as the last stage of an R&D effort. This is to be avoided. Second, R&D projects may be proposed simply to obtain a very short term benefit, and then may set a precedent for future

Federal involvement in an area that is not a Federal policy interest. Both possibilities underline the need for the users of the R&D to be identified, along with a method of transferring responsibility for R&D implementation to them.

It is DOT R&D Policy to conduct the necessary R&D to support the Department's operational missions. The Department must uphold its commitment to identify and make effective use of the specialized equipment and knowledge to support the Department's operating responsibilities, most notably in the Coast Guard and the FAA. The DOT must develop its own equipment to support operational missions when the size of the potential market or the degree of developmental risk is such that the private sector is not stimulated to provide needed equipment.

Development and prototype testing of specialized hardware to meet DOT needs are important parts of our R&D efforts. Procurement of developed hardware for operational use is not an appropriate use of R&D funds.

It is DOT R&D Policy to conduct R&D projects whose objective is to improve the quality of transportation decisions by the Department and the transportation community. R&D can supply objective knowledge to support regulation and policy development, both within the Department and at other levels of government. Sound regulations and policies must be formulated based on accurate and complete facts. R&D is one mechanism for obtaining them. R&D may be appropriate even when information is already available, if there is doubt as to the completeness or accuracy of the existing information.

The Statement of National Transportation

Policy makes this observation:

DOT is in the best position to provide leadership in identifying transportation data needs; assuring that essential data needs are met effectively and efficiently; developing improved analytical techniques for applying data and carrying out informed transportation planning and decisionmaking; and encouraging the dissemination of data, analytical methods, and information systems technology among State and local governments, private industry, and other research and educational institutions [NTP Page 112].

In this area, it is important that work to improve transportation decision-making be carefully planned to avoid duplicating or discouraging private sector activities on the same topics.

It is DOT R&D Policy to conduct appropriate R&D projects to stimulate action by the private sector, particularly in terms of demonstrating the market for, or applicability of, new technologies. Federally-supported operational tests of new technologies can be justified to evaluate new options and obtain knowledge about them not available any other way. Such activities also are appropriate to stimulate private sector interest to extend development of these options. Research of this type may also facilitate proper consideration of these options in implementation decisions. Federal involvement in operational trials of intelligent vehicle/highway systems (IVHS) illustrates this policy.

Operational tests are one element of a broader set of approaches to promote private sector involvement in development and implementation of new systems. The

Statement of National Transportation Policy notes this:

The Federal Government can help to focus the attention and energy of the public and private sectors on the importance of advances in transportation for the Nation's future. By encouraging transportation research, offering seed money, and preserving tax incentives for research, the Federal Government can create the climate for research and innovation. The Department's sponsorship and funding can also help attract broader involvement in the effort [NTP Page 104].

The need for Federal R&D can be reduced if impediments to private sector involvement and the efficient working of market mechanisms can be alleviated by changes in regulatory, patent, antitrust, tax, or other policies. Assistance in defining markets to increase potential profit can also promote private investment. In general, mechanisms to stimulate financial health and innovative management by private parties in transportation decrease the need for Federal R&D, and ultimately the need for Federal involvement.

Cooperative public/private ventures also promote competition and innovation. The Statement of National Transportation Policy elaborates on this:

Cooperative agreements for research can help all the members of the transportation community to contribute to funding research and increase the payback from transportation research activity. Most cooperative ventures in the private sector to develop new technology are not at risk of violating federal antitrust laws. If, however, it

becomes clear that greater security will be required for U.S. firms to enter such productive joint ventures, the Federal Government will examine legislative and administrative remedies for fostering efforts that can reinforce U.S. competitiveness in the world market, without harming competition and the interest of consumers [NTP Page 104].

In some cases, the benefits of conducting research cannot be captured by a U.S. firm when competing in international markets. The Statement of National Transportation Policy observes this:

Particularly where the benefits of investment in research and development would accrue beyond an individual firm, there is little incentive for a single firm to undertake a research project on its own. Frequently U.S. firms are competing with foreign firms or consortia whose research activities are at least in part subsidized by their governments. To assure the viability and technological competitiveness of the U.S. transportation industry, its customers and suppliers, some additional steps may be required to foster research efforts in this country [NTP Page 104].

It is DOT R&D Policy to structure an R&D program, both for each operating administration and Department-wide, that reflects a balance between meeting short-term needs and providing longer term options for system development. The Department must weigh addressing short-term regulatory and operational needs against developing future options. The pressure for short-term payoff is great. There is a strong temptation to eliminate longer-term oriented research items in times of fiscal austerity, and to leave it to the private sector to address them.

However, at least a limited amount of government R&D should always be oriented toward establishing technological building blocks for future systems. These programs should be undertaken even though the estimation of their payoff is difficult.

For longer-term concepts, there may be no definable customer as yet with whom the private sector can interact. Some transport concepts require the creation of institutions that do not now exist, or expansion of the scope of authority of existing institutions. Under such circumstances, the pace of innovation is likely to be very slow. In such cases, state-level mechanisms may evolve to accelerate the process. Federal stimulus to private initiative may be appropriate if speeding the process beyond that is deemed beneficial.

It is DOT R&D Policy to focus its R&D resources on projects that are wise investments: i.e. whose potential impacts or benefits are greater than the costs associated with pursuing the research. This does not mean that research projects undertaken will necessarily be low-risk. Research, by its nature, has an uncertain outcome. Any overall benefit of R&D activities is conditional on success of the research portion even before considering whether the product of the R&D can or will be put into operational use.

Research is an up-front cost of any operating system, and its benefits are usually realized only many years thereafter. The normal discounting process often results in a present value for research that discourages private investment in R&D.

In large measure, the low- risk, high or immediate payoff R&D will be done by the private sector. However, when the likely payoff to an individual company or interest

is less certain, or smaller, the Federal role must often be to take part in or initiate the higher risk ventures. In addition, some research impacts are particularly hard to quantify: in safety projects directed at saving lives, it is difficult and uncomfortable to place dollar values on the lives saved. Considering these things, high-risk, high cost, and long lead time to realize a return are three factors that often drive a call for Federal funding over private sector funding.

There is no simple method for establishing that benefits of conducting R&D outweigh its costs, so assessing the cost-effectiveness or prudence of a Federal research investment is often highly judgmental. All costs and all benefits, both external and internal, should be considered. Quantification is desirable, but inability to quantify relevant factors does not decrease their importance. Purely qualitative rationales also may be necessary and useful.

The Department should avoid pursuing R&D if there is evidence that other approaches to achieve the same benefit, such as regulation or legislation, would be more efficient or involve lower costs.

It is DOT R&D Policy to assure that appropriate mechanisms exist for the management of the Department's R&D program to promote effectiveness and reduce duplication. One of the major vehicles to accomplish this has historically been the Department's Research and Development Coordinating Council. Chaired by the Research and Special Programs Administrator, it consists of the Associate Administrators for R&D (or similar position) from each of the operating administrations in the Department. The Council provides a forum to share information on the conduct and status of

research and development efforts, and to advocate effective technical program development in the Department.

The primary role of the Council is coordinative in nature. Agency administrators have the duty to advise the Secretary of what support they need to fulfill their regulatory and operational responsibilities. The Council provides backup to them in this role: it provides a Departmental, crosscutting perspective on technical issues to the officials the administrators have entrusted with formulation of R&D programs.

The recommendations of the Council are implemented by each of the individual administrations acting through their own programs. This reflects the importance for organizations or individuals to have the authority to effectively carry out a research program, and be held accountable for program performance.

A key role of the Council in the future will be coordinating projects to develop "generic" technologies or knowledge with multimodal applicability. The Statement of National Transportation Policy, for example, commits the Department to a coordinated program of research on human factors. Council activities will be essential to an effective program. More broadly, the Council will assure that the research commitments in the policy statement are addressed.

Whether through the present mechanisms, or through different management channels, the cross-modal coordination of technical program development among the agencies and offices in DOT must occur.

In addition to coordination within the Department, the development of DOT's research should be coordinated, in at least

general terms, with the R&D programs of other Federal agencies. The current vehicle for this is the Federal Coordinating Council for Science, Engineering, and Technology (FCCSET). In particular, development of transportation systems ultimately affects energy use, regional development, climate and environment, and a wide range of societal factors. The Department needs to be sure that the transportation R&D choices it makes support national goals for energy independence, national competitiveness, environmental quality, and other crosscutting concerns.

It is DOT R&D Policy to provide for mechanisms to disseminate and promote the application of the results of its research activities as part of the overall R&D management process. This includes formal technical assistance/technology sharing activities, either integrated with the research projects themselves, or conducted as support to the R&D programs. The varied activities of DOT's Federal Highway Administration (FHWA), which has emphasized the topic of research implementation or technology application for years, are a model in this area, government-wide. FHWA's work includes development of technical briefs, summary documents on technology advances, direct assistance through a network of technology transfer centers in the field, and a wide range of training courses and packages.

The Statement of National Transportation Policy gives this area explicit emphasis:

It is Federal transportation policy to...make Federal transportation data, research findings, and information on technology and innovation in transportation available to researchers, industry, and all levels of government [NTP Page 105], and,

It is Federal transportation policy to...promote adoption of new technologies and reassert U.S. international technical leadership in transportation by fostering increased awareness of and interest in research and development activities [NTP Page 105].

A specific initiative is proposed in the policy statement's Short-Term Program Agenda to accomplish this:

To promote new transportation research and development that will advance U.S. technology and support an improved transportation system, the Department will...restructure the Department's program of technical assistance and technology sharing to more effectively support State and local decisionmaking on present and advanced systems, particularly with information on innovative funding approaches [NTP Page 124].

Transfer of technical findings on an issue to other Federal agencies dealing with that same issue can be particularly important. It helps reduce unwarranted duplication of effort, and promotes more consistent, enlightened treatment of issues on an interagency basis.

In projects with the private sector, the issue of intellectual property and possible patents resulting from discoveries funded or partly funded by DOT-sponsored research must be dealt with early in a project. Private participants in joint public/private R&D efforts will be concerned about the rights to patents emerging from the work. To improve the prospects for a technology's effective completion and application, the Federal government must be careful not to hold patent rights too closely or

disseminate discoveries too broadly in those projects. Any public-private efforts undertaken should define the conducting firm's rights clearly and explicitly before the initiation of any project.

DESIGN CRITERIA FOR R&D PROGRAMS

In designing projects to address specific R&D needs, general guidelines are needed to assure a useful output from the effort. These guidelines are applicable to almost any kind of research to be undertaken:

1. Base R&D plans, to the degree possible, on defined and measurable goals.

Where it is practical and meaningful, desired results should be translated into quantitative and measurable terms. The goal selected should be a realistic vision of an output against which a program's progress can be evaluated. The goals should be a considered estimate of what is achievable with the available time and money, at the accepted risk.

2. Recognize that each transportation mode or technology is a part of a system.

The Department needs to recognize that all the operational elements of transportation technology that result from its support of R&D must ultimately work together as a system. Each R&D program must, therefore, recognize interface requirements of its products with other system elements. This emphasizes the importance of keeping up an ongoing technical dialogue with other relevant programs, both inside and outside DOT. Again the Department should depend first on

the private sector in evolving technological and other improvements, but can help foster the necessary improvements.

3. Design programs, when possible, to be carried out incrementally.

R&D programs should be designed so that small amounts of money can be spent initially establishing the feasibility of a particular technical approach before additional steps and larger expenditures are devoted to long term research and development.

4. Provide for effective management of ongoing research.

R&D programs should be tightly managed to assure that they meet clearly established deadlines. The programs need to have specified milestones when evaluations are performed to determine if the program should proceed, and, if so, what changes need to be made.

5. Provide interaction with the implementation process.

R&D plans must ensure appropriate interaction between those conducting the research and those who will decide whether or not to go forward with the research products. This requires explicit consideration of the process of making research information available to its ultimate users in useful form: technology sharing and application. The planning for any research and development effort must include mechanisms and processes for sharing the results of the research, and for R&D program managers to reach out to potential users for input and feedback.

6. Have a strategy for disengagement.

Research plans should include strategies to end Federal involvement if the research is successful and the results can be efficiently carried forward by other parties, or if deviations from plan or new knowledge reduce the potential benefit of the research to an unacceptable level. Criteria for making such determinations should be developed as part of the initial design and planning for a research program.

By its very nature, research is frequently unpredictable both in terms of progress and outcome. The concept of accountability is essential, but the accountability must be for diligence in pursuing the project and evaluating its progress as it proceeds, rather than strictly for its ultimate success. Researchers must be encouraged to report early if a particular line of pursuit is not paying off, and to recommend cutting losses by adjusting or terminating the project.

CONCLUSION

The nation's transportation future depends on continued transportation related R&D. The Federal Government must work to promote creativity and imagination in developing, adopting and promoting new technologies and operational options to keep America's transportation system at a high level of service and safety. By pursuing this R&D Policy, the Department will be supporting the directions set forth in the Statement of National Transportation Policy, and contributing to the economic and social goals of this country.

This also provides leadership in a key area

of national interest, as noted in the U.S. Technology Policy.³

This [transportation] R&D is aimed at maintaining a modern, efficient transportation infrastructure, an essential factor in being industrially competitive.

The rewards from this kind of leadership can be great, as the Statement of National Transportation Policy observes:

The Federal Government...can serve as a leader and a catalyst for research, innovation, and expertise. From the increased interest in advances in the transportation field and corresponding creative and technological resources drawn to transportation, the Nation will long reap the benefits of rising productivity and competitiveness and an enhanced quality of life [NTP Page 102].

1. Moving America: New Directions, New Opportunities. Volume 2, A Statement of National Transportation Policy, Strategies for Action; U.S. Department of Transportation; Washington, D.C.; February 1990. (referred to as the policy statement or the NTP throughout this statement).
2. Public Law 89-670, October 15, 1966 (DOT Act).
3. U.S. Technology Policy. Executive Office of the President, Office of Science and Technology Policy; Washington, D.C.; September 26, 1990

APPENDIX R&D PROGRAM AGENDA

The Statement of National Transportation Policy includes a variety of commitments in technical fields, both to specific R&D and to other initiatives which will require associated research. These areas will be particularly important to the Department, and must be highlighted in the Department's technical program development efforts. The areas are listed below, under each of the themes they are associated with:

1. Maintain and Expand the Nation's Transportation System

The investment in our existing transportation facilities must be protected. Efforts must include strategies to increase capacity and reduce congestion while seeking new avenues to provide new links in today's intermodal networks. DOT sponsorship of research in the following areas is therefore appropriate:

- o Evolve new materials, and more sophisticated techniques for infrastructure preservation through pavement, bridge, and other facilities management programs [NTP Page 46].
- o Develop improved designs and techniques to resist or counter the effects of wear or damage to bridges, reinforcing structures, and other transportation facilities [NTP Page 46].
- o Develop techniques to deal with damage to transportation facilities from weather, corrosion, natural disasters, and other causes [NTP

Page 46].

- o Test alternative options and management techniques to enhance performance and capacity of existing infrastructure, such as HOV techniques, traffic control improvements, and other low-cost strategies to reduce overall congestion [NTP Page 49].
- o Improve vehicle control and scheduling techniques for complex and multiple use transportation facilities, such as waterways, harbors, rail lines, intermodal terminals, and national space launch ranges [NTP Page 49].
- o Experiment with peak-period and congestion pricing to ensure the most effective use of transportation facilities [NTP Page 49].
- o Develop design techniques for improved multimodal facilities and improved transfer techniques between modes [NTP Page 51].
- o Develop more efficient transportation services for rural areas to better connect them to higher density areas, improving safety and making appropriate use of the private sector [NTP Page 51].
- o Develop and refine alternatives analysis and preliminary engineering techniques used to assure that essential new capacity is provided in transportation systems of national significance [NTP Page 53].
- o Develop and improve techniques to conduct multimodal assessments of needs for investment or increases in

transportation system capacity [NTP Page 53].

2. Foster a sound financial base for transportation

The Department's R&D programs must examine the full range of traditional and non-traditional financing approaches. Reasonable public expenditures, supplemented by creative private investment, can support implementation of needed transportation alternatives and facilities. DOT sponsorship of research in the following areas is therefore appropriate:

- o Continue experimentation with innovative financing techniques, especially those drawing their effectiveness from value capture approaches around intermodal and multimodal facilities and use of public/private partnerships to leverage investment [NTP Page 57].
 - o Conduct projects to encourage state and local governments to apply innovative financing and funding options, especially joint development at transit stations, terminals, park and ride facilities, and administrative facilities [NTP Page 57].
 - o Continue experimentation with private sector funding of key transportation facilities, and techniques to promote public/private cooperation in transportation [NTP Page 59].
3. Keep the transportation industry strong and competitive

The Department must identify measures which contribute to effective

competition, efficient operations, and a healthy and sound transportation industry. Equitable government treatment of carriers and all modes of transportation must be encouraged, along with effective standards for handling and exchange of traffic and billing information. Legislative, regulatory, and administrative measures must be evaluated, particularly with regard to reinforcing U.S. competitiveness in the world market, and at the same time protecting the interests of consumers. DOT sponsorship of research in the following areas is therefore appropriate:

- o Develop more efficient and lower cost techniques to maintain transit facilities and equipment [NTP Page 63].
- o Develop information base to support informed decision making on high-speed rail and maglev systems [NTP Page 66].
- o Continue research to improve safety of general aviation operations [NTP Page 66].
- o Conduct research into reliever airport concepts for use by general aviation [NTP Page 66].
- o Monitor and evaluate the operation of alternative types of space launch facilities and systems [NTP Page 68].
- o Develop techniques to help standardize domestic transportation equipment, billing, and electronic data interchange on a multimodal basis [NTP Page 72].
- o Develop uniform standards for container sizes and documentation

of international cargoes [NTP Page 72].

- o Foster development of local tools for ensuring compatible land use around airports [NTP Page 75].
- o Increase international exchange of transportation technology with emphasis on technologies which can be applied by U.S. carriers to increase their competitiveness [NTP Page 78].
- o Conduct research on enhancing a cooperative work environment in transportation, and improving labor and management performance and productivity in the transportation industry [NTP Page 80].
- o Conduct cooperative projects with transportation companies, universities, and the private sector to develop and test specialized programs for training transportation personnel at all levels [NTP Page 80].
- o Develop options for improved personnel support systems, including recruitment and training, for high-skill Federal transportation positions [NTP Page 80].

4. Ensure that the Transportation System Supports Public Safety and National Security

Safety considerations must always be addressed in the transportation development and operations process. Measures must be developed for existing and emerging systems and operations to protect the traveling public from harm or injury both from internal and external forces. This includes maintaining

needed supplies of energy and other resources during national emergencies. DOT sponsorship of research in the following areas is therefore appropriate:

- o Compile/expand multimodal data on transportation accidents [NTP Page 82].
- o Develop necessary data to allow review of new designs for transportation vehicles to detect safety problems [NTP Page 82].
- o Experiment with alternative approaches for assuring and improving pedestrian safety [NTP Page 85].
- o Develop new engineering standards and signing systems to promote safer design and maintenance of highway systems [NTP Page 85].
- o Continue experimentation with ways to promote more effective enforcement of laws and regulations governing speed limits, motor carrier safety, drunk and drugged driving, and use of safety belts, child safety seats, and motorcycle helmets [NTP Page 85].
- o Undertake a comprehensive program of human factors research and apply the results to improving technology, training, and procedures [NTP Page 87].
- o Conduct necessary R&D to maintain a strong and effective Coast Guard to protect life and property in maritime environment, including search and rescue capability [NTP Page 88].
- o Develop technology for improved

navigational aids and Marine Vessel Traffic Systems to guide and control ship movements [NTP Page 89].

- o Develop approaches to improve safety and security of public transportation systems, including anti-substance abuse programs, safety standards, and improved safety training [NTP Page 90].
- o Develop techniques to improve safety including monitoring and safety enforcement for railroad track, equipment, and operations [NTP Page 90].
- o Develop technologies to improve the efficiency and quality of pipeline inspection and enforcement activities [NTP Page 90].
- o Compile hazardous materials transportation data across all modes to identify potential safety problems [NTP Page 91].
- o Develop effective hazardous materials regulation, enforcement, and preparedness strategies to deal with evolving materials and technologies [NTP Page 91].
- o Develop data to reorient hazardous materials packaging standards to be based on performance criteria, rather than detailed design specifications [NTP Page 91].
- o Identify and periodically update an integrated multimodal strategic transportation network, including a full inventory of defense essential facilities, vessels, and vehicles, and a comprehensive data base providing information on their condition and location in the system, using the

resources of the Departments of Defense and Transportation [NTP Page 94].

- o Develop forecasts of future defense transportation requirements, and establish priorities among them [NTP Page 94].
- o Develop techniques to maintain Coast Guard surveillance on and over the waters to interdict illicit drugs coming from other countries to U.S. shores [NTP Page 94].
- o Develop techniques to assist in reducing illegal drug traffic moving on the nation's transportation system, including the highway, aviation, maritime, and railroad systems [NTP Page 94].
- o Develop and improve technologies to assure effective screening of passengers and cargoes at international airports [NTP Page 95].
- o Develop approaches to assess vulnerability of ports, terminals, and other facilities, and improve physical security against terrorism and criminal acts [NTP Page 95].

5. Protect the Environment and Quality of Life

Environmental considerations must be addressed early in the process of developing new transportation systems and other options. They must also be part of the decision-making process at all levels during the construction, operation, and maintenance of transportation systems and facilities. The Federal Government must provide leadership in protecting our natural

resources for future generations while stimulating private interests to develop more energy efficient and environmentally safe systems. DOT sponsorship of research in the following areas is therefore appropriate:

- o Develop approaches to help urban areas meet the requirements of the Clean Air Act Amendments, including alternative fuels, innovative propulsion systems, and innovative enforcement activities [NTP Page 97].
- o Participate in national and international reviews of, and research on, transportation-related environmental issues, such as global climatic change [NTP Page 97].
- o Develop improved facility design techniques to fit new construction more harmoniously into communities and the natural environment [NTP Page 97].
- o Develop improved and more consistent contingency planning procedures to respond to oil spills [NTP Page 99].
- o Assemble information to develop a strategy to assure the safe transport of crude oil and petroleum products, including vessel design, shipping lane and vessel traffic control requirements, and transloading operations, considering new technology and changing shipping patterns [NTP Page 99].
- o Conduct a study of oil tank ship design, including an assessment of the benefits of double bottom and double hull design [NTP Page 99].

- o Explore the costs and benefits of stricter regulation of loading and unloading oil shipments at shoreline docks in comparison to alternatives such as additional private sector deepwater offshore loading facilities [NTP Page 99].

- o Foster development and use of more fuel-efficient vehicles and transportation operations [NTP Page 100].

- o Develop technological improvements and design criteria to promote improved accessibility of the elderly and handicapped to urban, rural, and intercity transportation services [NTP Page 101].

- o Develop improvements in standardized signs and passenger information services to facilitate use of airports and passenger terminals by their patrons [NTP Page 102].

6. Advance U.S. Transportation Technology and Expertise

The transportation system faces challenges and demands that will require increasing knowledge and technological advances. Technical expertise and improved data collection devices and services must be developed and nurtured to deal with the demands of the next century. DOT sponsorship of research in the following areas is therefore appropriate:

- o Conduct research to improve the capabilities and applicability of radionavigation systems to check the position of vehicles and cargoes in the air, on the highways and railroads, and in shipping lanes,

including the satellite-based Global Positioning System (GPS) [NTP Pages 18, 103].

- o Conduct cooperative research efforts with the transportation industry to develop innovative approaches for transportation systems and technology [NTP Page 104].
- o Conduct a comprehensive research program on human factors in transportation, including the causes of transportation accidents and the effects of operator impairment, perceptual errors and fatigue, as well as design and operating changes that can eliminate or reduce those effects [NTP Page 105].
- o Continue research on improvements in design and operation of existing vehicles and transportation systems [NTP Page 105].
- o Assess the feasibility of new transportation systems and technologies, providing seed money for research as necessary [NTP Page 105].
- o Develop approaches to ensure that regulatory and institutional barriers do not impede implementation of viable new technologies [NTP Page 105].
- o Conduct research in transportation at the country's universities and research institutions addressing transportation issues, problems, and needs [NTP Page 105].
- o Experiment with innovative ways to make Federal transportation data, research findings, and information on technology and innovation in

transportation available to researchers, industry, and all levels of government [NTP Page 105].

- o Promote adoption of new technologies and reassert U.S. international technical leadership in transportation by fostering increased awareness of and interest in research and development activities [NTP Page 105].
- o Conduct and/or stimulate private sector action to develop an effective intercity transportation option for use in trips of 200 to 500 miles; specifically consider maglev and tiltrotor systems as options [NTP Page 106].
- o Evolve a coordinated interagency program to develop motor vehicle systems that will be safer, more environmentally benign, and lower in energy consumption, without compromising basic mobility, industrial competitiveness, or standard of living [NTP Page 107].
- o Develop an integrated program of research and development for Intelligent Vehicle/Highway Systems, including personal vehicles, motor carriers, and public transportation [NTP Page 108].
- o Conduct necessary research to assemble data to support timely, informed Federal, State, local, and regional transportation planning and decisionmaking [NTP Page 113].
- o Develop more consistent standards for data collection and tabulation across all modes and users of transportation [NTP Page 113].

- o Collect and disseminate information on the quality of transportation service, such as airline on-time performance, to increase awareness of service conditions and needs for improvement [NTP Page 113].
- o Conduct necessary research to establish a baseline for decision-making on future systems through the Department's strategic planning process [NTP Page 113].

In addition to these items, initiatives can be undertaken to improve the dissemination, or promote the application of, the final products of the efforts described here. The full range of such options should be examined in the planning of any research which addresses the priority issues noted.

THE WHITE HOUSE

WASHINGTON

April 18, 1991

Dear Elaine:

Many thanks for the copy of your **Statement of U.S. Department of Transportation Research and Development Policy**. I found it to be a very interesting document and must admit that I was not at all aware of a number of the programs that are included in that report.

It is entirely clear that your department should be represented on a great many, if indeed, not all, of our FCCSET Committees and if you will send me the name and a cv of your Chief Scientist, I will make sure that he is invited to serve on these committees.

I recognize that you were a good soldier in sitting through all of the discussions at the most recent FCCSET meeting, and I would, however, ask that you remain as a member of the Council. Perhaps we could discuss what general class of issues you would wish to be involved in and I could give you some advance warning as to those meetings of the full FCCSET that include those topics.

I feel that it is extremely important for us to retain our firm policy that the FCCSET members hold either secretarial or deputy secretarial rank because I am convinced that this has been a critically important component of the success of FCCSET during this past two years as compared to its earlier history, and I would not wish to break the line because having once done so, I can well imagine that many agencies and departments would frequently find it more convenient to send more junior people.

Congratulations on your report **Moving America** and my personal thanks for your help with FCCSET.

With warmest best wishes,

Sincerely yours,



D. Allan Bromley
The Assistant to the President
for
Science and Technology

The Honorable Elaine L. Chao
Deputy Secretary
Department of Transportation
Washington, D.C. 20590

"CORRESPONDENCE TRACKING"

TYPE: ACTION

DOCUMENT NUMBER: 9121034

FROM: VIKSNINS, Ann S.: UNIVERSITY OF MINNESOTA

TO: DR. BROMLEY

DATE OF
CORRESPONDENCE: 04/05/91

SUBJECT: REQUEST TO CONSIDER IMPLEMENTING A POLICY
STRENGTHENING THE CONFIDENTIALITY OF GRANT PROPOSALS
IN LIGHT OF E.I. du Pont De Nemours v. Cetus Corp.

ASSIGNED TO: PHYSICAL SCIENCES

ACTION REQUIRED: FOR DAB SIGNATURE

SENDER'S DUE DATE: OSTP DUE DATE: 04/22/91

DATE COMPLETED: 4/22/91 by DAB (KAE/DEP)

COPIES TO: D. Allan Bromley
Thomas Ratchford
Michelle Van Cleave

WHITE HOUSE TRACKING #:

CONTACT PERSON:

REMARKS: Gene -

DATE RECEIVED: 04/08/91

International -
FILE: POLICY

4/11

Beverly

Does Circ A-21
cover patent rights?
Should we refer this
letter to D.A. Henderson,
or look into it
ourselves?

Karl

Document Originally
Attached to
Following Page

"CORRESPONDENCE TRACKING"

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ASSIGNED TO: ~~Michelle Van Cleave~~

Karl Erb

red APR 9 1991

ACTION REQUIRED: FOR DAB SIGNATURE

SENDER'S DUE DATE:

OSTP DUE DATE:

04/22/91

DATE COMPLETED:

COPIES TO: D. Allan Bromley
Thomas Ratchford

WHITE HOUSE TRACKING #:

CONTACT PERSON:

REMARKS:

*Karl - Whether or not OSTP should take
an interest in this seems to me a substantive
(rather than a legal) issue -- so I refer to
you for action. - M.*

APR 10 1991

DATE RECEIVED: 04/08/91

FILE: POLICY

"CORRESPONDENCE TRACKING"

TYPE: ACTION

DOCUMENT NUMBER: 9121034

FROM: VIKSNINS, Ann S.: UNIVERSITY OF MINNESOTA

TO: DR. BROMLEY

DATE OF
CORRESPONDENCE: 04/05/91

SUBJECT: REQUEST TO CONSIDER IMPLEMENTING A POLICY
STRENGTHENING THE CONFIDENTIALITY OF GRANT PROPOSALS
IN LIGHT OF E.I. du Pont De Nemours v. Cetus Corp.

ASSIGNED TO: Michelle van Cleave

APR 17 1991

Comments too please

ACTION REQUIRED: FOR DAB SIGNATURE

SENDER'S DUE DATE:

OSTP DUE DATE:

04/22/91

DATE COMPLETED:

COPIES TO: D. Allan Bromley
Thomas Ratchford

WHITE HOUSE TRACKING #:

CONTACT PERSON:

REMARKS:

*Karl - I sent this your way earlier, so I am
passing along DAB's request for comments.*

APR 18 1991

24

DATE RECEIVED: 04/08/91

FILE: POLICY

It seems to me that the
response is right on the
mark. This is not a part
of A-21, by the way - A-21
deals only with research cost
reimbursement.

A.

4/22/91

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20506

1034

April 22, 1991

Dear Ms. Viksnins:

Thank you for bringing to my attention your concerns about handling of grant proposals and the potential impact on patent rights. It is my understanding that the procedures for handling grants have been changed since 1984 to limit dissemination of potentially patentable concepts within the constraints of the Freedom of Information Act. Mr. Charles Herz, general counsel for the National Science Foundation, has responded to you with a detailed description of the present procedures and has expressed his opinion that the holdings of the California court should not apply to proposals funded after June of 1984. The National Institutes of Health have made similar changes.

It is important that universities and other research institutions in the United States continue to use the support of the Federal Government to develop and patent new technology. If you perceive that the present mechanisms of dealing with grant proposals jeopardize this goal, I hope that you will contact me again.

Sincerely,


D. Allan Bromley
Director

Ms. Ann S. Viksnins
Office of Research and Technology Transfer
University of Minnesota
Suite 201
1100 Washington Avenue South
Minneapolis, Minnesota 55415-1226

cc: Charles Herz, NSF
Howard Jenerick, NIH

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY

WASHINGTON, D.C. 20506

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EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY

WASHINGTON, D.C. 20506

OFFICIAL BUSINESS

Charles H. Herz, Esq.
General Counsel
National Science Foundation
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UNIVERSITY OF MINNESOTA

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April 5, 1991

OFFICE OF THE
DIRECTOR

D. Allan Bromley
Director, Office of Science and Technology Policy
Old Executive Office Building
17th St. and Pennsylvania Ave., N.W.
Washington, D.C. 20506

Dear Mr. Bromley:

The United States District Court for the Northern District of California recently held that an NSF Grant proposal could be considered prior art for patentability purposes. E.I. du Pont De Nemours v. Cetus Corp., 1990 U.S. Dist. LEXIS 18382 (opinion issued Dec. 11, 1990). The court reasoned that because NSF grant proposals are cataloged and are accessible to the public through the Freedom of Information Act, the proposals could be considered "printed publications" within the meaning of 35 U.S.C. § 102(b) (1975).

Obviously the University of Minnesota, as an institution which often patents technology arising out of research funded by public granting institutions such as the NIH and the NSF, is concerned about this decision which may adversely affect our future patenting prospects of grant-funded research. We hope that you will consider implementing a policy strengthening the confidentiality of grant proposals in light of this court decision.

We would greatly appreciate your response on this important matter and any action which you might take to ensure that United States universities and other research institutions may continue to patent technology developed at our institutions with the financial assistance of the federal government.

Truly yours,

Ann S. Viksnins

Ann S. Viksnins
Patents & Licensing

Copy

NATIONAL SCIENCE FOUNDATION
WASHINGTON, D.C. 20550



OFFICE OF THE
GENERAL COUNSEL

17 APRIL 1991

Ann S. Viksnins
Patents and Licensing
Office of Research and Technology Transfer
University of Minnesota
1100 Washington Avenue South, Suite 201
Minneapolis, MN 55415-1226

Subject: NSF funding as a divestive publication

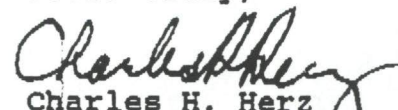
Dear Ms. Viksnins:

We are aware of the recent case (*E.I. du Pont de Nemours v. Cetus Corp*, N.D. CA, December 11, 1990) that held that a research proposal funded by the National Science Foundation was a divestive publication because of its availability under the Freedom of Information Act and NSF cataloging and disclosure procedures. You should note that case involved a proposal submitted to the Foundation before we amended our FOIA regulation (published as part 612 of title 45 of the Code of Federal Regulations) in June 1984. Now a funded proposal will be released only after the submitting organization is notified and allowed to identify portions that it wishes withheld (§612.7(c)) and the statutory FOIA exemption contained in section 205 of the "Bayh-Dole Act" (35 U.S.C. Ch.18) is specifically mentioned (§612.8(a)(3)). NSF believes that those changes sufficiently restrict and record access to funded proposals that the holding of the California case would not apply to proposals funded after June 1984.

I must remind you that the best way to protect the patentability of your institution's inventions would be to identify them before proposals describing them are submitted to us and then either file patent applications or at least segregate and mark relevant portions of the proposals as proprietary (see discussion under the heading "Proposals as Public Record" on page 15 of the *Grants for Research and Education in Science and Engineering*, NSF 90-77, August 1990).

If you have any further questions, D. Matthew Powell is the attorney responsible for FOIA matters. He can be reached on (202) 357-9435 (voice) and (202) 357-7521 (facsimile) and can receive electronic mail as dpowell@nsf.gov through BITNET and as dpowell@nsf.gov through INTERNET.

Yours truly,


Charles H. Herz
General Counsel

NATIONAL SCIENCE FOUNDATION
WASHINGTON, D.C. 20550

nsf DATE 18 APR 91

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TO: Don Payer

FAX NO: 395-3719

FROM: J. Chesser

EXT: 357-9435

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1990 U.S. Dist. LEXIS 18382 printed in FULL format.

E.I. DU PONT DE NEMOURS & CO., a Delaware corporation,
Plaintiff, v. CETUS CORPORATION, a Delaware corporation,
Defendant

No. C 89-2860 MHP

UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF
CALIFORNIA

1990 U.S. Dist. LEXIS 18382

December 11, 1990, Decided
December 11, 1990, Filed

JUDGES: [*1]

Marilyn Hall Patel, United States District Judge.

OPINIONBY: PATEL

OPINION: ORDER

BACKGROUND

Plaintiff Du Pont brings this action seeking a declaration of invalidity of defendant Cetus Corporation's U.S. patents 4,683,202 ("202 patent") and 4,683,195 ("195 patent"), which encompass the process of polymerase chain reaction ("PCR") using an exponential process of replication.

In its motion for summary judgment, plaintiff argued that a National Science Foundation grant proposal submitted by Dr. Gobind Khorana ("NSF Grant Proposal") anticipates the subject matter of the '202 patent and thus invalidates the patent under 35 U.S.C. § 102(b).

In its opposition to plaintiff's motion, defendant argued that a material issue of fact exists as to whether the Khorana Grant Proposal is prior art. Specifically, defendant claimed that the Grant Proposal was not adequately stored and indexed, and hence was not sufficiently accessible to the interested segment of the public to constitute a "printed publication" under section 102(b). In addition, defendant noted that the Grant Proposal had a vague title ("Chemical and Biological Studies of Nucleic Acids").

The court found that, for the purposes of summary [*2] judgment, sufficient evidence had been presented that the Grant Proposal was accessible to the relevant public prior to one year before the date of the patent application to treat it as prior art. However, the court concluded that even assuming arguendo that the Grant Proposal met the standard for prior art, it did not describe the process of PCR with sufficient precision and detail to constitute anticipation of defendant's patent under section 102(b) as a matter of law.

During review of the issue at pre-trial conference on November 20, 1990, defendant informed the court that it intended to challenge at trial the Grant Proposal's status as prior art, and that it also intended to introduce a later grant application submitted by Dr. Khorana to the National Institutes of

1990 U.S. Dist. LEXIS 18382, *2

Health ("NIH Grant Application") as prior art "pointing away" from anticipation. The court indicated its desire to avoid lengthy digression on this issue during trial, and stated that it would review the submissions of the parties to determine whether the issue could be decided by the court as a matter of law.

Having undertaken this review of the parties' arguments and the governing case law, the court finds that there [*3] is ample, undisputed evidence of the accessibility of the NSF Grant Proposal to the relevantly skilled and interested public, and that the law does not require the strong showing of "highly likely discovery of the prior art" suggested by defendant during the pre-trial conference. The court concludes that no jury could reasonably find that the NSF Grant Proposal was not prior art within the meaning of section 102(b). In addition, on the basis of the same arguments and considerations, it concludes that no jury could reasonably find that the NIH Grant Application was not prior art within the meaning of section 102(b). Therefore, the only issue remaining for trial is whether this prior art anticipated the patents under section 102, or otherwise rendered them obvious under section 103.

DISCUSSION

The statute governing anticipation of patents provides that

[a] person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication . . . more than one year prior to the date of the application for patent in the United States,

35 U.S.C. § 102.

A printed publication is a publication that is "sufficiently accessible" to members [*4] of the public who are interested in the art and exercise "reasonable diligence." *RCA Corp. v. Data Gen. Corp.*, 701 F. Supp. 456, 468 (D. Del. 1988) (citing *In re Hall*, 781 F.2d 897, 900 (Fed. Cir. 1986)), judgment aff'd, 887 F.2d 1056 (Fed. Cir. 1989). The relevant time period in this case is prior to March 28, 1984, one year before the filing of the '202 application.

Whether a document is a printed publication within the meaning of section 102 is a legal determination, although it may involve underlying questions of fact. *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 936 (Fed. Cir.) (citing *Hall*, 781 F.2d at 899 (Fed. Cir. 1986)), cert. denied, U.S. , 111 S. Ct. 296 (1990).

Publication does not require dissemination in books or journals. Rather, given the advanced technology in information storage and retrieval, the courts regard "public accessibility" as the touchstone in determining whether a reference constitutes a printed publication under 35 U.S.C. § 102(b). *Hall*, 781 F.2d at 898-99. In *Hall*, for example, the court found that a doctoral thesis that had been indexed, catalogued and shelved in the Freiburg University library was sufficiently [*5] available to the relevant interested public to constitute prior art.

Defendant cites several cases in which courts have found various scholarly publications not to be prior art, but these cases are clearly distinguishable. In *Application of Bayer*, 568 F.2d 1357 (C.C.P.A. 1978), the court held that a

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1990 U.S. Dist. LEXIS 18382, *5

graduate thesis held in a university library was not prior art where, as of the critical date for availability, it had not been catalogued or shelved and was available only to the student's thesis committee. Id. at 1359.

The court in *In re Cronyn*, 890 F.2d 1198 (Fed. Cir. 1989), also cited by defendant, held that undergraduate senior theses filed in the college's main and departmental libraries were not printed publications. Id. at 1161. It found that the theses had not been "either cataloged [sic] or indexed in a meaningful way," since they were referenced only by index cards filed alphabetically by author and held in a shoebox in the chemistry department. The court distinguished *Hall*, in which doctoral dissertations had been indexed, catalogued, and shelved, and noted that such systematic storage and indexing is the "critical difference" in determining whether a document [*6] is a "printed publication." Id.

In the case at bar, by contrast with both *Bayer* and *Cronyn*, deposition testimony of Brian Mannion, Section Head of Grants and Awards for NSF, indicates that Dr. Khoranas NSF Grant Proposal was filed, indexed by title, author, institution and grant number in the NSF's published indices of grants and awards beginning in 1973. Mannion Decl. (Ex. E of Newland Decl.), Ex. 2. In addition, the Proposal was available upon request from NSF under the Freedom of Information Act, 45 C.F.R. § 612 et seq., well before the date of application of the PCR patents. Mannion Decl. at paras. 2-5.

Defendant suggests that the relevant test for accessibility is whether one skilled in the relevant art is likely to have encountered or tracked down the prior art, and argues that this inquiry presents an issue of fact to be resolved at trial. However, none of the cases submitted by defendant support this proposition. Under all of the existing case law, the appropriate inquiry in this case is not whether a DNA researcher would have come across the Khorana Grant Proposal or references to it in the course of her work, but rather whether the Proposal was "sufficiently [*7] accessible" to a researcher who exercised "reasonable diligence." Thus, the emphasis is on systematic indexing and availability upon request.

However, even under the more strenuous standard proposed by defendant, the Grant Proposal would qualify as prior art. Dr. Khorana was preeminent researcher and pioneer in the field of DNA technology at the time of the grant and thereafter; it was widely known in the scientific community that groundbreaking work was being done in his laboratory. Thus, anyone interested in the field would have been alert to the publications under Khorana's name, and defendant does not dispute this. Moreover, the Grant Proposal itself was cited by grant number in the 1974 article published by Panet and Khorana in the *Journal of Biological Chemistry*. Newland Decl., Ex. G. Any researcher interested in DNA replication is likely to have come across the article and would have been alerted to the relevance of the Khorana Grant Proposal from that citation.

The same reasoning applies to Dr. Khorana's 1975 grant application to the National Institutes of Health, through what was then the Department of Health, Education, and Welfare. This application was titled "Synthetic [*8] and Biological Studies of Nucleic Acids," and its predecessor grant, like the NSF Grant Proposal, was referenced by grant number on the first page of the Panet and Khorana article in the *Journal of Biological Chemistry*. Newland Decl., Ex. G. Access to the NIH Grant Application prior to March 28, 1984 was available under the Freedom of Information Act pursuant to 45 C.F.R. § 5.72(b), which provides that records pertaining to Department of Health and Human Services

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1990 U.S. Dist. LEXIS 18382, *8

grant applications are available to the public under the Act. See 45 C.F.R. § 5.1 et seq. (1983).

CONCLUSION

For the above reasons, the court concludes that there are no underlying factual disputes and that, even assuming all facts as alleged by defendant, no reasonable jury could find that the Khorana NSF Grant Proposal and the Khorana NIH Grant Application were not accessible to the relevant public prior to March 28, 1984. It therefore rules as a matter of law that the two documents are prior art within the meaning of 35 U.S.C. § 102(b).

"CORRESPONDENCE TRACKING"

TYPE: INFORMATION

DOCUMENT NUMBER: 9120957

FROM: TABOR, Janis: THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

TO: DR. BROMLEY

DATE OF
CORRESPONDENCE: 03/25/91

SUBJECT: A COPY OF THE 1991 FEDERAL POLICY AGENDA OF ASME.

ASSIGNED TO:

ACTION REQUIRED:

SENDER'S DUE DATE:

OSTP DUE DATE:

DATE COMPLETED:

COPIES TO: D. Allan Bromley
Thomas Ratchford
Dr. Wong

WHITE HOUSE TRACKING #:

CONTACT PERSON:

REMARKS:

DATE RECEIVED: 04/01/91

FILE: POLICY

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The American Society of
Mechanical Engineers

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Suite 218
1825 K Street, N.W.
Washington, DC 20006-1202
202-785-3756

March 25, 1991

OFFICE OF
DIRECT

The Honorable D. Allan Bromley
Assistant to the President for Science
and Technology and
Director, Office of Science and
Technology Policy
Room 360, Old Executive Office Building
Washington, DC 20506

Dear Mr. Bromley:

The American Society of Mechanical Engineers is pleased to provide you with a copy of the 1991 *Federal Policy Agenda of ASME*.

This *Agenda* presents the main policy interests of the Society for the year. Among these are topics that are also high on the administration's agenda, including national energy policy, Clean Water and Resource Conservation and Recovery Act reauthorizations, math and science education, and national critical technology initiatives. The mechanical engineering community has the technical perspective and public interest to contribute much in deliberations on these topics, and we are very active at both the federal and state government levels.

Established in 1880, ASME is a non-profit educational and technical organization with approximately 118,000 members, including 21,000 students. ASME serves its members, industry, and government by encouraging the development of new technologies while helping to solve the problems of an increasingly technological society.

We look forward to continuing our work with the administration this year. If you would like additional information or if we may be of service, please let us know.

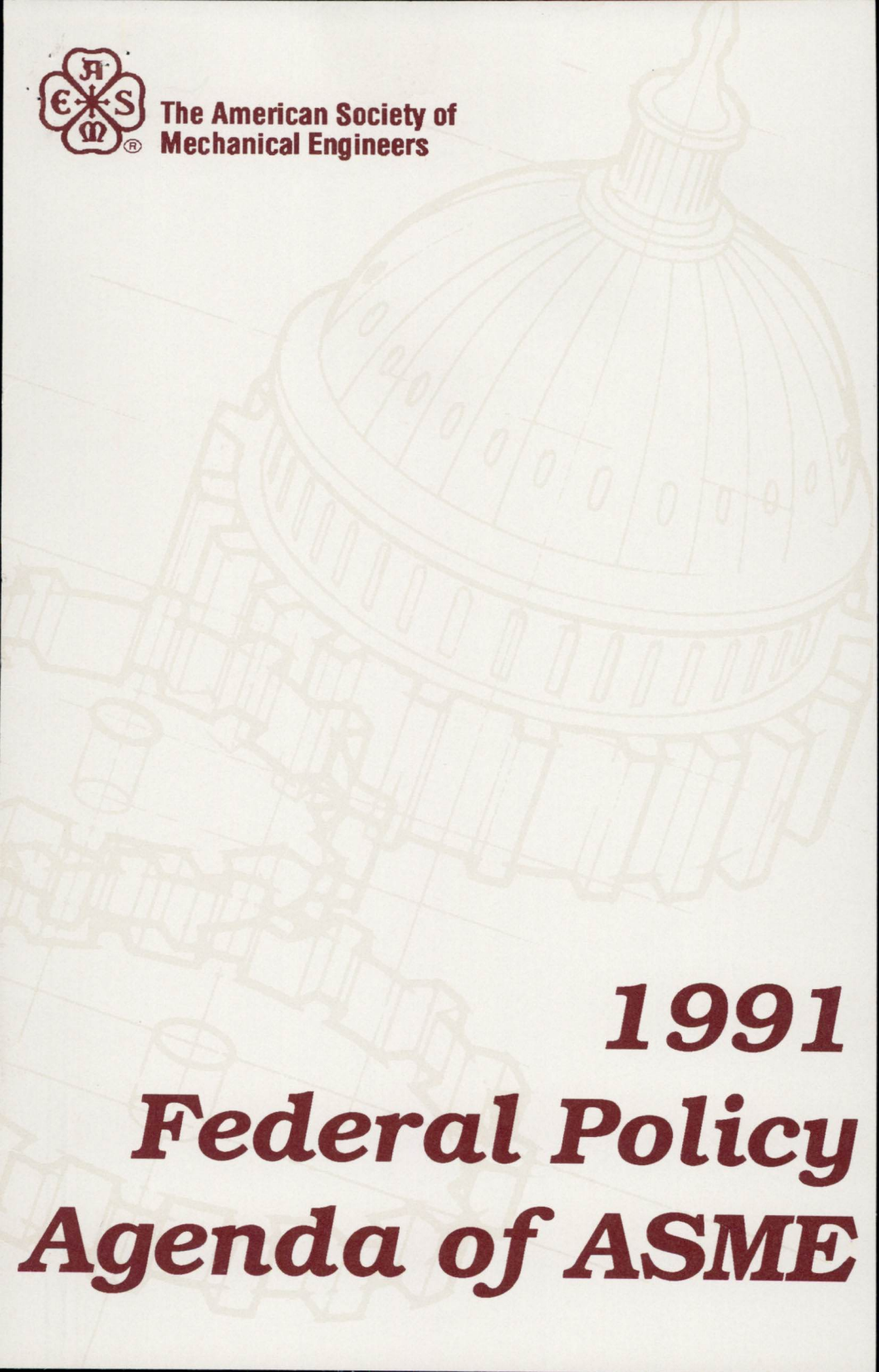
Sincerely,

Janis Tabor
Director
Government Relations

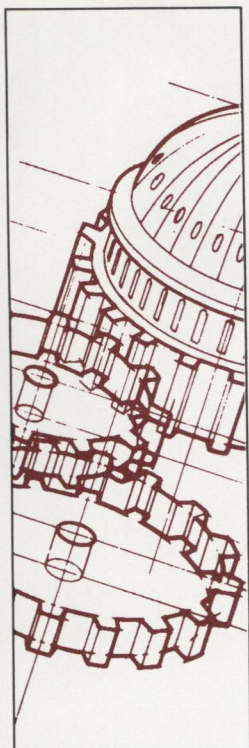
Enclosure



The American Society of
Mechanical Engineers



1991 Federal Policy Agenda of ASME



The *Federal Policy Agenda* of ASME is published annually by the American Society of Mechanical Engineers to:

- Establish and focus priorities for public policy issues to be addressed by ASME in that year.
- Help inform the ASME membership, interested associations and societies, Congress and other government officials about the Society's priority public policy concerns.
- Provide an updated listing of current ASME positions related to these issues.

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Technology Policy	6
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For additional copies of this brochure, copies of ASME position statements listed, or an index to all position statements released since 1985, please contact:

The American Society of Mechanical Engineers
Government Relations Department
1825 K Street, N.W., Suite 218
Washington, D.C. 20006-1202
Telephone: (202) 785-3756
Facsimile: (202) 429-9417

ASME in Brief

The American Society of Mechanical Engineers (ASME), established in 1880, is a worldwide engineering society focused on technical, education, and research issues, with 118,000 members, including 21,000 students. ASME serves its members, industry, and government by encouraging the development of new technologies, while helping to solve the problems of an increasingly technological society.

ASME has 35 technical divisions, three institutes, and numerous inter-disciplinary programs that conduct more than 30 national and international meetings each year. The Society has 197 local sections in the United States, its possessions, Canada, and Mexico, and 7 chapters in other countries. There are about 300 student sections at colleges and universities.

ASME is one of the world's largest technical publishers. In addition to its general interest publications, including *Mechanical Engineering* magazine, the Society publishes 16 quarterly transaction journals, *Applied Mechanics Review*, proceedings and technical papers from conferences, technical monographs, and codes and standards.

ASME Government Relations

A fourteen-member Board on Government Relations under the Council on Public Affairs has responsibility for development and oversight of the Society's government relations programs at the federal, state, and local levels. The programs are administered by a government relations staff in the ASME Washington Center.

ASME's government relations programs are designed to attract and facilitate broad member participation. The objective of these programs is to provide government at all levels with advice on engineering matters and policies affecting the public interest. In addition to Public Affairs, the Society's four other Councils — Engineering, Education, Member Affairs, and Codes and Standards — have participated in various government relations activities, including formulating position statements and conducting workshops on federal policy issues of concern to engineers.

The *1991 Federal Policy Agenda of ASME* reflects many of the public policy concerns of various member groups, as well as issues on which the Board on Government Relations and Council on Public Affairs initiate action. It does not preclude adjustments during the year in response to the dynamic public policy environment. However, the issues in this agenda are expected to receive special attention by ASME in 1991.

ENERGY AND ENVIRONMENT

1991 Agenda

The recent increase in energy awareness as a result of the Persian Gulf war has magnified the importance of the Department of Energy's newly-formed National Energy Strategy. ASME will monitor, review, and comment on key aspects of the Strategy and related congressional energy policy initiatives. In addition, ASME will advocate its position on energy policy as it is affected by environmental concerns such as global warming, acid rain, and waste disposal, and will sponsor a workshop on developing a consensus for a U.S. energy policy at the 1991 Engineering Societies Government Affairs Conference.

Reauthorization of the Resource Conservation and Recovery Act (RCRA), which governs the management and disposal of solid and hazardous wastes, will be one of the most important environmental issues to be addressed by ASME during 1991. The Society will track and comment on legislative action on RCRA, as well as possible congressional action to amend the Clean Water Act.

Current Statements

Department of Energy FY 1991 Budget Request for Conservation and Renewable Energy R&D — June, 1990

Alcohol Fuels — May, 1990

Nuclear Energy Research — April, 1990

Alternative Motor Fuels — March, 1990

Municipal Waste Incinerators — May, September, and December, 1989, March, 1990

Clean Air Act — October, 1989

Energy and the Environment — June, 1989

National Energy Policy Plan — June, 1989

EDUCATION

1991 Agenda

ASME has long been an advocate of continuing education to keep members of the engineering profession up-to-date in a world of rapid technological change. A skilled engineering workforce is essential for our nation, both domestically and for competitiveness in the international marketplace.

The Society will continue to support continuing education and retraining by renewing efforts to gain permanent extension of Section 127 of the Internal Revenue Code. This provision, which allows employees to receive tax-free tuition reimbursement from their employers, is currently set to expire on December 31, 1991.

ASME will also monitor and participate in congressional and presidential initiatives to improve pre-college math and science programs. The Society will collaborate with the American Association of Engineering Societies in an effort to coordinate and maximize engineering societies' activities to address elementary science and math education needs.

Current Statements

Engineering Education and the National Laboratories —
August, 1990

Renewal of Section 127, Employer Educational Assistance —
March, 1988

Industrial Transition: Public Policies for the Labor Force —
August, 1987

PROFESSIONAL ISSUES

1991 Agenda

ASME is not only concerned with government policies involving the technical interests of mechanical engineers, but also with policy issues affecting their professional lives. In 1991, ASME will address volunteer and professional liability issues and pension reform.

Volunteer Liability — Volunteers for non-profit and charitable organizations occasionally become the targets of lawsuits arising from their volunteer work. Because volunteers are the backbone of ASME, the Society supports legislation that provides protection for volunteers from personal civil liability. The Society participates in the National Coalition on Volunteer Protection, which promotes federal legislation encouraging states to exempt volunteers from liability.

Professional Liability — ASME is vitally concerned about the adverse impact current tort laws have on engineers and new technology development. Without reform, many important engineering projects and products may not advance. ASME supports legislative initiatives on the federal and state levels to mitigate the liability problem.

Pension Reform — Given that many engineers must frequently change employers because of rapid economic and technological developments, ASME members can be at a particular disadvantage under current pension policies. As a member of the American Association of Engineering Societies' Engineers and Scientists Joint Committee on Pensions, the Society supports legislation to reform pension policies, including shorter vesting periods and increased portability.

Current Statements

Professional Engineer Registration — December, 1990

Professional Liability — October, 1989

Volunteer Liability — May, 1988

TECHNOLOGY POLICY

1991 Agenda

Many U.S. industries are losing ground in a marketplace that is increasingly global and competitive. While our science and technology base remains preeminent, we are often unable to retain this edge when it comes to bringing new products to market. The impacts are being felt in our standard of living, position in world affairs, and in the area of national security.

An effective technology policy requires national leadership for allocating our technological resources in ways that will give U.S. industry the best possible advantage. The Bush administration has issued a statement outlining a U.S. technology policy, similar to ASME's own position, which suggests broad, collaborative efforts by industry, government, and academia. This is the first national statement of policy on this issue. In addition, early this year, the White House National Critical Technologies Panel will issue the first list of technologies deemed critical to national competitiveness.

In 1991, ASME will continue to promote the recommendations in its General Position Paper on U.S. Technology Policy, with particular attention to approaches that enhance national support for critical technologies development, support innovation and application of new manufacturing technologies, and foster the effective transfer of technology from federal laboratories to industry, universities, and government.

Current Statements

Critical Technologies — December, 1990

International Codes and Standards — April and June, 1990

U.S. Technology Policy — April, 1990

Management of Science, Engineering, and Technology by the Federal Government — January, 1989

Restoring America's International Competitiveness — May, 1987

FEDERAL R&D

1991 Agenda

As the nation's decision makers grapple with the ever-increasing federal budget deficit, federal funding for engineering research and development is increasingly vulnerable. During this challenging period, ASME will provide information and advice on mechanical engineering and related R&D programs to Congress and the administration to assist them in setting appropriate national research priorities.

In 1991, the Society will continue to analyze proposed R&D budgets of federal agencies involved with significant mechanical engineering research and make recommendations to the agencies and Congress. In particular, ASME will examine the proposed R&D budgets of the National Science Foundation, the National Institute of Standards and Technology, the National Aeronautics and Space Administration, the Environmental Protection Agency, the Department of Defense, and the Department of Energy.

As in past years, ASME will participate in the annual American Association for the Advancement of Science analysis of the FY 1992 federal R&D budget. In addition, the Society will track actions on government policies affecting private sector investment in R&D.

Government efforts to promulgate a national space policy that accommodates both civilian and national security interests are of particular importance to ASME. In 1991, the Society plans to conduct meetings with NASA and other administration and congressional offices on safety, technology assessment, risk analysis, and the earth observing system.

Current Statements

DOE Budget Request, FY 1991 — February, April, and June, 1990

NSF Budget Request, FY 1991 — May, 1990

NASA Budget Request, FY 1991 — March, 1990

NIST Budget Request, FY 1991 — February, 1990

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