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Series: Bromley, D. Allan, Files
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OA/ID Number: 62023
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White House Staffing Memoranda (1) [1 of 2] [1992]

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Chorin
12-2-91

WHITE HOUSE STAFFING MEMORANDUM

DATE: 12/2/91 ACTION/CONCURRENCE/COMMENT DUE BY: COB TUESDAY, DEC. 3

ENROLLED RESOLUTION S.J. RES. 187 -- CLEAN AIR ACT TECHNICAL CORRECTION

SUBJECT:

VICE PRES

SUNUNU

SCOWCRC

DARMAN

BRADY

BROMLEY

CARD

DEMARE--

FITZWAT

GRAY

HOLIDAY

*Nancy/Jim - Please
review the attached
bill summaries & type
your recommendations in
the space provided.
(I assume OSTP will either
concur or have no objection
to passage.)*

*Please return these
to me no later
than 10 am on Tues, 12/3*

FYI

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REMARKS:

Ple.
dir.
Tha:

Thanks!

Carl.

x2735

memo
ECEMBER 3.

RESPONSE:

PHILLIP D. BRADY
Assistant to the President
and Staff Secretary
Ext. 2702



EXECUTIVE OFFICE OF THE PRESIDENT

OFFICE OF MANAGEMENT AND BUDGET

WASHINGTON, D.C. 20503

21 NOV 29 P5:30

THE DIRECTOR

November 29, 1991

MEMORANDUM FOR THE PRESIDENT

SUBJECT: Enrolled Resolution S.J.Res. 187 - Clean Air Act
Technical Correction
Sponsor - Sen. Mitchell (D) Maine

Last Day for Action

December 9, 1991 - Monday

Purpose

Deletes hydrogen sulfide from a list of substances requiring stringent regulation under the Clean Air Act Amendments of 1990.

Agency Recommendations

Office of Management and Budget	Approval
Environmental Protection Agency	Approval
Department of Energy	No objection (Informally)
Department of Justice	Defers to EPA (Informally)
Department of Defense	No comment (Informally)

Discussion

Hydrogen sulfide is a gas commonly used in the petrochemical industry. During the conference on the Clean Air Act Amendments of 1990 (Public Law (P.L.) 101-549), it was agreed to delete hydrogen sulfide from a list of hazardous air pollutants requiring stringent regulation by the Environmental Protection Agency (EPA). Due to a clerical error, however, P.L. 101-549 included hydrogen sulfide on the list. S.J.Res. 187, which passed both Houses of Congress by voice vote, would correct this error.

We join EPA in recommending approval of S.J.Res. 187.

Richard Darman
Director

Enclosures

"Document Control"

TYPE: PRIORITY ACTION DOCUMENT NUMBER: 9125012
ORIGINATOR: 05 STATUS C DIRECTORATE STATUS C

FROM: WHITE HOUSE

TO: DR. BROMLEY

DATE OF
CORRESPONDENCE: 12/02/91

SUBJECT: CLEARENCE OF ENROLLED BILL S. 1563 -- NATIONAL SEA
GRANT COLLEGE PROGRAM AUTHORIZATION ACT OF 1991

DIRECTORATE STAFF
ASSIGNED: ASSIGNED: Nancy Maynard

ACTION STAFF
REQUIRED: ACTION: COMMENT TO CB ON 12/2

SENDER'S DUE DATE: 12/03/91
OSTP DUE DATE: STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT: 12/02/91

COPIES TO:

WHITE HOUSE TRACKING #: CONTACT PERSON:
PHONE: EXT:
REMARKS: PER NANCY MAYNARD: "OSTP CONCURS" -- Incomin in Files in
Administrative office; OSTP X-REF File "4-O-1"; File 5

OSTP RECEIVED:
FILE: P-EOP-WH MEMO

DEPT RECEIVED: 12/02/91

CENTRAL FILES:



9125 012

WHITE HOUSE STAFFING MEMORANDUM

DATE: 12/2/91 ACTION/CONCURRENCE/COMMENT DUE BY: NOON. TUE., DEC 3, 1991

ENROLLED BILL S. 1563 -- NATIONAL SEA GRANT COLLEGE PROGRAM
AUTHORIZATION ACT OF 1991

SUBJECT:

	ACTION	FYI		ACTION	FYI
VICE PRESIDENT	☐	☒	HORNER	☐	☐
SUNUNU	☐	☐	MCCLURE	☒	☐
SCOWCROFT	☐	☐	PETERSMEYER	☐	☐
DARMAN	☐	☒	PORTER	☒	☐
BRADY	☐	☒	ROGICH	☐	☐
BROMLEY	☒	☐	SMITH	☐	☒
CARD	☐	☒	CLERK	☐	☐
DEMAREST	☒	☐		☐	☐
FITZWATER	☐	☒		☐	☐
GRAY	☒	☐		☐	☐
HOLIDAY	☒	☐		☐	☐

REMARKS:

Please provide comments on the attached enrolled bill memo directly to this office NO LATER THAN NOON TUESDAY, DECEMBER 3. Thank you.

RESPONSE:

OSTP CONCURS

PHILLIP D. BRADY
Assistant to the President
and Staff Secretary
Ext. 2702



EXECUTIVE OFFICE OF THE PRESIDENT

OFFICE OF MANAGEMENT AND BUDGET

WASHINGTON, D.C. 20503

THE DIRECTOR

November 29, 1991

91 NOV 29 P5:30

MEMORANDUM FOR THE PRESIDENT

SUBJECT: Enrolled Bill S. 1563 - National Sea Grant College
Program Authorization Act of 1991
Sponsors - Sen. Kerry (D) Massachusetts and 13 others

Last Day for Action

December 5, 1991 - Thursday

Purpose

Extends through FY 1995 the appropriations authorizations for the National Sea Grant College Program and amends the program in certain respects.

Agency Recommendations

Office of Management and Budget	Approval
Department of Commerce	Approval
Department of State	No objection (Informally)
Department of Education	Defers to Commerce (Informally)
National Science Foundation	Defers to Commerce (Informally)

Discussion

The National Sea Grant College Program is administered by the National Oceanic and Atmospheric Administration (NOAA) in the Department of Commerce. The program authorizes grants, contracts, and fellowships for research and educational activities involving ocean, coastal, and Great Lakes resources. The authorization for appropriations for the program expired at the end of FY 1990.

S. 1563 would authorize appropriations for the program for FYs 1991-1995. For FY 1992, \$50 million would be authorized. (The enacted FY 1992 appropriation is \$45 million and the Administration's request was \$25 million.) The authorization levels would gradually increase to \$57 million in FY 1995.

The enrolled bill would also:

- Statutorily establish NOAA's existing National Sea Grant College Office, which administers the program.
- Clarify that funds from other Federal agencies may be used to add to previously awarded grants and contracts.
- Repeal authorities for two marine research grant programs that were authorized in 1987 but never funded.

Conclusion and Recommendations

The Department of Commerce strongly supports approval of S. 1563. We join the Department in recommending approval of the enrolled bill, which passed the Senate and House by voice vote.

A handwritten signature in dark ink, appearing to read "Richard Darman", with a long horizontal flourish extending to the right.

Richard Darman
Director

Enclosures

*for
Kion out*

"Document Control"

TYPE: WHITE HOUSE MEMORANDUM DOCUMENT NUMBER: 9200084
ORIGINATOR: 02 STATUS I DIRECTORATE STATUS C

FROM: BRADY, Phillip D.: ASSISTANT TO THE PRESIDENT AND STAFF
SECRETARY

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 01/08/92

SUBJECT: REQUESTS COMMENTS ON THE FOURTH BIENNIAL REPORT OF
THE INTERAGENCY ARCTIC RESEARCH POLICY COMMITTEE.

DIRECTORATE STAFF
ASSIGNED: ENVIRONMENT ASSIGNED: Jim Waddell

ACTION STAFF
REQUIRED: AS NECESSARY ACTION: COMMENTS TO DAB

SENDER'S DUE DATE: 01/22/92
OSTP DUE DATE: 01/22/92 STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT: 01/22/92

COPIES TO:

WHITE HOUSE TRACKING #: CONTACT PERSON:
PHONE: EXT:
REMARKS: This is a fairly straight forward, non-controversial report to
Congress. Minor point: appendix, pages 1 & 2, list of projects
that are either part of, or are coordinated with, the U.S.
Global Research Program (USGCRP) might be beneficial to make a
comment to that affect. Enviro X-REF Files 5 & 4-A-6

OSTP RECEIVED: 01/13/92 DEPT RECEIVED: 01/13/92
FILE: P-EOP-WHITE HOUSE STAFFING

CENTRAL FILES:



WHITE HOUSE STAFFING MEMORANDUM

DATE: 1/8/92

ACTION/CONCURRENCE/COMMENT DUE BY:

1/22/92

 SUBJECT: FOURTH BIENNIAL REPORT OF THE INTERAGENCY ARCTIC RESEARCH
 POLICY COMMITTEE

ACTION FYI

VICE PRESIDENT

☐ ☐

SKINNER

☐ ☐

SCOWCROFT

☐ ☐

DARMAN

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BRADY

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BROMLEY

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CARD

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ACTION FYI

HORNER

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MCCLURE

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PETERSMEYER

☐ ☐

PORTER

☒ ☐

ROGICH

☐ ☐

SMITH

☐ ☐

CLERK

☐ ☒

REMARKS:

Please provide comments to this office by
 JANUARY 22, 1992. Thank you.

PLEASE RETURN REPORT AFTER REVIEW.

RESPONSE:

PHILLIP D. BRADY
 Assistant to the President
 and Staff Secretary
 Ext. 2702

- D R A F T -

TO THE CONGRESS OF THE UNITED STATES:

Pursuant to the provisions of section 108(b) of Public Law 98-373 (15 U.S.C. 4107(b)), I transmit herewith the Fourth Biennial Report of the Interagency Arctic Research Policy Committee (February 1, 1990, to January 31, 1992).

THE WHITE HOUSE,

This draft transmittal was prepared by the Office of the Executive Clerk.

- D R A F T -

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TO THE CONGRESS OF THE UNITED STATES:

Pursuant to the provisions of section 108(b) of Public Law 98-373 (15 U.S.C. 4107(b)), I transmit herewith the Third Biennial Report of the Interagency Arctic Research Policy Committee (February 1, 1988, to January 31, 1990).

Gay Bush

THE WHITE HOUSE,

February 1, 1990.

- Copy of Test Xmittal -

DRAFT

NATIONAL SCIENCE FOUNDATION

January ____, 1992

The President
The White House
Washington, D.C. 20500

Dear Mr. President:

I am pleased to transmit through you to the Congress the enclosed report required under Public Law 98-373, as amended by Public Law 101-609, the Arctic Research and Policy Act.

The report is submitted on behalf of the Interagency Arctic Research Policy Committee for which the National Science Foundation serves as chair agency. The report lists activities and accomplishments of the Interagency Committee, which was authorized by the Act and established by Executive Order 12501 of January 28, 1985. As required by Public Law 101-609, it also lists, for the first time, agency responses to recommendations of the Arctic Research Commission.

It is a distinct honor for the member agencies to serve on the Interagency Committee and for the National Science Foundation to chair it.

Sincerely,

Walter E. Massey
Director

Enclosure: Biennial Report

FOURTH BIENNIAL REPORT OF THE
INTERAGENCY ARCTIC RESEARCH POLICY COMMITTEE
TO THE CONGRESS
FEBRUARY 1, 1990 TO JANUARY 31, 1992

Prepared by the National Science Foundation
for the Interagency Arctic Research Policy Committee

Section 108(b) of Public Law 98-373, as amended by Public Law 101-609, the Arctic Research and Policy Act, directs the Interagency Arctic Research Policy Committee (IARPC) to submit to Congress, through the President, a biennial report containing a statement of the activities and accomplishments of the IARPC. The IARPC was authorized by the Act and was established by Executive Order 12501 dated January 28, 1985.

Section 108(b)(2) of Public Law 98-373, as amended by Public Law 101-609 directs the IARPC to submit to Congress, through the President, as part of its biennial report, a statement "dealing with particularity the recommendations of the Arctic Research Commission with respect to Federal interagency activities in Arctic Research and the disposition and responses to those recommendations." In response to this requirement, the IARPC has examined all recommendations of the Arctic Research Commission since it was established in 1985. The required statements appear in Appendix A.

During the period February 1, 1990 to January 31, 1992, the IARPC has:

- o Prepared and published the second biennial revision to the United States Arctic Research Plan, as required by Section 108(a)(4) of the Act. The President transmitted the Plan to Congress on July 23, 1991.
- o Published and distributed four issues of the journal Arctic Research of the United States. The journal reviewed all Federal agency arctic research for FY 1989 and 1990 and included summaries of the IARPC and Arctic Research Commission meetings and activities. The Spring 1991 issue contained the full text of the second biennial revision to the U. S. Arctic Research Plan.
- o Consulted with the Commission on policy and program matters described in the Section 108(a)(3), was represented at all meetings of the Commission, and responded to Commission reports on goals and objectives, logistics and data. (Appendix A.)
- o Continued the processes of interagency cooperation and coordination required under Section 108(a)(6), (7), (8) and (9);
- o Provided input to an integrated budget analysis for arctic research for the President's budget, which identified \$116 million in Federal support for fiscal year 1990, and \$128 million in fiscal year 1991.
- o Provided for public participation as required in Section 108(a)(10), which culminated in public involvement in the development of the recommendations and the second biennial revision to the Plan at a meeting in Anchorage in March 1991.

- o Prepared a strategy report, published in January 1991, for an FY 1992 interagency arctic program that identified four key science elements for future research and coordination (Western Arctic Ocean Circulation and Productivity; Arctic Basin Geodynamics; Arctic Environmental Monitoring; and the Bering Land Bridge Program). (Appendix B.)
- o Participated in the development of testimony on federal arctic research for hearings on April 24, 1991 by the National Ocean Policy Study of the Senate Committee on Commerce, Science, and Transportation, and hearings on May 13, 1991 by the Science, Technology, and Space Subcommittee of the Senate Committee on Commerce, Science, and Transportation.
- o Prepared and updated the Arctic Environmental Data Directory, which now contains information on 350 arctic data sets, and published Arctic Data Interactive (ADI), a prototype CD-ROM (compact disc - read only memory) product containing arctic environmental data and information.
- o Established an Interagency Social Sciences Task Force and prepared a coordinated social sciences and health research plan. Of special concern is research on the health of indigenous peoples and research on the Arctic as a unique environment for studying human/environmental adaptation and sociocultural change.
- o Approved an Interagency Statement of Principles for the Conduct of Research in the Arctic to encourage communication and scientific partnerships with northern indigenous peoples (published in the second biennial revision to the United States Arctic Research Plan).
- o Participated in the establishment of the non-governmental International Arctic Science Committee.
- o Participated in policy formulation and official endorsement of the June 1991 international agreement for an Arctic Environmental Protection Strategy. This strategy contains a set of principles and objectives for the protection of the Arctic environment. It also established the Arctic Monitoring and Assessment Program (AMAP) to provide a forum for international harmonization of Arctic monitoring programs. IARPC's Environmental Monitoring Working Group serves as a U.S. focal point for AMAP and coordinates domestic monitoring efforts.
- o Convened two formal meetings of the Committee, in June, 1990 and June, 1991.

Appendix A:
Disposition and Response to Recommendations
of the
Arctic Research Commission

The Commission's recommendations appear in a series of publications, as follows:

1. National Needs and Arctic Research: A Framework for Action (May 1986)
2. Entering the Age of the Arctic (Annual Report, January 1988)
3. Logistic Support of Arctic Research (July 1988)
4. Goals and Objectives to Guide United States Arctic Research (December 1988)
5. Arctic Data and Information: Issues and Goals (June 1989)
6. Improvements to the Scientific Content of the Environmental Impact Statement Process (December 1989)
7. Arctic Engineering Research: Initial Findings and Recommendations (April 1990)
8. Logistic Support of United States Research in Greenland: Current Situation and Prospects (December 1990)
9. Goals, Objectives and Priorities to Guide United States Arctic Research (January 1991)

The Interagency Arctic Research Policy Committee's response to these recommendations appears in TABLE I. Recommendations have been summarized and combined, where appropriate; the full text of Arctic Research Commission recommendations may be found in the documents referenced under the column headed Source in TABLE I. The Interagency Arctic Research Policy Committee's responses to the Arctic Research Commission recommendations appear in the column headed Disposition and Response. Many of these responses refer to the Second Biennial Revision to the U.S. Arctic Research Plan, published in the journal Arctic Research of the United States, Volume 5, Spring 1991 (abbreviated in TABLE I as USARP 1991). The U.S. Arctic Research Plan was sent to the Congress by the President on July 23, 1991.

TABLE 1

INTERAGENCY ARCTIC RESEARCH POLICY COMMITTEE
Disposition and Response to Recommendations of the Arctic Research Commission

<u>RECOMMENDATION</u>	<u>SOURCE</u>	<u>IMPLEMENTING AGENCIES</u>	<u>DISPOSITION AND RESPONSE</u>
<u>Arctic as a Component of Global Earth System</u>			
Research to understand the Arctic Ocean, especially the Bering and marginal sea, sea ice, and sea bed.	1 4	NSF, DOC, DOD, DOI, NASA	Programs being implemented in accordance with Section 2.1, 2.2, 3.1, USARP 1991. See also Arctic Oceans Research: Strategy for an FY 91 Program, published by IARPC, Jan 1990.
<u>Support research program to determine role of sea ice in controlling arctic living resources</u>	2	NSF, DOD, DOC, NASA, DOI	Programs being implemented in accordance with Section 2.1, 3.6.3 USARP 1991
<u>Research to understand the coupled land and atmosphere components of the Arctic system.</u>	1 4	NSF, DOC, DOD, NASA, DOI, DOE	Programs being implemented in accordance with Section 3.4, USARP 1991
<u>Systematic long-term monitoring of arctic atmosphere, land sea-surface parameters, sea ice and glacier behavior, and other sensitive climate indicators.</u>	4	EPA, DOC, NSF, DOI, NASA, DOE, DOD	Arctic Monitoring and Assessment Program under development in accordance with Section 2.3 USARP 1991.
<u>Assessment of the full extent and causes of stratospheric ozone depletion in the Arctic.</u>	4	DOC, NASA, NSF	Programs being implemented in accordance with Section 2.3, 3.2.3 USARP 1991. NASA observations have verified depletion in the Arctic.

<u>RECOMMENDATION</u>	<u>SOURCE</u>	<u>IMPLEMENTING AGENCIES</u>	<u>DISPOSITION AND RESPONSE</u>
Research to understand the high-latitude upper atmosphere and its extension into the magnetosphere.	1 4	NSF, DOC, DOD, NASA, DOI, DOE	Programs being implemented in accordance with Section 3.2, USARP 1991.
Research in the health-culture-socioeconomic system: to identify and resolve the major health, behavioral, and cultural problems that derive from distinctive characteristics of the Arctic environment.	1 4	USDA, DOC, HHS, DOI, DOD, SI, State, NSF	Programs being implemented in accordance with Section 3.6, USARP 1991. Beringia program initiated, See Section 2.4, USARP 1991. Federal (HHS) - Alaska research cooperation.
Support four areas of arctic health research: injury control, cancer, diet, and infectious diseases.	2	HHS, DOD	Programs being implemented in accordance with Section 3.6.3 USARP 1991.
Research on the Arctic as a component of the global economic system	9	NSF, EPA, DOI, DOE DOC	NSF Arctic Social Sciences Program established, 1990. First research awards made in 1991. Also see Section 3.3 USARP 1991.
The economic importance of the commercial fishery in the Bering Sea to the U.S., Japan, and other nations requires a deeper understanding of that marine ecosystem as a rational basis for the prudent management of biotic resources and the safeguarding of U.S. interests in this area.	4	DOC, DOI, SI, NSF	Programs being implemented in accordance with Section 2.1, 3.1.2 and 3.6.2, USARP 1991.

<u>RECOMMENDATION</u>	<u>SOURCE</u>	<u>IMPLEMENTING AGENCIES</u>	<u>DISPOSITION AND RESPONSE</u>
Development of a program of enhanced science education at the elementary and high school levels in arctic Alaska.	4	NSF, DOI, SI	Federal support is available through NSF for Native American curriculum development. Other programs being implemented in accordance with Sections 3.6.1 and 3.6.2, USARP 1991.

Environmental Impact Statement Process

Impartial external scientific and engineering review mechanisms should be established (for environmental reviews).	6	All IARPC agencies	This policy already exists under CEQ regulations, 40 CFR, Parts 1500-1508.
External reviewers should be carefully selected for their expertise in the relevant fields.	6	All IARPC agencies	Agency policy.
External reviewers should be protected from litigation.	6	All IARPC agencies	Reviewers of public documents usually do not face direct litigation.
The full text of all reviews should become part of the public record.	6	All IARPC agencies	Required under Section 102(2)(C) of National Environmental Policy Act.
Agencies should stipulate that new scientific or technical information obtained during the course of an EIS process should be published in the refereed literature.	6	All IARPC agencies	Agency policy.

<u>RECOMMENDATION</u>	<u>SOURCE</u>	<u>IMPLEMENTING AGENCIES</u>	<u>DISPOSITION AND RESPONSE</u>
The identification, review and resolution of environmental issues should be channeled through a single coordination team.	6	All IARPC agencies	Most major EIS's are coordinated by agency interdisciplinary teams.
The Council on Environmental Quality (CEQ) should set guidelines for the implementation of the external review process.	6	CEQ	Guidance already exists in CEQ regulations. CEQ has offered to host an interagency discussion regarding applying these recommendations in the context of a particular EIS.
<u>Arctic Engineering</u>			
The IARPC should develop an arctic engineering research plan with special emphasis on the following priority items: • Oil spill prevention technology, including containment and spill cleanup. • Waste disposal and air pollution control. • Power generation and energy storage. • Improved arctic construction techniques. • Transportation systems for arctic conditions. • Materials and processes with properties for arctic operations.	7	DOT, NSF, DOI, EPA, DOD	Engineering research being implemented. See Section 3.5, USARP 1991. Private Industry research programs complement Federal research.

<u>RECOMMENDATION</u>	<u>SOURCE</u>	<u>IMPLEMENTING AGENCIES</u>	<u>DISPOSITION AND RESPONSE</u>
Priority areas of applied scientific research whose results are of crucial importance for arctic engineering: • Physical properties of ice and snow. • Physical and chemical behavior of arctic soils.	7	NSF, DOD	Research being implemented in accordance with Section 3.1.1, USARP 1991 for physical properties of ice and snow; Section 3.4.2 for arctic soils.
More extensive communication and cooperation should be developed between the various government agencies and the professional societies.	7	All IARPC agencies	Most communication and cooperation is on the basis of individual participation in professional society activities.
High priority should be given at U.S. universities to the improvement of existing, and the development of new engineering courses and programs.	7	NSF, DOD	Federal support is available for curriculum development.
The U.S. should support a strong component of cooperative arctic engineering research in the programs of the International Arctic Science Committee (IASC).	7	NSF, DOD, DOC	IASC programs are under development at the time of this report.
<u>Arctic Data and Information</u>			
IARPC should take the lead in developing U.S. policy directives for the management of arctic data and information.	5	All IARPC agencies	Data Policy Statement developed in context of Global Change Research Program.

<u>RECOMMENDATION</u>	<u>SOURCE</u>	<u>IMPLEMENTING AGENCIES</u>	<u>DISPOSITION AND RESPONSE</u>
Arctic data policy and guidelines should be based on the needs of the user community.	5	All IARPC agencies	Prototype Arctic Environmental Data Directory Working Group (AEDDWG) involves agency, academic, international Arctic community.
An adequate portion of funds allocated to arctic research by the Federal Government should be set aside for the successful management of data and the dissemination of information.	5	All IARPC agencies	Some IARPC agencies share funding for AEDDWG; each operates independently with preservation of and access to Arctic data and information.
An Arctic Data and Information System (ADIS) should be planned and developed under the guidance of IARPC to handle publicly available scientific and technical data and information.	4 5	All IARPC agencies	Preliminary effort is joint development of Arctic Environmental Data Directory, linked to Earth Science Data Directory. Arctic data are referenced, but data reside in host agencies.
The policy and plans for an ADIS should address the following, listed in order of decreasing priority: (1) interlinking data and information; (2) defining needs for environmental monitoring and long-term data; (3) ensuring quality control of data;	5	All IARPC agencies	Programs being implemented in accordance with Section 2.5, USARP 1991. OSTP policy addresses priorities 1,3,5,6,7 and 9. Interagency plans for the prototype Arctic

RECOMMENDATION

SOURCE

IMPLEMENTING AGENCIES

DISPOSITION AND RESPONSE

(4) devising strategies to arrest the proliferation of "gray literature"; (5) improving the mechanisms for international exchange of arctic data and information; (6) providing for standardization of data and information; (7) minimizing the cost to the user of data and information services; (8) safeguarding confidentiality (9) providing for the recording of historical and proxy data; (10) protecting data and information from environmental and human hazards.

Environmental Data Directory address the first steps for priorities 1,2,3,5,6,7,9,10. Agency and interagency plans for the Arctic Data and Information System are preliminary, viewing development of the Global Change Data and Information System as the model to follow.

IARPC should consider a cooperative interagency agreement as the vehicle for the implementation of arctic data and information policy.

All IARPC agencies

5

OSTP Data Policy Statement provides policy guidelines for "full and open sharing" of scientific data and information.

Arctic Logistics

Provide Arctic Research vessel with ice-breaking capabilities

NSF, DOT

1
3
4
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Commenced acquisition of replacement Coast Guard polar icebreaker. Bids opened Oct 11, 1991. Contract award Feb/Mar 1992.

<u>RECOMMENDATION</u>	<u>SOURCE</u>	<u>IMPLEMENTING AGENCIES</u>	<u>DISPOSITION AND RESPONSE</u>
			Multi-year upgrade of scientific support capabilities of USCG Polar-class icebreakers nears completion.
			Additional arctic research vessel under consideration by NSF. Conceptual design completed for class 3 ice capable ship.
Support Land-based logistics centers	1 3 4	NSF, DOE, DOD, DOI	Many land based centers exist. See Section 4 of USARP 1991. State of Alaska has published a directory of Federal and State research sites and facilities.
Provide high-latitude sounding rocket launch facility	1 3 4	NSF, DOD, NASA	Poker Flat Rocket Range, Alaska is being upgraded to state of the art capability.
Provide central logistics coordination	1 3 4	NSF, DOD	See Section 4, USARP 1991

<u>RECOMMENDATION</u>	<u>SOURCE</u>	<u>IMPLEMENTING AGENCIES</u>	<u>DISPOSITION AND RESPONSE</u>
<u>Logistics Support of US Research in Greenland</u>			
The Department of Defense (DOD) should give careful consideration to the continuance of an adequate logistic support capability at Sondrestrom Air Force Base.	8	DOD	Department of Defense will terminate operations at Sondrestrom Air Base by September 30, 1992. Air National Guard flights will continue for transport of passengers and cargo.
Alternative scenarios of Danish takeover of Sondrestrom Air Base should be considered.	8	DOD, NSF	Currently under negotiation with Greenland Home Rule Government.
New modes of research operations for the major projects in Greenland should be designed.	8	NSF	The NSF-funded Polar Ice Coring Office would consider new operational modes as projects require.
Closer research ties with Danish and other European researchers should be developed.	8	DOD, NSF, NASA	On-going process. Agencies attend annual meeting with <u>Danish Commission for Research in Greenland</u> .

<u>RECOMMENDATION</u>	<u>SOURCE</u>	<u>IMPLEMENTING AGENCIES</u>	<u>DISPOSITION AND RESPONSE</u>
Agencies should alert the U.S. scientific community concerned with research in Greenland and provide them with details on the ongoing U.S./Denmark negotiations regarding Sondrestrom.	8	All IARPC agencies	Information being provided on an on-going basis.
<u>International</u> Continued vigorous participation of the U.S. in the planning process for the establishment of an International Arctic Science Committee.	4	All IARPC agencies	IASC was established, 1990. U.S. participation is through the Polar Research Board.

SOURCES

1. National Needs and Arctic Research: A Framework for Action (May 1986)
2. Entering the Age of the Arctic (Annual Report, January 1988)
3. Logistic Support of Arctic Research (July 1988)
4. Goals and Objectives to Guide United States Arctic Research (December 1988)
5. Arctic Data and Information: Issues and Goals (June 1989)
6. Improvements to the Scientific Content of the Environmental Impact Statement Process (December 1989)
7. Arctic Engineering Research: Initial Findings and Recommendations (April 1990)
8. Logistic Support of United States Research in Greenland: Current Situation and Prospects (December 1990)
9. Goals, Objectives and Priorities to Guide United States Arctic Research (January 1991)

Appendix B:

Status Reports on IARPC Program Implementation

The Interagency Arctic Research Policy Committee (IARPC) is developing integrated interagency programs to meet national needs for arctic research. At its June 5, 1991 meeting, the IARPC Chairman requested that status reports on implementation of these integrated interagency programs be included in this biennial report. Reports on these IARPC programs follow:

I. Arctic Ocean/Atmosphere Research

The Arctic Ocean/Atmosphere Research Working Group was formed in 1989. It is coordinating multiagency research programs for the Bering-Chukchi-Beaufort Sea region based on the following agency programs.

The National Science Foundation's (NSF) Arctic System Science (ARCSS) Program is an Arctic-wide study to understand the physical, geological, chemical, biological, and social processes of the arctic system that interact with the total Earth system and thus contribute to or are influenced by global change. Its Ocean-Atmosphere-Ice Interactions component initiated 26 projects in Fiscal Year 1991.

The Office of Naval Research's (ONR) Arctic Sciences Program has three principal components that include or are being conducted in the western Arctic: Arctic Research, Sea Ice Mechanics, and LEADEx (a study of large open cracks, or leads, in pack ice and their implications for air-sea coupling). A pilot study related to leads investigations was initiated in FY91.

NASA's Alaska Synthetic Aperture Radar (SAR) Facility began acquiring and processing SAR images and derived products from the ERS-1 satellite shortly after launch of the satellite in July 1991. Distribution of these products to the research community will begin as soon as approval to do so is received from the European Space Agency. Meanwhile, the National Snow and Ice Data Center (NSIDC) is continuing routine distribution of CD-ROM data disks containing high-latitude information derived from the passive-microwave sensors Scanning Multichannel Microwave Radiometer (SMMR) and Special Sensor Microwave/Imager (SSM/I). NASA-supported research using data from the Alaska SAR Facility and from NSIDC addresses primarily the role of the Arctic in global climate, with a focus on ocean/ice/atmosphere interactions. This work complements the process studies and in situ investigations supported by other agencies. NASA is also assessing the feasibility of using airborne laser altimeters to monitor the mass balance of the Greenland Ice Sheet.

NOAA's arctic research capabilities address mission-related specific problems and support other agency programs (e.g., ONR studies of leads). NOAA's Fisheries Oceanography Coordinated Investigations (FOCI) is examining the rich fisheries of the Bering Sea with a focus on pollock. NOAA conducted assessments of bottom fish and shellfish resources, and continued studies of certain marine mammals (e.g., northern fur seals and sea lions, and bowhead whales) in the Bering Sea. A joint study of the ocean circulation from Bering Strait into the Arctic basin was undertaken with Russian researchers.

NOAA and the Navy initiated studies to improve predictions of sea ice through communication of synthetic aperture radar (SAR) data from the NASA-supported Alaska SAR Facility at the University of Alaska to the Navy/NOAA Joint Ice Center (JIC) in Suitland, Maryland. The Navy/NOAA JIC is also expanding the Arctic Drifting Buoy Program through an interagency coordination effort established to maintain a network to satisfy both operational and global change research requirements.

The Office of the Oceanographer of the Navy continued to modernize and improve its sea ice analysis and forecasting capabilities at the JIC through the development of the Digital Ice Forecasting and Analysis System (DIFAS), the Polar Ice Prediction System (PIPS) ice forecasting model, and a communications link between U.S. and Canadian ice centers for the routine exchange of sea ice and iceberg data and products.

The Fish and Wildlife Service continued cooperative investigations with Russia to improve and standardize methods for Pacific Walrus assessments. Studies of polar bears continued, including investigations of potential impacts of oil exploration on the Arctic National Wildlife Refuge.

Marine Geology and Geophysics

The Office of Naval Research, U.S. Geological Survey, and NSF Marine Geology and Geophysics programs conduct projects to understand the Arctic continental margin and deep ocean basin, one of the least understood geological regions of the world. Geophysical and geological research is underway to understand the tectonic history, geological structure, sediment distribution, and climatic and glacial history of the deeper basin.

Current marine geology and geophysics programs include a sediment dynamics field effort led by ONR with participation by USGS and NSF in the Storfjorden and Kangerdlugssuaq Fjords. Extensive sediment coring by the POLAR STAR and POLARSTERN was accomplished in the eastern Arctic as part of the International Arctic Oceanographic Expedition; and an airborne gravity meter/magnetometer survey was completed over the southern half of Greenland by Navy/Defense Mapping Agency.

II. Arctic Monitoring

The Arctic Monitoring Working Group was established by the Interagency Arctic Research Policy Committee (IARPC) at its June 5, 1991 meeting to support the newly developed international Arctic Monitoring and Assessment Program (AMAP). The Committee directed that NOAA and EPA serve as the co-chairs of the Working Group.

The purpose of the Working Group is to promote the integration of U.S. monitoring activities in the Arctic regions, and to provide a focal point for U.S. interactions with the Arctic Monitoring and Assessment Program (AMAP) established by the Arctic Environmental Protection Strategy.

The first meeting of the AMAP Task Force was held in December 1991 in Tromso, Norway. The major issues discussed were: 1) defining a mandate, rules, and procedures

for AMAP, 2) developing a monitoring and assessment framework, 3) tasking lead countries to develop expert reports in the areas of emissions and sources (Secretariat), atmosphere (Canada), marine (Norway), freshwater (Finland), terrestrial (Sweden), human health (Denmark), and remote sensing and modeling (USA), 4) proposing the nature and scope of a harmonized monitoring network, 5) developing a plan for the management of key Arctic data, 6) defining the relationship between AMAP and other international fora, including IASC (the International Arctic Science Committee).

III. Arctic Data and Information

The Arctic Environmental Data Directory Working Group was formed in 1989. Its goal is to develop a system of primary sources for information on data for Arctic environmental research. To achieve this goal, it has developed the Arctic Environmental Data Directory (AEDD), a subset of the Earth Science Data Directory, published and distributed the Arctic Data Interactive (ADI) compact disc, and held workshops and symposia.

The AEDD entries represent significant Arctic holdings managed by several IARPC agencies, several Alaska state and local agencies, various universities which conduct Arctic research, and Ministries in Canada and other Arctic nations. AEDD is maintained by the U.S. Geological Survey.

A prototype digital data publication, the Arctic Data Interactive (ADI), on Compact Disc Read-Only Memory (CD-ROM) was developed to disseminate AEDD. The ADI compact disc was distributed to Arctic scientists, educators, libraries, and the public. The ADI won a Federal design and achievement award and is a candidate for a Presidential Design Achievement Award by the National Endowment for the Arts.

The Group has an outreach program to contact organizations which gather and manage Arctic data and those which use Arctic data and information. Workshops have been held in many Alaska locations, and presentations on Arctic data activities have been given to Federal and academic groups and conferences.

Future priorities are to increase the number of references to Arctic data in the AEDD, especially to the holdings of U.S. agencies, to improve and maintain the quality of the references in AEDD, and to increase socio-economic and health-related data entries. It is working with international programs such as the Arctic Monitoring and Assessment Program to use AEDD to represent Arctic data from other nations.

IV. Arctic Social Sciences/Bering Land Bridge

IARPC's Implementation Working Group on the Bering Land Bridge was established in 1991. Beringia, the lands and seas adjacent to Bering Strait, are a crossroads of the New and the Old Worlds. The region is an important focus of scientific cooperation. Proposals for trans-Beringian research are being formulated by American and Russian scientists. Among the subjects being addressed are North Pacific oceanography and fisheries; paleoecology, botany, and zoology; and the cultures, languages, history, and archeology of native peoples. Other concerns include problems of extracting natural resources without

damaging the environment, and preserving cultural heritage while facilitating human adaptation to rapidly changing environmental, social, economic, and political conditions.

The Smithsonian's international exhibition, "Crossroads of Continents: Cultures of Siberia and Alaska," the National Park Service's Beringian Heritage International Park program, the NSF Arctic Social Sciences Program, and a series of recent international symposia illustrate the potential for trans-Beringian scientific research programs to be implemented through the IARPC. In the summer of 1991 ethnographic and archaeological field projects were initiated in Northwest Alaska with NSF, Smithsonian, and National Park Service support.

1/21/92

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Document No. 294320

WHITE HOUSE STAFFING MEMORANDUM

DATE: 01/17/92 ACTION/CONCURRENCE COMMENT DUE BY: C.O.B. Tuesday 01/21
SECOND DRAFT
SUBJECT: 1992 ECONOMIC REPORT OF THE PRESIDENT, Chapter 5 --
COMPETITIVE FORCES AND REGULATION

	ACTION	FYI		ACTION	FYI
VICE PRESIDENT	☐	☒	HORNER	☒	☐
SKINNER	☐	☒	MCCLURE	☒	☐
SCOWCROFT	☒	☐	PETERSMEYER	☐	☐
DARMAN	☒	☐	PORTER	☒	☐
BRADY	☐	☒	ROGICH	☐	☐
BROMLEY	☒	☐	SMITH	☐	☐
CARD	☐	☒	<u>BROADMAN, Harry</u>	☐	☒
DEMAREST	☒	☐	<u>DELAND</u>	☒	☐
FITZWATER	☐	☒		☐	☐
GRAY	☒	☐		☐	☐
HOLIDAY	☒	☐		☐	☐

REMARKS:

Please provide any comments directly to Harry Broadman, Rm. 314 by COB on Tuesday, 1/21, with a copy to this office. Thanks.

RESPONSE:

Concur with changes on pages 31 and 32

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PHILLIP D. BRADY
Assistant to the President
and Staff Secretary
Ext. 2702



THE CHAIRMAN

EXECUTIVE OFFICE OF THE PRESIDENT
COUNCIL OF ECONOMIC ADVISERS
WASHINGTON, D.C. 20500

January 17, 1992

32 JAN 17 P4:05

MEMORANDUM FOR DISTRIBUTION BELOW

FROM: MICHAEL J. BOSKIN *mjb*
SUBJECT: 1992 Economic Report of the President
Chapter 5 -- Competitive Forces and Regulation

Attached is the second-round staff draft of Chapter 5 of the 1992 Economic Report of the President. Please let us have your comments in memo form by close of business Tuesday, January 21. CEA welcomes comments and suggestions and finds them extremely helpful in preparation of the Report.

Comments should be delivered to the attention of Harry Broadman, Room 314, Old Executive Office Building.

Please note that the draft is for official use only, should be held close, and should not be copied.

Attachment

White House (Brady, Porter, Farrar, Hill)
OMB (Darman, Grady, Hale, Al-Samarrie)
NSC (Scowcroft)
OSTP (Bromley)
USTR (Hills, Moskow, Walters)
CEQ (Deland)
State (Baker, Zoellick, McAllister, Bohlen)
Treasury (Brady, Mulford, Glauber, Wethington, Jones, Hubbard)
Commerce (Mosbacher, Darby, Farren, Obuchowski)
Agriculture (Madigan, Crowder, Gardner)
Defense (Cheney, Wolfowitz, Lilley)
Education (Alexander, Kearns)
Energy (Watkins, Kent, Stuntz)
HHS (Sullivan, Gerry)
HUD (Kemp, Weicher, Humbert, Woodward)
Justice (Barr, Rill)
Labor (Martin, Spurlock, Norwood)
Transportation (Murphy)
Federal Reserve (Greenspan, Prell, Truman, Kohn)
CFTC (Gramm)
FDA (Kessler)
EPA (Morgenstern)

CHAPTER 5

COMPETITIVE FORCES AND REGULATION

GOVERNMENT AT ALL LEVELS affects economic activity through such mechanisms as taxes, law enforcement, and the construction of roads and highways. Regulation, however, generally refers to legal rules that alter the way private companies and others conduct their operations or that mandate government provision of goods and services. "Economic" regulation takes many different forms. It includes regulating prices and limiting the extent of competition in an industry, by establishing, for example, a single local telephone company with rates set by a government body. The government also attempts to protect safety, health, and the environment through "social" regulation.

Economic and social regulation, the main focus of this chapter, are part of a broad class of government activities that affect businesses and consumers. For example, there is a movement to greatly expand the type and amount of specific employee benefits. Many large corporations, however, have begun to provide these benefits on their own. The government also provides services directly, such as mail services through the U.S. Postal Service, and prohibits others from competing for some of these services, including first-class mail. This can be seen as an extreme case of economic regulation, when the government is the sole supplier.

While the intentions of many regulations are laudable, they can have unintended adverse impacts on the general public. For example, oil price controls and allocation schemes, begun in 1971 and abandoned in 1981, exacerbated the effects of the two energy crises of the 1970s by creating gasoline lines and spot shortages. In contrast, during the conflict in the Persian Gulf, the short-lived price spike reflected the potential scarcity of oil created by the war crisis. The higher prices encouraged consumers to reduce their gasoline use, avoiding the need for government allocations. Soon after the war began and it became apparent that future supply disruptions were unlikely to occur, prices receded.

Why are regulations that have an adverse impact on the general public instituted in the first place? One reason is that proponents of increased government regulation fail to consider the costs associated with new regulations, relative to the benefits they are intended to achieve. This failure is particularly common when regulations are developed to reduce exposure to risk. Similarly, regulation to prevent monopoly pricing by public utilities, although intended to benefit consumers, can be costly if it discourages innovation by the utility. A second reason why regulations with an adverse impact exist is that new regulation results from efforts by interest groups to influence legislators and regulatory agencies. The outcome from these efforts can reflect

the influence of a particular interest group rather than overall societal goals. *Appropriate regulation is based on a balancing of costs and benefits to society in general, taking into account hidden costs such as reductions in the incentives for firms to innovate.*

Once in place, regulations often are difficult to eliminate or to change. One reason is that a regulation is a legal rule that can be changed only by legislation or the further actions of a government agency. Also, special interests that would lose from the removal of a regulation that diminishes the well-being of consumers of the consumer resist change. For example, continued restrictions on price cutting on international air routes benefits the owners of some air carriers because they are protected from competition, but consumers in general suffer because they are forced to pay higher fares. Foreign governments that regulate or control air carriers that would not survive in a more competitive market are resisting the change to a more deregulated environment. Deregulation, however, is appropriate when there is reason to believe that, without government intervention, a market will be competitive. Even when some regulation is required, reduced or modified regulation is warranted when the market outcome will be more competitive with less restrictive regulation.

The Administration remains committed to the continued process of deregulating or reducing regulation in markets that are or can be more competitive and to advocating regulation only when there is a strong presumption that the benefits to society exceed the costs. Energy, for example, is an important input into production and is also consumed directly. Increased reliance on the competitive market has improved the ability of the economy to respond to shocks in energy supply. The Administration's National Energy Strategy has proposed regulatory changes that would allow energy markets to function even more effectively. Further reductions in regulation would increase the availability of natural gas, and increase competition in the generation of electric power by encouraging the entry of lower cost, more innovative producers.

Reforming the regulation of financial institutions while ensuring the integrity of the financial sector is another major goal of this Administration. In early 1991 the Administration proposed legislation to address the fundamental problems of the banking industry--the need to recapitalize the Bank Insurance Fund; the need to make banks safer, stronger, and more competitive; the need to attract private capital into the industry; and the need to protect the taxpayer from a costly deposit insurance bailout. The legislation produced by the Congress did little more than provide critical funding for the Bank Insurance Fund. Further legislation is needed to make banks stronger and to restore the

competitiveness of the industry. The regulation of financial markets was analyzed in detail in the 1991 *Report*.

Where regulation remains necessary, the movement toward "incentive regulation," which encourages firms to operate more efficiently, has been a positive regulatory innovation. As a transition to complete deregulation, the Federal Communications Commission (FCC) is now regulating AT&T's rates for long-distance telephone services in a way that encourages the company to minimize costs. The Environmental Protection Agency (EPA) has pioneered the use of a regulatory mechanism that allows the market to determine the most efficient way to achieve air quality levels. While the total burden of clean air legislation will be very great, Administration initiatives will save several billion dollars over the next two decade.

Poorly designed regulations can impose burdens on firms and their workers that in the long run will hurt economic growth. When it is determined that the government should intervene directly, regulatory approaches that use or replicate market forces, rather than impose direct bureaucratic control of output and prices, allow markets to retain their flexibility and encourage the most productive use of the economy's resources.

COMPETITION AND THE ROLE OF GOVERNMENT

The competitive market system has three important features. First, the discipline of competition encourages efficient production. In a competitive market, a firm that does not produce efficiently will have to charge a higher price to make a profit and will lose customers to its more efficient competitors. Ultimately the firm will be driven out of business.

Second, a competitive market ensures that the economy's productive resources are put to their best use. Automobile manufacturers, for example, decide what kind of cars to build based on the relative prices of different parts needed for the car and on what they think consumers will pay for different kinds of cars. As economists since Adam Smith have emphasized, in competitive markets, consumers and producers will be led to an outcome in which the value consumers place on the last unit of output of a good (or service) produced just equals the value that society forgoes in producing it.

Third, competition accommodates changes in consumer demand. If consumers demand more washing machines, store owners will quickly begin to run out of inventories. The price will increase to reflect the increased demand for the existing stock of washing machines. In turn, manufacturers will respond by producing more of them.

One of the roles of government is to establish an institutional framework that is conducive to competition and, when markets are not performing well, to introduce regulation that accomplishes the goal of approximating competitive outcomes.

THE LEGAL SYSTEM

The law determines the ground rules under which market transactions take place. All legal rules, including regulations, impose costs and bestow benefits on different participants in a transaction and therefore alter their incentives. If an inventor knew that another person could copy an innovation and sell it to others, there would be very little incentive to invent in the first place. The legal system protects the inventor by creating specified rights that exclude others from the use of the invention, and therefore conveys the right to require compensation for its use. Besides defining and protecting a person's property rights, the legal system provides a method for enforcing contracts and for compensating people when they are victims of accident or injury.

Among its many benefits, the legal system provides a forum for resolving disputes and establishes the ground rules upon which market transactions take place. But resolving conflicts within the legal system also entails costs. A legal system can constrain economic activity if dispute resolution is slow, if the outcome is uncertain, or if the costs of litigation are high. Reform of the legal system, like regulatory reform, involves setting rules that achieve their aims in the most cost-effective way possible. In the case of the law, the goal is to create rules and a system of adjudication that provides a fair and efficient system for settling disputes.

Property Rights, Contracts, and the Tort System

Ownership of a piece of land gives to the owner the right either to exclude others from or to give them access to the property, generally to the benefits or use of a resource on that property. The deed to a piece of land defines a property right, and the law protects that right by giving the owner access to the courts if someone tries to use the property without the owner's permission. Property rights are not defined in the abstract however. Private property rights are determined by overall societal goals. In the case of land, local zoning laws limit property rights by restricting the types of buildings that can be constructed in a particular neighborhood.

Some regulations have been challenged as violating the Fifth Amendment prohibition against taking private property without just compensation (referred to as "takings"). In several recent

cases, landowners discovered that newly enacted regulations intended to protect wetlands or endangered species prevented them from building on their property. They argued that while the public interest may be served by restricting land use, they should be compensated for their loss. The traditional justification for an uncompensated appropriation of private property--the elimination of a "nuisance"--may not apply in these cases. In determining compensation the courts consider the economic impact of the regulation on the value of the property, and the extent to which the regulation has unreasonably interfered with investment expectations.

The *Lucas* case now pending before the Supreme Court presents these issues in the context of a claim that local beachfront development restrictions, on a lot otherwise suitable for construction, deprived a property owner of all viable use of his land. The United States filed a brief in this case, emphasizing the narrow scope of the government's power to regulate nuisances without paying compensation. A decision in the case will affect the value of land subject to regulation, the incentives of landowners to develop such land, and the incentives of political bodies to take such regulatory actions.

Property rights may also be granted in a form less tangible than a deed to a piece of land. A patent that allows an inventor to receive the profits from his work or a license from the Federal Communications Commission that gives the owner sole rights to use a part of the radio spectrum are also property rights. The licensee of a particular portion of the spectrum would have little incentive to invest in the frequency if any other person could begin broadcasting on the same frequency. By defining what the license is and providing a forum to enforce that right, the legal system allows the license owner to capture the returns from the investment.

The rules of contract law provide for enforcement of agreements and establish remedies when contracts are breached. Even if a person could specify all outcomes when writing a contract, legal enforcement is still necessary to ensure that people will honor the agreement. For example, if a tire manufacturer has contracted to deliver tires to an auto assembler and then does not deliver them, the assembler can go to the courts to have the contract enforced. Without enforcement, people would have to depend exclusively on the good will of others to ensure that the agreement is carried out. The auto assembler can more easily plan production of new cars when the contract for tire delivery is clearly enforceable.

The legal system also includes a system of tort law, whose major goal is to provide victims of accidents and injury the

opportunity to be compensated for their losses. By awarding damages to victims, the tort law creates an incentive for individuals to behave responsibly. Because there is potential for being sued to compensate a victim, people will put more effort into preventing accidents and reducing the potential loss from accidents.

Proposed Reforms for the Legal System

The process of enforcing civil law has been criticized for being costly, arbitrary, and unpredictable and for using unscientific standards. *Because of the way the rules for resolving legal disputes are currently written, parties to a legal case do not consider all of the costs of resolving a lawsuit.* For example, both sides to a legal dispute have almost unlimited ability to take sworn depositions of witnesses, request documents, and submit written questions to each other within the pre-trial process called "discovery." Discovery is provided without payment from the requesting party, so there is virtually no incentive to limit the size of the request. As a result, more information than is necessary is often gathered, adding substantially to the cost of litigation but providing little offsetting benefit.

Under the leadership of the Vice President, the President's Council on Competitiveness has proposed a comprehensive set of reforms to the civil justice system in its "Agenda for Civil Justice Reform in America." Many of the reforms are designed to accelerate the resolution of disputes and to discourage waste in litigation. The proposed civil justice reforms would establish rules to set quantitative limits on the amount of discovery provided without cost to the requesting party, encourage alternative methods of dispute resolution, place caps on punitive damages, and promote judicious use of expert testimony (Box 5-1). In Executive Order 12778 the President directed all Federal agencies to implement several of these reforms, including changes in discovery procedures and in the use of expert witnesses, in civil proceedings in Federal courts to which the Federal Government is a party, to the extent it is feasible.

Box 5-1.--Civil Justice Reform Proposals

In August 1991 the President's Council on Competitiveness recommended 50 specific changes to the civil litigation system. The major reforms include:

Loser Pays. The Council has proposed adoption of a modified version of the English rule in which the "loser pays." Under this proposal the person who loses a case would pay the winner's

attorney fees. The amount of the payment would be capped at a level equal to the amount spent by the loser. Knowing that the law establishes a penalty for losing would discourage a frivolous suit. The use of the English rule would be limited to cases involving State law brought under the Federal courts' diversity jurisdiction.

Punitive Damages. Punitive damages are often awarded over and above actual damages, but those awards are often distributed in a random and capricious manner. The Council proposes that the amount of the punitive damages not exceed an amount equal to the plaintiff's actual damages.

Expert Evidence. Often, "expert" testimony is unsupported by accepted professional practice or scientific knowledge. A principal recommendation would require experts to base their testimony on theories "widely accepted" by others in the field.

Voluntary Dispute Resolution. Most disputes are resolved through litigation, either at trial or in out-of-court settlements. The Council on Competitiveness recommends greater access to alternative mechanisms such as private mediation or arbitration to resolve matters without resort to the legal system.

WHY AND HOW GOVERNMENTS REGULATE

Regulation, it is commonly argued, is intended to correct market imperfections, or "market failures." Imperfections in competition among firms are one type of market failure. For example, in an industry that is a "natural monopoly," where a single supplier can most efficiently meet consumer needs, regulation of prices and the number of competitors may be desirable. In a broader set of markets, no economic regulation is generally necessary. In those cases the antitrust laws exist as a check against the possibility of anticompetitive behavior.

A second justification given for regulation is the presence of "externalities," or third-party effects. An externality occurs when people do not account for all the effects of their actions on others. A manufacturer who dumps pollutants into a river, for example, does not consider the effects of those pollutants on fishermen who also use the river. The presence of this type of harmful externality has been the rationale underlying most environmental regulation.

An externality can benefit rather than harm third parties. Information is one important example. Private organizations acquire information about product characteristics, such as the

nutritional value of foods, which they then sell to consumers. However, it may be difficult for those organizations to capture all the benefits of supplying the information. Once the information is disclosed, consumers can benefit from the use of the information without compensating the provider for its use. In that event, the incentives to invest in supplying the information are diminished.

In principle, when the benefits to consumers of having the information outweigh the costs of requiring that it be provided, the government may want to supplement the role of the private market in supplying information. The government can provide information directly, or require firms to provide it. People can then make choices about which products to buy. Examples of government-required information include food and drug labeling and energy-efficiency labels for household appliances.

Both the absence of competition and the presence of externalities represent imperfections in the private market system. If government regulators were acting primarily to correct these imperfections, one would expect that the chief characteristic of regulation would be to simulate the features of the market by encouraging regulated businesses to produce efficiently. In practice, however, *the United States and other nations have often relied on command-and-control mechanisms that set a particular level of profits or require use of a specific technology, rather than on mechanisms that encourage firms to reduce their costs or to improve services.*

For example, EPA's 1979 rules for new electric power plants required costly limestone "scrubbers" to reduce sulfur emissions at virtually all new coal-fired plants. A better alternative would have been to set emissions targets and then allow firms to meet the targets by the most cost-effective means, such as by switching to lower sulfur coal. Other examples of command-and-control regulation include restricting price competition among ocean carriers, limiting the number of firms that can provide cable television service, and using administrative hearings to determine who gets the rights to new frequencies on the radio spectrum.

One reason that command-and-control regulations remain in place is that the decision to introduce regulatory reform or to deregulate an industry affects the distribution of wealth among consumers and regulated companies. *The outcome of the regulatory process may be determined by the strength of interest groups rather than by an assessment of whether the proposed regulatory action maximizes net benefits to society.* A regulated company that is producing inefficiently, for example, knows that competition will force the company either to go out of business or to invest in a

more efficient production process. Such a company is highly likely to resist regulatory reform.

The Inefficiency of Monopoly

Sometimes an industry may not be competitive--either because a producer has a monopoly over production or because the industry consists only of a few large firms that can make decisions collusively. In these situations, producers tend to reduce the amount of production below what a competitive market would produce, causing prices and profits to rise at the expense of consumers. The desirable characteristics of markets are attenuated when competition is absent. In particular, the outcome is inefficient because some consumers would be willing to pay more for the good than the additional cost of its production. If competition were greater, producers' profits would decline, but by less than the value of increased output, and all consumers would enjoy lower prices.

One way that the government discourages anticompetitive behavior is through antitrust enforcement. The antitrust laws are part of the institutional framework within which most businesses in the United States operate. The Federal Government enforces the antitrust laws through the Antitrust Division of the Department of Justice and the Federal Trade Commission. The primary focus of these agencies is to challenge mergers that significantly reduce competition and to prosecute businesses that collude to raise prices.

The Regulation of Prices and Competition

Economic regulation generally involves control over the prices a business can charge and limitations on the number of businesses that can provide a good or service. One goal of price regulation is to place a check on companies that have a monopoly in the market that they serve. Yet, competitive industries have also seen their prices regulated. Price regulation of initial natural gas sales was instituted in 1954, even though approximately 2,300 independent producers of natural gas were operating as of 1947. Because regulated prices were set too low in an industry that was already competitive, shortages of gas developed in the 1970s.

Another motivation for economic regulation is to protect existing companies from new competition. Regulation of interstate trucking by the Interstate Commerce Commission (ICC) in 1935 was partially stimulated by railroads' concern that unregulated trucking companies would be able to undercut rail prices in areas where regulated railroad rates were high relative to trucking costs. The ICC restricted the ability of trucking companies to offer discounts, and regulators were hostile to companies that wanted to

extend service into new geographic regions and to the development of completely new firms. In fact, existing firms were allowed to protest proposed service by a new carrier. The Motor Carrier Act of 1980 changed all of that by limiting the ICC's regulatory authority. By 1990 the total number of licensed interstate carriers exceeded 40,000, compared with 17,000 in 1980. During fiscal 1987 truckers filed 1.2 million new rate schedules, compared with 394,000 in 1979. Because trucking services represent 75 percent of all expenditures on transporting goods, reduced regulation contributes to economic growth by reducing a major cost of production.

Price regulation and limitations on competition are generally justified in industries that are natural monopolies. These are industries where a single firm can produce all of a product at lower cost than several different firms can. Within a particular geographic area, electric utilities, local telephone companies, local distributors of natural gas, and similar industries have been considered natural monopolies.

If several electric utilities attempted to compete with each other to distribute electricity to customers in the same geographic area, each company, realizing that cost reductions in distribution come from having more local customers, would begin to lower prices to capture those customers. Eventually if it were less costly for one firm to provide all the service, only one local distribution company would survive this battle. Exactly this type of competition occurred in the late 19th century when several companies provided electric service in Chicago, with one company eventually emerging to serve the whole city. The expenditure on the overlapping electric lines was wasteful, since competing firms could not survive.

The usual policy response is to carve out a monopoly for an electric utility over a fixed geographic area and then to regulate its prices. This regulatory approach eliminates wasteful duplication while constraining the pricing of the monopolist, but it can also have drawbacks. As discussed below, *the way prices are regulated can diminish the incentive for the regulated company to minimize its costs. Government protection of a monopoly may also prevent new competitors from implementing technologies that do not have the cost characteristics of a natural monopoly.*

The Environment, Health, and Safety

Since World War II, the government has assumed an ever-increasing role in regulating the environment, health, and safety. Spurred by increasing public concern over risks, government agencies now regulate discharges of air pollutants, set safety standards for cars, and oversee the food Americans eat.

A major goal of regulating the environment, health, and safety is to correct the problem of externalities. Externalities may take the form of something people want less of--like air pollution--or something they want more of--like information on safety. If one man's clothes are soiled by his rural neighbor's furnace, he may be able to reach an accommodation with his neighbor--for example, by offering to share the cost of switching to a cleaner fuel. In this way, the neighbor is led to take into account the external cost of his decision about which fuel to burn. But if the man's clothes are soiled by air pollution from a thousand furnaces and cars, then it is not practical to reach similar arrangements with or even identify, all those who caused the harm. In this case, one person can pollute another's air without confronting the cost, and the result is too much air pollution. A regulatory approach can provide a corrective in such cases. Ronald Coase, the winner of the 1991 Nobel Memorial Prize in Economics, has emphasized the role of the cost of reaching agreements in determining the appropriate policy response. (Box 5-2).

Box 5-2.--Ronald Coase, the Role of Transactions Costs, and the Definition of Property Rights

Professor Ronald Coase of the University of Chicago, the Nobel Laureate in Economics for 1991, is particularly known for his penetrating analysis of the role of transactions costs--the cost of effecting an exchange--in determining the characteristics of social institutions. Coase pointed out that whether we observe, say, an auto-manufacturing company makes or purchases the seat belts it installs in the cars it produces depends upon the cost of making a product for which it may not be particularly well set up (the seat belts) compared with the cost of reaching a satisfactory supply arrangement with an external seat belt firm. In competitive markets, Coase noted, organizational forms that economize on transactions costs will tend to prosper and survive. Changes in the relative costs of such transactions, owing in part to the development of computers, are leading to major changes in the organizational structure of firms in market economies.

In a celebrated paper, Coase explored the role of transactions costs in the determination of how property rights ought to be defined. Should, for example, the property rights of an owner of a piece of land include freedom to emit smoke that soils a neighbor's laundry, or, alternatively, should the neighbor's property rights include the option to get a court to enforce a claim for damages against the emitter of smoke? Coase's answer is that how property rights in such cases should be defined (before the fact of people choosing where to live) depends on transactions costs. If, for example, it is easy to measure smoke emissions but hard to tell

whether people are taking due precautions to do their laundry on smoke-free days, the better result may obtain if the property right includes the option to emit smoke! Laundry-washers will then have an incentive to negotiate a satisfactory schedule with smoke-emitters (e.g., smokeless Tuesdays).

A similar line of reasoning offers insights into the traditional legal doctrine that denies compensation for a "taking" for regulation to eliminate a "nuisance," and into the choices faced in several recent court cases that deal with new questions of regulatory taking. The Coasian analysis emphasizes that, in addition to the issues of equity raised in the various particular circumstances, the courts should consider whether the net effect of a more or less stringent protection against taking in the definition of property rights will lead to the best use of land in the long run.

Besides protecting the environment, the government protects consumers by providing product information on health and safety or requiring that businesses do so. To encourage disclosure of information, the President signed the Nutrition Labeling and Education Act of 1990, requiring the Food and Drug Administration (FDA) to establish rules that would make it easier for consumers to understand the nutritional content of foods. Among the proposals the FDA proposed in November 1991 is a requirement that food companies use standardized measures of a "serving" for more than 100 different foods, which would allow consumers to compare products easily. The FDA is also expected to rule on which specific health claims will be permitted on labels.

Although increased information benefits consumers, it is important to consider its cost when writing regulatory rules that implement legislation. Businesses will incur costs to develop the new information and to alter the food labels. Also, any restrictions on health claims should be balanced against the possibility that potentially useful information will not be disseminated. Furthermore, the presence of an externality does not mean that information on nutrition will only be provided when it is required by the government. Some information will still be supplied by other means, such as through consumer magazines.

For certain risks, the government goes beyond requiring that information be provided. In the case of automobiles, workplace safety, or a doctor's services, it may be costly for each person to invest in assessing the relative quality or safety of the goods provided. The government can play the role of gathering the information and then regulating the risks directly. Thus, all automobiles sold in the United States must satisfy safety

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regulations established by the National Highway Traffic and Safety Administration (NHTSA). Some products, such as certain pesticides, are banned entirely. The government, however, is not the only entity that can play the role of assisting the consumer in evaluating product performance. For example, product manufacturers may be able to assure quality by providing product warranties. *Consumer Reports, Underwriters Laboratories, and industry-established standards all demonstrate that the private market assures safety and quality without help from the government.*

Many actions have some external or third-party effects that could justify government intervention. But government action itself has third-party effects, and *government intervention to correct the market failure of an externality carries with it the risk of unintended outcomes because of government intervention, or "government failure."*

Government failure may occur for at least three reasons. First, it can be difficult to determine who is affected by an externality and to what extent. This is particularly true where the scientific consensus about an externality is still evolving. For example, the scientific consensus on air pollutants and toxic substances has changed often enough to impede sound regulatory decisions, as the scientific debates surrounding asbestos, dioxin, and global climate change all illustrate.

Government failure may also occur when regulatory solutions impose large unintended costs on innocent third parties. Thus, long delays in the approval of new drugs harms those forced to use the older, often less effective, substances. The Administration has proposed using outside review organizations to complement the FDA's function of evaluating the safety and effectiveness of new drugs. The goal of contracting out some of the approval function is to reduce the time needed to approve new drugs, especially those that have the prospect of extraordinary benefits in reducing morbidity or mortality.

Third, as explained in the next section, government failure may occur when regulation becomes the mechanism that allows one group of people to take advantage of another.

Interest Groups and Regulation

Regulation creates winners and losers. Firms know this, and spend considerable time and money trying to capture the benefits of regulation. New regulations rarely affect all firms equally. New firms may face higher costs than existing firms; large firms may be able to finance costly changes demanded by new

regulations; some firms may be able to gain exemptions from the existing rules.

In each case the effect of a new regulation is to transfer income from one group to another. For example, the government does this by creating or protecting a firm's position as a monopolist, or by restricting a market to a small number of firms. Protected firms enjoy higher profits than competitive firms; these higher profits become the prize sought by others. Thus, as explained above, truckers used the ICC to block entry of new competitors.

But gaining a protected position from the government can involve large expenditures. Firms hire lobbyists and lawyers, and even alter their business plans in order to acquire a protected position. *Because all interest groups must make similar expenditures to seek government favor, the regulatory process tends to favor those groups or businesses that can capture the greatest benefits from a protected position. Once achieved, a protected position must be defended against competitors trying to dislodge the incumbent firm.*

Before deregulation in 1978, for example, the Civil Aeronautics Board (CAB) granted effective monopolies to airlines on many routes. The CAB held hearings in which the airlines attempted to persuade the board members to award them exclusive franchises and to keep out competitors. Although the deregulated domestic airline industry continues to use lobbyists to gain a favorable hearing for its views, the industry no longer has protected domestic monopolies to spend time and money defending.

The U.S. Department of Agriculture's (USDA) agricultural marketing orders are another illustration of protection from competition. These orders restrict supply in markets for lemons, oranges, and other crops (Box 5-3). For decades farmers have made investments in the belief that the orders would protect their profitable position. Although in the long run expansion by farmers dissipates these profits, some farmers resist proposals that would eliminate these orders because doing so would reduce the value of their investment.

Box 5-3.--Agricultural Marketing Orders

A Federal marketing order for California-Arizona navel oranges has been in effect since 1933. Under the present order, the maximum quantity each handler (first buyer) may ship to the domestic fresh market is set weekly. Harvested oranges not sold in the domestic market are sold abroad or to the domestic processing industry. By limiting the quantity of oranges that may

be sold in the high-valued fresh market, domestic fresh orange prices are raised and total revenue to growers may be increased.

Although farmers may gain in any one year from the higher farm income, such gains are dissipated as other growers plant additional trees to earn some of the increased revenues brought about by regulation. The marketing order also penalizes lower cost producers by limiting the volume of fresh oranges they may sell. Consumers of fresh oranges lose as well because of higher prices.

What are the costs and benefits of such regulation? A recent USDA study suggests that eliminating the marketing order would cost producers about \$13 million annually, while saving consumers about \$30 million. On a per capita basis, however, each consumer would gain about \$.12, while each grower would lose about \$3,150 from eliminating the order.

The problem of entrenched protected interests can be avoided by arrangements that discourage expenditures solely to defend the special position. Auctioning public property, for example, not only gives the auction winners control of the property but also an incentive to make the best use of it. Currently, the FCC uses a lengthy process of hearings or a purely random lottery system to assign new licenses to the radio spectrum. The Administration has proposed legislation to permit competitive bidding for newly available portions of the radio spectrum to ensure that licenses will be allocated to those parties who value them most. Competitive bidding would also simplify the application process and bring in revenue to the government.

THE REGULATORY PROCESS

Regulation has become pervasive at the local, State, and Federal levels. Local regulation typically involves setting zoning restrictions and building codes, regulating sewer and water prices, and granting cable television franchises. In some cases local municipalities own the local electric utility, buying the needed power from generators of electricity. States regulate utilities through regulatory commissions, which set retail rates for local telephone calls, electric power, and natural gas. States also issue regulations in a broad range of areas including insurance, energy, transportation, health, safety, and the environment.

Federal regulation is concerned primarily with goods and services that are sold in interstate commerce. The Congress has responded to economic and social problems by creating regulatory

agencies or by expanding the role of an existing Cabinet Department. In health and safety, for example, 9 separate Federal agencies write regulations under the authority of 26 major statutes. In a process called a "rulemaking," agencies propose rules to conform with the requirements of the legislation (Box 5-4). They are then published in the *Federal Register*, and finalized only after a period for public comment.

Box 5-4.--Writing the Rules: The Clean Air Act

The Congress legislates regulation broadly but leaves to the agencies the task of filling in the details. Each major regulatory agency is charged with implementing certain laws. As an illustration, the Clean Air Act Amendments of 1990 (CAAA) contains 9 major titles running to 300 pages and requires EPA to issue at least 55 separate regulations in the first 2 years alone.

Consultation and Public Comment. On November 15, 1990, the President signed the CAAA. In late 1990 EPA began work on the first set of rules to be drafted, meeting formally and informally with affected industries, environmental groups, and other outside groups. In early 1991 EPA published in the *Federal Register* the first of a series of notices of proposed rulemaking, soliciting public comment. At several stages of the rule-writing process, EPA must solicit public comments to be considered as the regulations are finalized.

Reg-neg. Recently, some rules have been formulated through negotiated regulations or "reg-negs," which are designed to bring all parties affected by the regulation together to reach a consensus on the design of the regulation. When successful, reg-negs are able to reduce the time and resources that might be necessary under the conventional rulemaking process. The 1991 draft rule on reformulated gasoline was drawn up with a reg-neg.

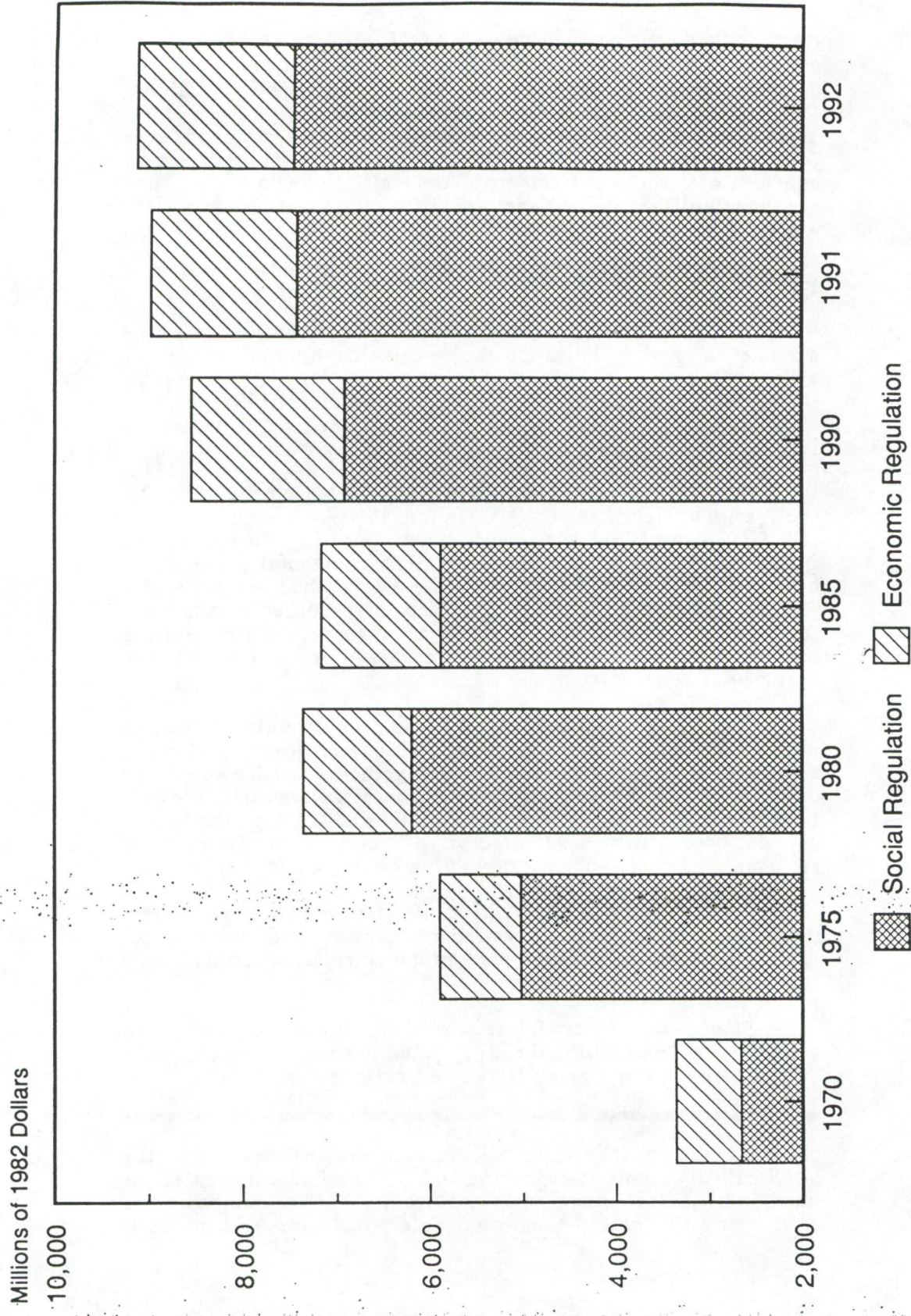
Agency review. The Office of Management and Budget (OMB) and other agencies have the opportunity, and in some cases the statutory obligation, to review proposed rules, generally for 30 to 60 days.

Final rule. After a last round of public comments, and concurrence from OMB, the EPA Administrator signs the final rule, which is promulgated in the *Federal Register*.

As shown in Chart 5-1, researchers estimate that the administrative costs of enforcing and writing Federal regulations have increased almost threefold since 1970. *The administrative costs shown in Chart 5-1, however, do not include additional costs*

Chart 5-1 Administrative Costs of Federal Regulation

The administrative costs of Federal regulation have increased greatly since 1970.



Note: 1991 and 1992 figures are projected.

Source: Center for the Study of American Business, Washington University.

imposed on firms from regulation--costs that are ultimately borne by consumers. These additional costs result when regulation raises production costs and product prices, makes products unprofitable to provide, or retards product innovation. One recent estimate puts the real economic losses from Federal regulation at about \$153 billion a year in 1988 dollars, more than the total amount spent on higher education.

To make regulations more cost effective and to create some consistency in the way regulations are formulated in each agency, a system of regulatory oversight has been established within the Executive Office of the President. In 1981 President Reagan issued Executive Order 12291, which authorizes the Office of Information and Regulatory Affairs (OIRA) within the Office of Management and Budget (OMB) to work with the various regulatory agencies to develop more effective and less costly regulations. The Executive order directs all agencies proposing new regulations, reviewing old ones, or developing legislation to estimate costs and benefits and to demonstrate that the potential benefits outweigh the potential costs to society. OIRA in 1990 reviewed more than 2,100 rules to ensure that the principles of Executive Order 12291 were applied.

Federal vs. State Regulation

One barrier to increasing the overall effectiveness of regulation is the dual system of Federal and local regulation. Local governments often can respond more effectively to problems that arise in their communities. Federal involvement in local zoning laws, for example, would require knowledge of local conditions that would be very costly to accumulate. Overlapping jurisdictions can sometimes create problems. For example, State regulations that impose food labeling laws distinct from FDA rules force businesses to develop differently labeled products for these States. The inevitable increase in production costs is likely to lead to higher food prices for all consumers. *In cases where local regulation interferes with economies of production, a uniform system of Federal regulations could reduce the burdens on firms and their workers and lower prices for consumers.*

SUMMARY

- o A system of competitive markets creates the discipline that encourages firms to produce efficiently and directs resources to their best use.
- o A well-functioning legal system should increase the efficiency of economic activity by appropriately defining and protecting property rights, ensuring that the terms of contracts are fulfilled, and

facilitating compensation for the victims of injury. The Council on Competitiveness has proposed reforms that will improve the efficiency of the legal system and reduce unnecessary litigation.

- o Although the presence of an externality may be clear, measuring its size can be difficult. When it can be measured, policies that incorporate market incentives are superior to command-and-control solutions.

THE BENEFITS OF ECONOMIC DEREGULATION

The primary purpose of deregulation is to allow competition to determine the prices that consumers are charged and the amount of goods and services that are produced as well as to encourage innovation and the development of new products. For example, before deregulation, the CAB determined the number of airlines that could serve each air route and the air fares they could offer. Since deregulation in 1978, fares have decreased on long-distance routes and increased on short-distance routes, but taken together average air fares have declined 20 percent in real terms. Half of all passenger trips are now in markets served by three or more carriers, double the percentage before deregulation. Also, once freed from regulation, airlines developed "hub and spoke" systems, an innovation that has given passengers a much greater range of flight choices.

New technologies mean that some industries may no longer be natural monopolies, but regulation can mask that fact by keeping the new technologies out of the market place. Instead of perpetuating the monopoly, deregulation would allow new firms to enter. The market would then determine how the service should be provided and at what price.

This is especially true in telecommunications where technology is changing rapidly. For many years most supporters of regulation considered long-distance telephone service to be a natural monopoly. Now firms have set up fiber optic and microwave networks that compete directly with AT&T in long-distance service. The Administration proposed in November 1991 to permit competition with INTELSAT, the consortium that provides international long-distance telephone service by satellite. Under the new policy, international satellite companies will immediately be permitted to provide additional services, with the goal of opening the market to full competition by 1997.

Even when competition is not feasible, there are better and worse ways to regulate. Under recently developed approaches prices can be set in a manner that gives regulated firms greater incentives to

reduce costs and to innovate. Currently, monopolies are often regulated using traditional cost-of-service regulation. The regulator tries to determine the cost of providing the service, and sets prices to cover those estimated costs, including a return on the capital that is invested in the regulated company. This method is used to ensure that the company will not lose money and that it will not be able to charge prices above its costs.

The problem with cost-of-service regulation is that it does not give the regulated firm the incentive to reduce its costs or provide better service. An attempt to reduce costs will eventually be followed by a reduction in allowed revenues, leaving the firm no better off. If new services lead to increases in profit, prices will eventually be reduced to bring revenues in the line with costs. The incentive for firms to develop the new services are thereby diminished.

New regulatory approaches, commonly labeled "incentive regulation," are being tried as alternatives to cost-of-service regulation. In the transition from regulation to unregulated competition in long-distance telephone service, the FCC has tied some of AT&T's rates to an index that is adjusted for inflation minus a correction for expected productivity improvements. If AT&T reduces its costs or improves its products, it is allowed to keep the profits. The FCC and many States have also instituted this incentive regulation for local telephone companies. And in its National Energy Strategy, the Administration has proposed instituting incentive regulation for natural gas pipelines. In this way regulators limit monopoly profits while giving the regulated company incentives to produce efficiently and to innovate.

The following sections analyze proposals for further reductions in regulation that are now being considered to improve performance in the natural gas, electric power, and cable television industries. Regulatory reform will bring more competition to natural gas delivery and the generation of electric power. The benefits of deregulating cable television will be fully realized only when entry barriers to new competitors, possibly using alternative technologies, are removed. *The goal of deregulation is to promote general prosperity by creating a more efficient allocation of resources. That goal can be achieved by eliminating price regulation and barriers to entry where markets can be competitive.*

NATURAL GAS

Regulation in the natural gas industry provides a good example of the problems that can arise when regulators set prices incorrectly. Before 1978 the price paid for the natural gas that is extracted from the ground, often called the "wellhead" price, was regulated by the Federal Energy Regulatory Commission (FERC).

Unfortunately, the regulated prices were set too low, reducing the incentive to extract more natural gas. Because demand at the regulated price was greater than the amount being produced, Federal regulators were forced to ration the use of natural gas. To alleviate this problem, the Natural Gas Policy Act of 1978 began the process of decontrolling prices. The Natural Gas Wellhead Decontrol Act of 1989 set a timetable for completing wellhead deregulation. By January 1, 1993, all Federal regulatory control over wellhead prices will be eliminated.

The Current Status of Natural Gas Regulation

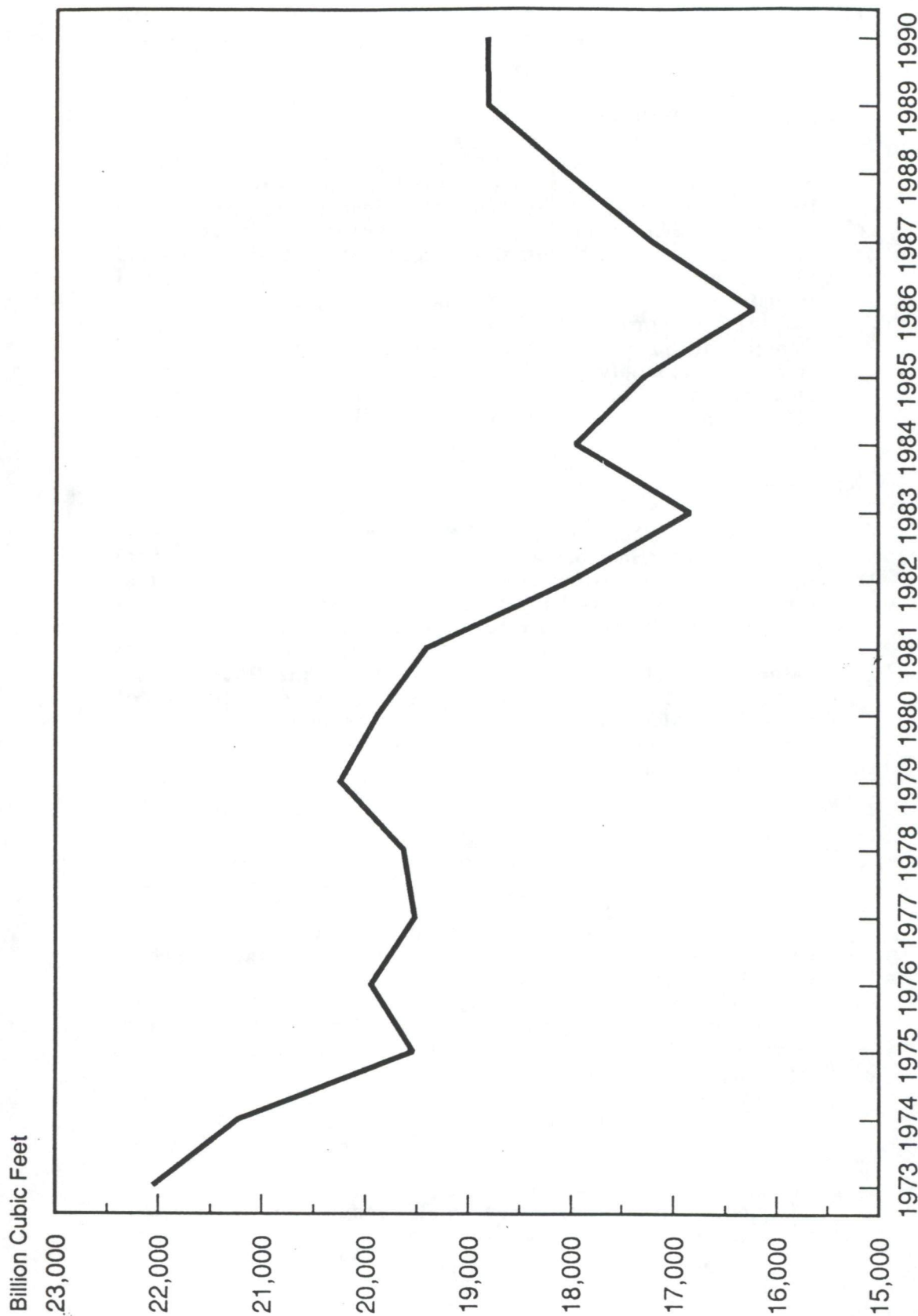
The process of transporting natural gas to a residence or a commercial user remains regulated by FERC and the States, however. Once natural gas is extracted from the ground, it is transported by pipeline, often over long distances and across State lines, and then sold to local distribution companies, electric utilities, and industrial users. FERC regulates the prices charged for interstate transportation of natural gas and the prices that pipelines charge for the gas they sell to local distributors and others. Pipeline companies must provide FERC with information on the costs of its services. These include the prices paid to producers for gas and the cost of building pipeline facilities to transport natural gas. FERC then sets rates to cover those costs.

The local distribution segment of the industry, which distributes the gas to residential, commercial, and industrial users, remains largely a regulated monopoly. Generally, the least costly method of distribution is for a single company to deliver the gas to all homes within a market, although a small number of areas have competing distributors for nonresidential customers. Because distribution has natural monopoly characteristics, local distributors generally have franchised service areas in which they are the monopoly provider of service for most or all customers. States regulate the rates distributors may charge.

Despite the fact that most wellhead prices have been deregulated, the electric generation and industrial sectors have actually reduced their use of natural gas over the last two decades. *Although natural gas is a relatively clean fuel with abundant domestic supplies, total domestic consumption has declined more than 10 percent since 1973 (Chart 5-2). One primary obstruction to increased use is the process of granting permits for construction of new natural gas pipelines.* FERC approval must be obtained before any new interstate pipeline can be constructed. Often, an administrative hearing is held in which outside parties, including competitors, can object to the application. Several years may elapse before a construction permit is granted, sometimes prompting consumers to turn to alternative, more expensive fuels. Legislation based on the

Chart 5-2 United States Consumption of Natural Gas

Domestic Consumption of Natural Gas has declined from 1973 levels.



Source: Energy Information Administration, Monthly Energy Review, October 1991.

Administration's National Energy Strategy would streamline the process of reviewing applications for pipeline construction.

Consumption may also have declined because local distribution companies, electric utilities, and industrial users were limited in their ability to negotiate directly with natural gas producers. Before 1985, when FERC initiated open access to natural gas pipelines, almost all natural gas was actually purchased by pipeline companies and then resold to distributors, utilities, and industrial users. In 1982, for example, only 3 percent of the natural gas transported by the pipelines was owned by others. Consequently, for most users the only source for natural gas was from the monopoly pipeline that served their plant. With a monopoly over gas transportation, a pipeline company may not offer the lowest priced natural gas, prompting the user to consider alternative fuels.

Open Access to Natural Gas Pipelines

The FERC initiatives have significantly changed the position of pipeline companies by creating incentives for them to transport gas that is owned by other companies. Pipelines that market their own gas, as well as provide transportation services for gas owned by others are called "open access" pipelines. These pipelines are required to provide gas transportation services to natural gas sellers not affiliated with the pipeline that are comparable to those it provides to its own gas sales. Because of this policy, sales of gas by firms other than pipelines now account for about 80 percent of the interstate sales of natural gas transported by pipelines.

The effect of the open access policy is that electric utilities, industrial users, and local distribution companies can now contract to purchase gas directly from gas producers and marketers, as well as from pipeline companies.

Although open access has dramatically expanded, the extent to which competition can be fully realized in the market for gas delivered by pipelines has been questioned. When a pipeline sells its own gas, it is actually selling a bundled commodity consisting of the gas and various transportation, storage, and other services. Other gas sellers pay for the transportation services separately, but the price they pay and the quality of service they receive may not be comparable to the rate and service implicitly provided for the pipeline's own gas sales. If there is no other competing pipeline through which the natural gas can be delivered to a particular customer, the non-pipeline seller will be at a disadvantage relative to the pipeline's own gas sales. Discrimination of this type could reduce the benefits of competition.

One of the goals of the Administration's National Energy Strategy is to eliminate that possibility of discrimination. FERC in July 1991 proposed that pipelines be required to separate their business of selling gas from their business of transporting gas for others. After this restructuring, gas would be sold unbundled from the various transportation services, as on an "a la carte" menu, making the comparability of transportation rates and services much easier to monitor.

FERC has proposed to relax regulation of pipeline gas sales once this unbundling occurs. This relaxation would mean that the competitive natural gas sales market will determine which transactions take place and at what price. Because local distributors and other gas consumers may still be captive to a single pipeline, the rate the pipeline charges for transporting the natural gas remains regulated.

Mandatory unbundling may not always be necessary, however. If a customer has access to competing pipelines, then the likelihood of discrimination is reduced. In that case a competitive gas sales market could flourish without unbundling. Mandatory unbundling can also impose costs on producers. With unbundling, pipelines may lose the ability to coordinate and manage gas shipments. Mandating unbundling would deny pipelines the benefit of these "economies of scope." These economies of scope cannot be recaptured by simply allowing buyers to purchase the services together. The potential loss of productive efficiency needs to be considered before unbundling is mandated on a blanket basis.

ELECTRIC POWER

Similar to the natural gas industry, the electric power industry consists of three different segments: the generation of power, the transmission of power from generators to local utilities, and the distribution of electricity to homes and businesses by the local utility company. Unlike the natural gas industry, however, the same firm frequently performs all three functions: it produces and transmits its own power and then distributes that power to retail customers. A small but growing number of firms specialize in one particular segment, such as generating electric power that is sold wholesale to utilities.

Currently, all three segments of the industry are subject to State and Federal regulation to some extent. Competition in the distribution of electricity has generally been considered infeasible because of the natural monopoly characteristics of these services. Instead, local utilities are granted monopolies over the markets they service, and States or local municipalities regulate the rates they can charge customers. FERC regulates the price of interstate

sales of wholesale power and the prices charged for use of interstate transmission facilities. But competition has emerged among firms that generate wholesale power. Regulators now face the problem of determining when to step aside and allow the market to determine the price at which that power is sold.

Promoting Competition in Electricity Generation

The ability to buy and sell electric power allows utilities to make more efficient use of existing capacity. By buying power from other companies, for example, a local utility can satisfy an extraordinary demand for electricity, such as that which occurs on an unusually hot day, without having to build the additional capacity itself. When utilities purchase power, however, the Federal Power Act of 1935 requires FERC to ensure that prices charged for the interstate sales are "just and reasonable." The seller must provide cost information to FERC, and significant delays in determining the rates can occur. With the emergence of a more competitive generation market, however, the need to regulate all sales on a cost-of-service basis has been questioned.

One major step in developing competition in the sale of electric power was the Public Utilities Regulatory Policies Act of 1978 (PURPA). PURPA exempts "qualifying facilities," such as co-generators of steam and electricity, from FERC rate control and relieves them of other financial requirements. PURPA has been successful in encouraging the development of nontraditional sources of power. In the 1980s qualifying facilities that sell power to utilities added 13,000 to 15,000 megawatts of capacity to the national market, while utilities that produce their own power ordered only about 9,500 megawatts of new capacity. Other independent power producers who do not qualify under PURPA have also begun to emerge. *The availability of alternative power sources has encouraged 13 States to use competitive procurement, rather than cost-of-service regulation, when a utility needs generating capacity.* FERC has also adopted, for some power sales, the use of rates arrived at through competitive bidding.

A major barrier to the further development of a wholesale electricity market is the Public Utility Holding Company Act of 1935 (PUHCA). The original intent of the Act was to curb financial abuses by electric utility holding companies. Its effect today, however, is to restrict the development of independent generating sources. For example, certain holding companies are barred from owning more than 10 percent of a power producer whose sole purpose is to sell power in the wholesale market. Legislation supported by the Administration as part of the National Energy Strategy would amend PUHCA to eliminate obstacles to entry by new independent power producers and to the

development of new sources of wholesale power affiliated with utilities.

Transmission Access

The control of access to transmission services by firms that sell wholesale power raises the possibility that power sales will not take place at competitive prices. A utility may be captive to a single provider of transmission who also sells power. The owner of the transmission capacity could deny other power producers access to the lines, allowing it to charge prices above competitive levels for its own power. The presence of a monopoly provider of transmission forces FERC to keep a close watch over the prices charged for wholesale power.

A seller of power who also controls transmission cannot always set rates above the competitive level, however. A purchaser may have several alternative sources of supply. It could generate power itself, it could purchase power produced by others in its own service area, or it could purchase power produced outside of its service area by firms that have access to the necessary transmission. When the purchaser of power has a number of alternative sources, a competitive market can develop. Prices that arise from those markets are a sufficient substitute for prices based on cost-of-service regulation.

When there are no alternative sources of power, denial of access to transmission would leave the utility captive of a single supplier. In that case a requirement that the transmission owner give a buyer access to alternative sellers, while being compensated for the costs of using the transmission, would increase competition in wholesale markets and ensure that power can be purchased at competitive rates. *At present, FERC has limited legal authority to require owners of transmission to provide access. Legislation is needed to give FERC the authority to order a transmission owner to provide access to a power supplier when such access would enhance competition in the wholesale power market.*

CABLE TELEVISION

Cable television is now available to more than 90 percent of all homes with television, and more than 60 percent of these households subscribe to the service. Cable television normally includes television stations that are broadcast over the air and services, such as CNN and ESPN, that are delivered by satellite to the cable operator. Consumers in most communities, can obtain these services only by subscribing to the local cable television service. The operator charges subscribers a fee for delivering these services to their television. The problem now facing policymakers

is how to encourage competition that will restrain the local cable system from setting fees too high.

The Effects of Cable Deregulation

By virtue of their control over permits to string cable along and across public rights-of-way, local communities established the right to regulate cable television. Many communities decided that having more than one cable system was inefficient. Multiple systems would have meant duplicating all of the cable connected to each household and business. Most cable television companies were thus granted a monopoly franchise over the market they serve. A local authority regulated the rates of "basic service," a package that usually includes both broadcast channels and satellite-delivered programs.

By the early 1980s the availability of alternatives to cable brought into question the necessity of continued regulation. Possible alternatives included purchasing satellite dishes, using VCRs, or simply opting to limit viewing to channels available via broadcast antennas. The Cable Communications Policy Act of 1984 (Cable Act) stated that regulation was not necessary in communities where there was "effective competition," which the FCC defined as communities that receive at least three over-the-air broadcast channels. The effect of this rule was to leave only 3.5 percent of all cable franchises regulated by the end of 1989, down from 67 percent before deregulation.

Cable TV rates increased substantially between the end of 1986, when the Cable Act took effect, and the end of 1990. Over that period, the average rate for the lowest priced basic service increased 32 percent in constant dollars. Cable operators explain the increase by arguing that most basic service now includes more channels and a greater variety of programs. But others blame deregulation, noting that the alternatives of watching broadcast television or renting video tapes do not provide enough competition to restrict the prices charged by cable operators.

Introducing Competition for Cable

Responding to that criticism, the FCC changed its effective competition standard in 1991. Now local communities may regulate rates in those areas that receive fewer than six over-the-air broadcast channels. Although there have been calls to increase the scope of rate regulation even further, *the Administration has supported a policy whose ultimate goal is to introduce new competition for cable operators, encouraging both price competition and alternative sources of television programming.* Although cable television has been traditionally perceived as a natural monopoly that requires limitations on competition and regulated prices, new transmission

technologies such as satellite delivered services are emerging. Reliance on rate regulation and restriction on entry prevents those technologies from being fully implemented. Rather than perpetuating the existing monopolies, competition among video providers will determine how the services should be provided and at what price.

The emergence of competition will depend on whether a second company finds it profitable to install the necessary wires and other equipment or to use a different technology in order to compete with the incumbent cable operator. One possible competitor that has already invested in some of the fixed equipment is the local telephone company, although it would have to install fiber optic cable in order to provide a service comparable to existing cable companies. Currently, FCC regulations and the Cable Act prevent competition from the local telephone company.

Under one proposal, local telephone companies would be permitted to transmit television or other video signals provided by both the telephone company and other companies. Critics of this plan worry that because telephone rates in some States are still determined by cost-of-service regulation, the telephone companies might seek to transfer the costs of their video operations to the regulated telephone sector, thereby inflating the costs of telephone service and putting competing video program providers at a disadvantage. This is commonly called "cross-subsidizing." There are also concerns that telephone companies might use their control over the telephone lines to discriminate against competing programmers simply by designing the network to favor their own product.

The problems of discrimination and cross-subsidization are legitimate concerns. The FCC already has adopted cost allocation rules that can be used to prevent cross-subsidization. Rules that prevent discrimination in video services need to be in place before telephone companies can fully take part in providing video content. As an interim step, *competition for existing cable operators could be enhanced by permitting local telephone companies to carry television and other video services that are controlled by independent companies.* The FCC began to ask for comment on such a policy in November 1991. The alternative policy would be to continue banning the most likely competitor for incumbent cable operators. Such a policy is untenable in the face of unregulated rates and monopoly franchises.

SUMMARY

- o Implementation of the National Energy Strategy would enhance competition in the generation of electric power and in the delivery of natural gas.

- o In the long run, removal of the barriers to competition for existing cable operators, rather than price regulation, will benefit consumers by lowering rates and providing alternative services.
- o The economics of producing in both a regulated and unregulated market should not automatically be sacrificed to eliminate problems of discrimination and cross-subsidization.

REFORMING REGULATION OF THE ENVIRONMENT, HEALTH, AND SAFETY

Environmental, health, and safety regulation is directed in part toward remedying externalities or third-party effects. During the past two decades, *the Federal Government has significantly widened the scope of regulatory activity in these areas, generally using a command-and-control approach. As a result, costs to the economy have increased substantially*, because legislation in these areas has rarely required regulators to balance the costs and benefits of their actions. Recent initiatives have attempted to improve on traditional regulation by allowing more flexibility, and by balancing benefits and costs. These initiatives offer significant cost savings compared to traditional command-and-control regulation.

IMPROVING THE ENVIRONMENT

By requiring firms to account for the costs they impose on others through pollution, the Clean Air Act, the Clean Water Act, and the Resource Conservation and Recovery Act have dampened the incentives for the excessive use of environmental resources.

At the same time, their costs have been significant. Just one new initiative, the Clean Air Act Amendments of 1990, when fully implemented in 2005, will cost an estimated \$25 to \$30 billion per year or more. EPA estimates that expenditures to reduce pollution were at least \$115 billion in 1990, more than in any other major industrialized country, both in absolute terms and as a percentage of gross national product (GNP). Between 1972 and 1990, pollution control costs tripled (in constant dollars), rising from 0.9 percent to 2.1 percent of GNP; EPA expects this total to rise to 2.6 percent by 2000. By some estimates, indirect costs of compliance add significantly to this total; to comply with a regulation, for example, firms may turn to higher cost inputs as substitutes or produce lower quality finished goods.

Acid Rain

Significant uncertainties surround many environmental issues. This was seen in the scientific controversy that resulted in the National Acid Precipitation Assessment Program (NAPAP), a 10-year \$550 million effort authorized by the Congress because of concern that acid rain might be harming the environment. When the NAPAP study began in 1980, the consensus view held that acid rain caused acidic lakes; the study demonstrated, however, that soil conditions had a far greater influence than acid rain on the acidity of lakes. The study also suggested that simple mitigation strategies were far more cost effective than the technology-based command-and-control regulation usually favored by the Congress.

In the recent past, scientific consensus has shifted abruptly on several other important issues as well, including the risks associated with dioxin, asbestos, and radon. These examples should serve as reminders not to rush into expensive new regulatory regimes on the basis of incomplete evidence. But once a policy decision has been made to correct an externality associated with the environment, then market-based incentive programs usually can accomplish their objectives at a lower cost than traditional command-and-control approaches.

The Clean Air Act Amendments of 1990 institute the first large-scale emissions trading regime for a pollutant. This program sets a maximum national level of sulfur dioxide that can be emitted annually from coal-fired power plants. Firms must possess an emission allowance for each unit of SO_2 they emit or face heavy fines (Box 5-5). To comply, firms are allowed to buy and sell allowances; the maximum level of emissions will be attained efficiently because firms self-select, purchasing or selling allowances to minimize costs. The same level of emissions could be achieved under command-and-control regulation, but the cost of compliance, which falls ultimately on the consumer through increased electricity prices, would be greater, and in some cases much greater.

Economic incentives decrease firms' compliance costs by offering them the flexibility to make the best use of information regarding their production process. In contrast, efficient command-and-control regulation requires the regulating agency to collect detailed, firm-specific information on pollution control costs, alternative production processes, and the value of capital stock in place--an impossible task. With economic incentives, regulators merely lay down ground rules and allow firms to make their own production choices; the government--and the Nation--gets the benefit of the firm's internal information without having to discover it.

Box 5-5.--Are Emission Allowances Licenses to Pollute?

Some have opposed the implementation of emission allowance trading systems on the ground that the allowances give their holder a license to pollute. By that standard, however, any environmental regulation that does not hold pollution to zero also constitutes a license to pollute. The costs of pollution abatement become prohibitive compared with benefits as emissions are typically reduced toward zero, making some tradeoffs inevitable. Consequently, regulatory regimes should be chosen that protect the environment to some desired level while minimizing losses in economic growth.

An allowance trading system is merely a method of allocation; it does not confer new licenses to pollute. Under command-and-control regulation, firms pay nothing for residual emissions after they install the required equipment. An allowance trading system, on the other hand, requires firms to pay for each unit of pollution they emit.

Fuel Economy Standards

The transportation sector accounts for two-thirds of U.S. petroleum consumption, with more than half going to gasoline for cars, trucks, and buses. Gasoline consumption imposes at least two kinds of externalities on society: pollution and vulnerability to oil shocks. Reducing oil consumption to correct these problems was the original justification for corporate average fuel economy (CAFE) standards in 1975. Proponents claimed the standards would improve air quality, particularly in cities, by reducing ground-level ozone, and would reduce U.S. vulnerability to shocks in the oil market by reducing the demand for imported oil.

CAFE standards require each manufacturer to meet a target of 27.5 miles per gallon for both its domestic and imported fleet. Recent proposals would increase CAFE standards by varying amounts. Proponents argue that higher standards would reduce both oil imports and consumption.

Government can correct the externalities associated with gasoline consumption by several means. The 1990 Clean Air Act Amendment address those pollution externalities in provisions on new car tailpipe emissions, reformulated gasoline, and enhanced inspection and maintenance programs. Fuel and vehicle taxes also correct these externalities. The most direct solution would be for regulators to determine the damage caused by gasoline consumption and then set a fee on its use equal to that damage. (State and Federal gasoline taxes, which now average 32 cents per

gallon, already correct 32 cents worth of the externality in this way.)

Higher CAFE standards would be a poor substitute for this approach, because they fail to address the externalities directly. First, higher CAFE standards might reduce pollution, because drivers would burn less gasoline per mile. However, because higher mileage cars generally cost less to drive per mile, motorists would drive more, offsetting some or all of the gain from the higher standards. (More driving makes road congestion worse, meaning that CAFE standards are themselves responsible for a negative externality.) Second, although higher CAFE standards would indeed reduce oil imports, they may not reduce U.S. vulnerability to oil shocks, which depends not only on the level of imports, but also on the flexibility provided by alternative energy sources and on economic responses to the shock.

Much of the CAFE debate has centered on engineering feasibility, on what mileage targets *could* be achieved by the automakers. But consumers, who are the ultimate decisionmakers, do not base vehicle purchase decisions on engineering feasibility nor on fuel efficiency alone. Size, options, and performance are also important. Indeed, engineering feasibility does not itself establish value to society; it does so only in conjunction with economic feasibility. Manufacturers can produce cars with high CAFE ratings, but if consumers will not buy them, then such cars should not be produced.

Proponents of higher CAFE standards generally overlook the indirect effects of their proposals, which would tend to offset many of the purported benefits. First, to comply with higher CAFE standards, firms would probably produce fewer large cars and more small cars. This would raise the price of large cars and likely cause consumers to respond by holding onto their older, less fuel-efficient vehicles. Second, because small cars, all else being equal, are less safe than large cars, higher CAFE standards could significantly increase deaths and injuries on the Nation's highways.

Higher CAFE standards pose other problems as well. The CAFE requirement that manufacturers divide production into a "domestic" and an "import" fleet ignores the realities of a globalized auto industry and forces them to make less than efficient input choices to meet the standard in each category. Moreover, current proposals would penalize firms whose technology gives them a comparative advantage in the production of larger cars. They could be forced to abandon these competitive technologies in order to comply. Finally, as with other forms of regulation, CAFE standards could be co-opted by political forces and used by some firms to gain an advantage over others. *The*

shortcomings of the CAFE program serve as a reminder of the dangers of an ill-designed regulatory program. A successful regulatory program must first define the externality it intends to address, then design incentives to address these externalities, without introducing any new ones.

Global Climate Change

Global climate change is another example of an environmental externality. The presence of "greenhouse gases" such as carbon dioxide, methane, and water vapor in the atmosphere helps to maintain surface temperatures at historic levels. If these gases were wholly absent, the temperature of the earth would be about 33°C lower. These gases retain and reflect some of the heat given off by the earth back to its surface, providing a sort of blanket over the planet. Some production processes such as the burning of fossil fuels result in the emission of greenhouse gases. These additions to the earth's natural supply of such gases have raised concerns over possible effects on global climate. Those who emit greenhouse gases do not account in their production decision for the climatic effects they may cause. A negative externality is present if these emissions cause harmful ecological and economic effects.

As with many global environmental issues, much of the research regarding the effects of greenhouse gases is in its preliminary stage. Indeed, the Intergovernmental Panel on Climate Change, under the aegis of the United Nations, estimated that it may take a decade or more to ascertain whether human-induced climate change has indeed occurred. The question of ~~which gases~~ contribute significantly to the greenhouse effect also remains open. This point is illustrated by the conclusion of the Scientific Assessment of Stratospheric Ozone, a recent study, which stated that chlorofluorocarbons (CFCs), though they have ozone depletion features, ~~probably~~ have no net effect on global temperature, reversing the previously accepted ~~conclusion~~ *theory*.

How much each

are now believed to

Most scientists agree that some warming will occur as a result of fuel burning, deforestation, and other human activities. At issue is timing and magnitude. Atmospheric CO₂ is expected by most estimates to double from preindustrial levels by about the middle of the 21st century. The increase in global average temperature that will result from this doubling has been estimated at between 1.5°C and 4.5°C, with the most recent estimates falling in the lower end of this range. The negative effects of a warming of this magnitude could include an increase in sea level, changes in precipitation patterns, an increase in storms in certain areas, changes in forest and crop land, and threats to certain species.

Recent scientific research generally discounts the ^{most} severe effects predicted in ~~some~~ preliminary work a ~~few~~ years ago.

^{by some} From an economic perspective, the following questions must be addressed: First, do greenhouse gas emissions from human activities constitute a significant externality? Second, if so, is it negative (such as an increase in sea level), positive (such as a longer growing season in Canada and the former Soviet Union), or both (a mix of impacts that benefits some regions and harms others)? The scientific consensus is by no means clear on this point. If a negative externality is determined to exist, the next step is to identify the major sources, from natural as well as human activities, of all greenhouse gases and to determine their relative contributions to potential warming. At the same time, carbon-absorbing material (sinks), such as forests should also be identified. Next, one must determine if it is better to reduce emissions now, perhaps using economic incentives, or to wait and respond later to the observed effects.

In choosing among alternative courses of action, the scientific uncertainty surrounding climate change should be considered along with estimated costs and benefits of action. A prudent course includes taking those actions that would be desirable on their own merits, while deferring costly steps that should properly await resolution of key scientific uncertainties. Rational policy requires balancing the costs of delay with the benefits of information that will be available later.

The potential effects of climate change are generally long term, and the initial costs of proposed remedies may be high. One proposal aims to stabilize global greenhouse gas emissions at 80 percent of 1985 totals by 2010. Studies put the eventual cost of achieving this goal at 1 to 5 percent of world gross domestic product per year, with most of the cost attributed to the reduction in output needed to achieve the emission reduction. In today's world economy, this would be \$200 billion to \$1 trillion per year (\$1 trillion is almost twice the GNP of China and India combined). Hasty attempts to remedy the externality imposed by greenhouse gas emissions could have small benefits relative to these very large costs. A better understanding of the science of global climate change is needed before agreeing to policies with potentially large costs.

The Administration has taken view that a successful climate change strategy must be comprehensive, incorporating all relevant greenhouse gases, their sources and sinks; flexible, built on many diverse actions, and readily adjustable as knowledge improves; and integrated, designed to involve all nations. Integral to the U.S. climate change strategy is the world's largest program

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of research and development. For FY 1993 the President's budget contains \$xxx billion for global change research, including \$xxx million for research in the economics of global change.

HEALTH AND SAFETY REGULATION

Decisions to wear a seat belt, to take a job as a telephone lineman, or to fly a small plane all involve balancing exposure to risk against other objectives. In the United States, government addresses risk indirectly, by providing the legal framework for the market and the tort system; and directly, by an extensive and growing program of safety regulation. For example, a 1967 NHTSA rule sets safety standards for automobile steering columns, a 1979 EPA rule regulates chemicals used to treat drinking water, a 1985 Federal Aviation Administration rule sets fire protection standards for aircraft cabins, and a 1990 EPA decision lists certain wood-preserving chemicals as hazardous wastes.

Proponents of a larger government role in health and safety assert that in these areas, people are not able to make proper decisions about risk bearing. Some also argue for intervention on equity grounds. If a certain risk is exceptionally high or prohibitively expensive for an individual to bear, society will sometimes assume the burden through regulatory intervention or public funding, as it does for neonatal intensive care, and burn and trauma centers.

The Congress has expanded budgets, staffs, and the regulatory scope of the agencies regulating these areas, almost tripling administrative costs of health, safety, and environment regulation between 1970 and the present. The *Federal Register*, which chronicles official actions of the regulatory agencies, including those that regulate health and safety, and whose size gives an idea of the regulatory burden on the economy, occupied 26 inches of shelf space for the year 1956, 36 inches for 1966, and over 10 feet at its apogee in 1978; in more recent years it has been somewhat thinner.

Public perceptions have fueled this regulatory growth. The public believes, according to surveys, that life is becoming more risky. In fact, life is becoming safer, as demonstrated by the steady increase in life expectancy, from 70.8 years in 1970 to 74.9 years in 1988; by the steady decrease in age-adjusted death rates from most diseases; and by the steady decrease in death rates on highways and in the workplace.

Public concern over risk has sometimes given rise to legislation requiring that all risk be eliminated. The Delaney Clause of the Food, Drug, and Cosmetics Act prohibits the use in food of any "substance shown to cause cancer in animals or

humans." Courts have interpreted this clause to mean that such substances are automatically prohibited at any dose no matter how small; a ban may be based on animal studies showing carcinogenicity in any amount, no matter how large. In the Clean Air Act, the Congress set a slightly more flexible standard when it instructed EPA to fix primary air quality standards that "protected the most sensitive group in the population with an adequate margin of safety." Similarly, the Congress charged the Occupational Safety and Health Administration with ensuring that "insofar as possible, no employee will suffer diminished health, functional capacity, or life expectancy as a result of his work."

Just as individuals must balance risks and benefits in making their individual decisions, so must government regulators. Commercial air travel, for example, is relatively safe; at some cost, though, it could be made still safer. Yet each extra safety-related increase in ticket prices makes some travelers decide to drive instead, which is up to 20 times more dangerous per mile traveled.

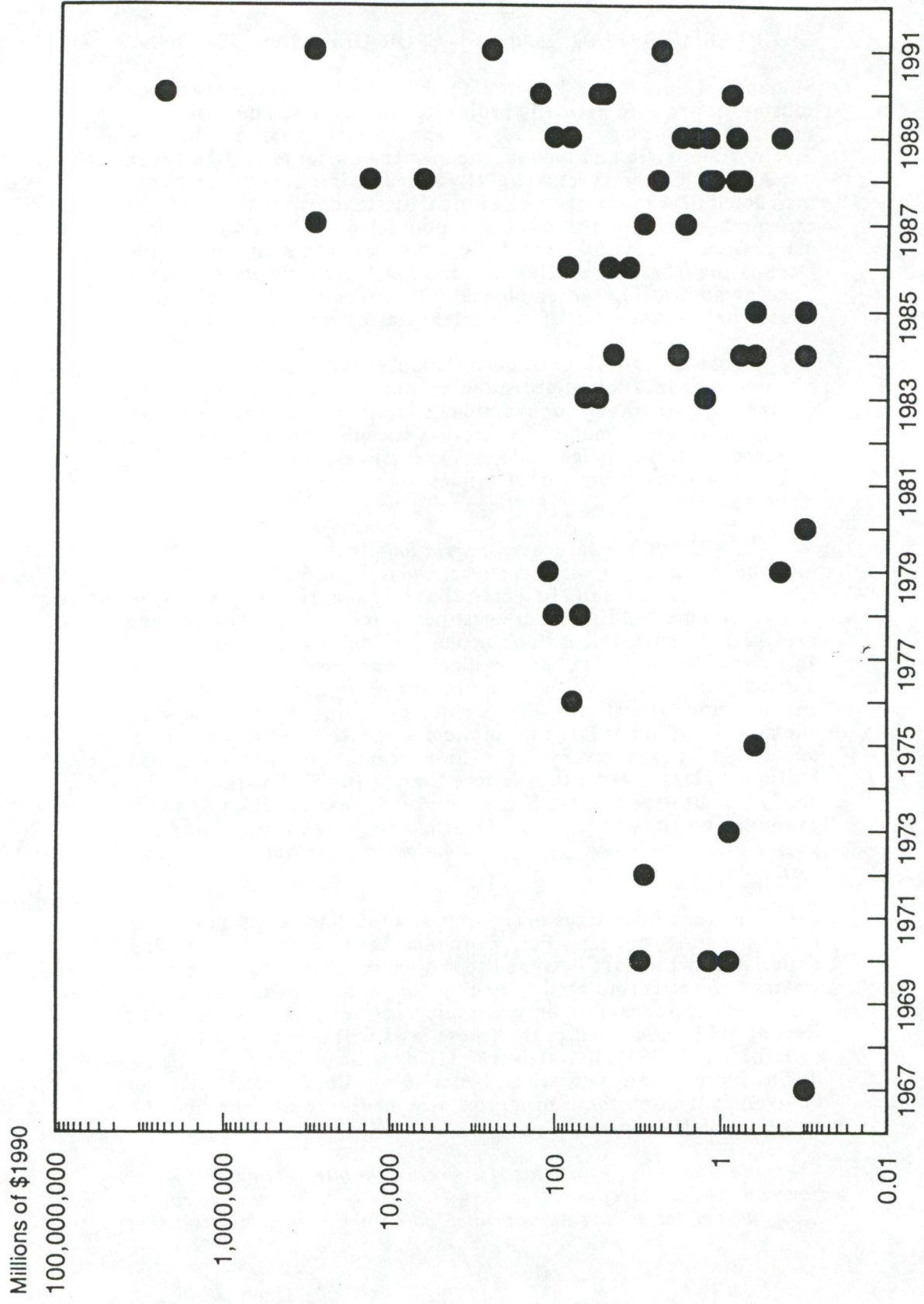
As Chart 5-3 indicates, *regulations issued during the 1980s were, on average, far more costly per unit of safety achieved than earlier ones had been.* (The vertical axis is logarithmic; each grid line represents 100 times more cost per unit of safety than the one below it). In part, this is due to congressional mandates placed on agencies. Before 1985, no regulation exceeded a cost of \$100 million per death averted. Eight such regulations have been enacted since that time. EPA's rule regulating wood-preserving chemicals, while not large in total costs, is estimated to avert only one case of cancer every 2.9 million years, and cost at least \$5 trillion dollars per death averted; that is 10 million times more costly per unit of safety than a number of earlier rules. In this example and elsewhere, *regulation often targets expensive risks and passes over those where greater reductions are possible at the same cost.*

Recent initiatives often impose high total costs as well as high per-unit costs. For example, several laws including Superfund, which are designed to reduce damage from hazardous wastes, were formulated when little was known about the environmental benefits or economic costs of the requirements. Recent evidence indicates that these laws will cost \$500 billion to \$1 trillion (in 1991 dollars) over the life of the programs. While no definitive estimate yet exists, benefits to public health and the environment from these programs are not likely to approach the magnitude of the costs.

Market failure may justify government intervention only if the government can improve on the market. Cost-benefit analysis can be a useful tool for setting appropriate goals when regulating risk even

Chart 5-3 Cost per Premature Death Averted of Federal Health and Safety Regulations

Federal regulation of risk has become less cost-effective.



though precise estimates of costs and benefits may not exist. Several regulatory agencies, including EPA, have recently attempted to establish risk regulation priorities as part of the Federal Government's larger initiative to develop a risk-based regulatory agenda. In regulating risk, as in regulating other areas, government policies should strive to maximize net benefits, enacting only those regulations in which benefits to society outweigh costs. To do otherwise diverts resources from more important risks and impedes economic growth.

SUMMARY

- o Market-based solutions are the most efficient means of allocating a given level of pollution.
- o Increased CAFE standards are potentially costly, would encourage consumers to maintain their older, less fuel-efficient automobiles, and could decrease highway safety.
- o In addressing the possibility of global climate change, the economic effects of proposed policies must be carefully evaluated before deciding which policies to implement.
- o In regulating health and safety risks, government policies should maximize net benefits, promulgating only those regulations whose benefits to society outweigh their costs.

CONCLUSION

The government plays a crucial role in facilitating competition through the establishment of a legal system that governs contracts, defines and protects property rights, and compensates people who have been injured. The Administration's proposed reforms to the legal system would lift the burden of litigation on economic productivity, while maintaining a fair system for settling disputes. Regulation can also play a direct role in improving the performance of the market system. *Any proposal to regulate the market, however, should be tempered by an understanding that regulation can be at least as imperfect as the market it is trying to improve.*

The government must constantly reevaluate the need to intervene in markets. For instance, the necessity of continuing to regulate industries should be reconsidered whenever innovations or technical changes allow a natural monopoly to be replaced by competition. The National Energy Strategy would accelerate deregulation in the markets for pipeline sales of natural gas and in the generation and sales of electric power, benefiting consumers with lower energy prices. Environmental protection is also an important goal of this Administration, but measures should reflect

CHAPTER 5 (01/17/92, 2:00pm) FOR OFFICIAL USE ONLY

the costs of shifting resources away from other uses to meet this challenge. Tradable allowances are an efficient tool for meeting strict pollution standards at minimum cost. Current regulations generally fail to strike the proper balance between costs imposed and benefits realized. To improve on this performance, the effectiveness of resources spent to reduce one type of risk must be weighed against the effectiveness of using those same resources to reduce other risks.

FAX Transmittal Sheet

DATE: 1/21/92

TO:

Harry Broadman

ORGANIZATION:

TELEPHONE:

FAX:

FROM:

N. Maynard

TELEPHONE:

(202) _____

FAX:

202-395-3719

NUMBER OF PAGES, INCLUDING COVER PAGE: 3

SPECIAL INSTRUCTIONS:

OSTP Comments on 1992 Economic Report
of the President, Chas. S.

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Document No.

277 320

WHITE HOUSE STAFFING MEMORANDUM

DATE: 01/17/92 ACTION/CONCURRENCE COMMENT DUE BY: C.O.B. Tuesday 01/21
SUBJECT: SECOND DRAFT
1992 ECONOMIC REPORT OF THE PRESIDENT, Chapter 5 --
COMPETITIVE FORCES AND REGULATION

	ACTION	FYI		ACTION	FYI
VICE PRESIDENT	☐	☒	HORNER	☒	☐
EXTENDED	☐	☒	MOORE	☒	☐
① AMAR -			MEYER	☐	☐
I don't know how you want				☒	☐
this transmitted to Brady.				☐	☐
I would say "concern with			MAN, Harry	☐	☒
Changes indicated on pp. 31 + 32."				☒	☐
I dropped the pp with Broadman				☐	☐
in 314 last night ~7pm NH				☐	☐
HOLIDAY	☒	☐		☐	☐

REMARKS:

Please provide any comments directly to Harry Broadman, Rm. 314 by COB on Tuesday, 1/21, with a copy to this office. Thanks.

RESPONSE:

CLOSE HOLD

PHILLIP D. BRADY
Assistant to the President
and Staff Secretary
Ext. 2702

STAFFING SHEET

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"Document Control"

TYPE: WHITE HOUSE MEMORANDUM DOCUMENT NUMBER: 9200084
ORIGINATOR: 02 STATUS I DIRECTORATE STATUS I

FROM: BRADY, Phillip D.: ASSISTANT TO THE PRESIDENT AND STAFF
SECRETARY

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 01/08/92

SUBJECT: REQUESTS COMMENTS ON THE FOURTH BIENNIAL REPORT OF
THE INTERAGENCY ARCTIC RESEARCH POLICY COMMITTEE.

DIRECTORATE STAFF
ASSIGNED: ENVIRONMENT ASSIGNED: *for info*

ACTION STAFF
REQUIRED: AS NECESSARY ACTION: COMMENTS TO DAB

SENDER'S DUE DATE: 01/22/92
OSTP DUE DATE: 01/22/92 STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT:

COPIES TO:

WHITE HOUSE TRACKING #: CONTACT PERSON:
PHONE: EXT:
REMARKS: This is a fairly straight forward, non-controversial report to
Congress. Minor point: appendix, pages 1 & 2, list of projects
that are either part of, or are coordinated with, the U.S.
Global Research Program (USGCRP) might be beneficial to make a
comment to that affect.

OSTP RECEIVED: 01/13/92 DEPT RECEIVED:
FILE: P-EOP-WHITE HOUSE STAFFING

CENTRAL FILES:

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TYPE: WHITE HOUSE MEMORANDUM

DOCUMENT NUMBER: 9200084

ORIGINATOR: 02

STATUS I

DIRECTORATE STATUS

FROM: BRADY, Phillip D.: ASSISTANT TO
SECRETARY

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 01/08/92

SUBJECT: REQUESTS COMMENTS ON THE FOURTH
THE INTERAGENCY ARCTIC RESEARCH

DIRECTORATE
ASSIGNED: ENVIRONMENT ✓ SI
AS

ACTION
REQUIRED: AS NECESSARY

STAFF
ACTION:

OSTP DUE DATE: 01/22/92
DATE COMPLETED: SENDER'S DUE DATE: 01/22/92
STAFF DUE DATE
DATE COMPLETED/DEPT:

COPIES TO: DR. BROMLEY

WHITE HOUSE TRACKING #:

CONTACT PERSON: JIM WADDELL
PHONE: 456-6215 EXT:

REMARKS: THIS A FAIRLY STRAIGHT FORWARD
AND NON-CONTROVERSIAL REPORT TO CONGRESS.
MINOR POINT: APPENDIX, PAGES 1 & 2, LIST PROJECTS
THAT ARE EITHER PART OF, OR ARE COORDINATED
WITH THE U.S. GLOBAL CHANGE RESEARCH PROGRAM (USGCRP)
MIGHT BE BENEFICIAL TO MAKE A COMMENT TO THAT AFFECT.

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CENTRAL FILES:

WHITE HOUSE STAFFING MEMORANDUM

92 JAN 13 PM 2:56

DATE: 1/8/92

ACTION/CONCURRENCE/COMMENT DUE BY: 1/22/92

SUBJECT: FOURTH BIENNIAL REPORT OF THE INTERAGENCY ARCTIC RESEARCH
POLICY COMMITTEE

	ACTION	FYI		ACTION	FYI
VICE PRESIDENT	☐	☐	HORNER	☐	☐
SKINNER	☐	☐	MCCLURE	☐	☐
SCOWCROFT	☐	☐	PETERSMEYER	☐	☐
DARMAN	☒	☐	PORTER	☒	☐
BRADY	☐	☒	ROGICH	☐	☐
BROMLEY	☒	☐	SMITH	☐	☐
CARD	☐	☐	CLERK	☐	☒
DEMAREST	☐	☐		☐	☐
FITZWATER	☐	☐		☐	☐
GRAY	☐	☐		☐	☐
HOLIDAY	☒	☐		☐	☐

REMARKS:

Please provide comments to this office by
JANUARY 22, 1992. Thank you.

PLEASE RETURN REPORT AFTER REVIEW.

RESPONSE:

PHILLIP D. BRADY
Assistant to the President
and Staff Secretary
Ext. 2702

- D R A F T -

TO THE CONGRESS OF THE UNITED STATES:

Pursuant to the provisions of section 108(b) of Public Law 98-373 (15 U.S.C. 4107(b)), I transmit herewith the Fourth Biennial Report of the Interagency Arctic Research Policy Committee (February 1, 1990, to January 31, 1992).

THE WHITE HOUSE,

This draft transmittal was prepared by the Office of the Executive Clerk.

- D R A F T -

U

11

TO THE CONGRESS OF THE UNITED STATES:

Pursuant to the provisions of section 108(b) of Public Law 98-373 (15 U.S.C. 4107(b)), I transmit herewith the Third Biennial Report of the Interagency Arctic Research Policy Committee (February 1, 1988, to January 31, 1990).

Cy Bush

THE WHITE HOUSE,

February 1, 1990.

- Copy of Test Xmittal -

DRAFT

NATIONAL SCIENCE FOUNDATION

January ____, 1992

The President
The White House
Washington, D.C. 20500

Dear Mr. President:

I am pleased to transmit through you to the Congress the enclosed report required under Public Law 98-373, as amended by Public Law 101-609, the Arctic Research and Policy Act.

The report is submitted on behalf of the Interagency Arctic Research Policy Committee for which the National Science Foundation serves as chair agency. The report lists activities and accomplishments of the Interagency Committee, which was authorized by the Act and established by Executive Order 12501 of January 28, 1985. As required by Public Law 101-609, it also lists, for the first time, agency responses to recommendations of the Arctic Research Commission.

It is a distinct honor for the member agencies to serve on the Interagency Committee and for the National Science Foundation to chair it.

Sincerely,

Walter E. Massey
Director

Enclosure: Biennial Report

FOURTH BIENNIAL REPORT OF THE
INTERAGENCY ARCTIC RESEARCH POLICY COMMITTEE
TO THE CONGRESS
FEBRUARY 1, 1990 TO JANUARY 31, 1992

Prepared by the National Science Foundation
for the Interagency Arctic Research Policy Committee

Section 108(b) of Public Law 98-373, as amended by Public Law 101-609, the Arctic Research and Policy Act, directs the Interagency Arctic Research Policy Committee (IARPC) to submit to Congress, through the President, a biennial report containing a statement of the activities and accomplishments of the IARPC. The IARPC was authorized by the Act and was established by Executive Order 12501 dated January 28, 1985.

Section 108(b)(2) of Public Law 98-373, as amended by Public Law 101-609 directs the IARPC to submit to Congress, through the President, as part of its biennial report, a statement "dealing with particularity the recommendations of the Arctic Research Commission with respect to Federal interagency activities in Arctic Research and the disposition and responses to those recommendations." In response to this requirement, the IARPC has examined all recommendations of the Arctic Research Commission since it was established in 1985. The required statements appear in Appendix A.

During the period February 1, 1990 to January 31, 1992, the IARPC has:

- o Prepared and published the second biennial revision to the United States Arctic Research Plan, as required by Section 108(a)(4) of the Act. The President transmitted the Plan to Congress on July 23, 1991.
- o Published and distributed four issues of the journal Arctic Research of the United States. The journal reviewed all Federal agency arctic research for FY 1989 and 1990 and included summaries of the IARPC and Arctic Research Commission meetings and activities. The Spring 1991 issue contained the full text of the second biennial revision to the U. S. Arctic Research Plan.
- o Consulted with the Commission on policy and program matters described in the Section 108(a)(3), was represented at all meetings of the Commission, and responded to Commission reports on goals and objectives, logistics and data. (Appendix A.)
- o Continued the processes of interagency cooperation and coordination required under Section 108(a)(6), (7), (8) and (9);
- o Provided input to an integrated budget analysis for arctic research for the President's budget, which identified \$116 million in Federal support for fiscal year 1990, and \$128 million in fiscal year 1991.
- o Provided for public participation as required in Section 108(a)(10), which culminated in public involvement in the development of the recommendations and the second biennial revision to the Plan at a meeting in Anchorage in March 1991.

- o Prepared a strategy report, published in January 1991, for an FY 1992 interagency arctic program that identified four key science elements for future research and coordination (Western Arctic Ocean Circulation and Productivity; Arctic Basin Geodynamics; Arctic Environmental Monitoring; and the Bering Land Bridge Program). (Appendix B.)
- o Participated in the development of testimony on federal arctic research for hearings on April 24, 1991 by the National Ocean Policy Study of the Senate Committee on Commerce, Science, and Transportation, and hearings on May 13, 1991 by the Science, Technology, and Space Subcommittee of the Senate Committee on Commerce, Science, and Transportation.
- o Prepared and updated the Arctic Environmental Data Directory, which now contains information on 350 arctic data sets, and published Arctic Data Interactive (ADI), a prototype CD-ROM (compact disc - read only memory) product containing arctic environmental data and information.
- o Established an Interagency Social Sciences Task Force and prepared a coordinated social sciences and health research plan. Of special concern is research on the health of indigenous peoples and research on the Arctic as a unique environment for studying human/environmental adaptation and sociocultural change.
- o Approved an Interagency Statement of Principles for the Conduct of Research in the Arctic to encourage communication and scientific partnerships with northern indigenous peoples (published in the second biennial revision to the United States Arctic Research Plan).
- o Participated in the establishment of the non-governmental International Arctic Science Committee.
- o Participated in policy formulation and official endorsement of the June 1991 international agreement for an Arctic Environmental Protection Strategy. This strategy contains a set of principles and objectives for the protection of the Arctic environment. It also established the Arctic Monitoring and Assessment Program (AMAP) to provide a forum for international harmonization of Arctic monitoring programs. IARPC's Environmental Monitoring Working Group serves as a U.S. focal point for AMAP and coordinates domestic monitoring efforts.
- o Convened two formal meetings of the Committee, in June, 1990 and June, 1991.

Appendix A:

Disposition and Response to Recommendations of the Arctic Research Commission

The Commission's recommendations appear in a series of publications, as follows:

1. National Needs and Arctic Research: A Framework for Action (May 1986)
2. Entering the Age of the Arctic (Annual Report, January 1988)
3. Logistic Support of Arctic Research (July 1988)
4. Goals and Objectives to Guide United States Arctic Research (December 1988)
5. Arctic Data and Information: Issues and Goals (June 1989)
6. Improvements to the Scientific Content of the Environmental Impact Statement Process (December 1989)
7. Arctic Engineering Research: Initial Findings and Recommendations (April 1990)
8. Logistic Support of United States Research in Greenland: Current Situation and Prospects (December 1990)
9. Goals, Objectives and Priorities to Guide United States Arctic Research (January 1991)

The Interagency Arctic Research Policy Committee's response to these recommendations appears in TABLE I. Recommendations have been summarized and combined, where appropriate; the full text of Arctic Research Commission recommendations may be found in the documents referenced under the column headed Source in TABLE I. The Interagency Arctic Research Policy Committee's responses to the Arctic Research Commission recommendations appear in the column headed Disposition and Response. Many of these responses refer to the Second Biennial Revision to the U.S. Arctic Research Plan, published in the journal Arctic Research of the United States, Volume 5, Spring 1991 (abbreviated in TABLE I as USARP 1991). The U.S. Arctic Research Plan was sent to the Congress by the President on July 23, 1991.

TABLE 1

INTERAGENCY ARCTIC RESEARCH POLICY COMMITTEE

Disposition and Response to Recommendations of the Arctic Research Commission

<u>RECOMMENDATION</u>	<u>SOURCE</u>	<u>IMPLEMENTING AGENCIES</u>	<u>DISPOSITION AND RESPONSE</u>
Arctic as a Component of Global Earth System			
Research to understand the Arctic Ocean, especially the Bering and marginal sea, sea ice, and sea bed.	1 4	NSF, DOC, DOD, DOI, NASA	Programs being implemented in accordance with Section 2.1, 2.2, 3.1, USARP 1991. See also Arctic Oceans Research: Strategy for an FY 91 Program, published by IARPC, Jan 1990.
Support research program to determine role of sea ice in controlling arctic living resources	2	NSF, DOD, DOC, NASA, DOI	Programs being implemented in accordance with Section 2.1, 3.6.3 USARP 1991
Research to understand the coupled land and atmosphere components of the Arctic system.	1 4	NSF, DOC, DOD, NASA, DOI, DOE	Programs being implemented in accordance with Section 3.4, USARP 1991
Systematic long-term monitoring of arctic atmosphere, land sea-surface parameters, sea ice and glacier behavior, and other sensitive climate indicators.	4	EPA, DOC, NSF, DOI, NASA, DOE, DOD	Arctic Monitoring and Assessment Program under development in accordance with Section 2.3 USARP 1991.
Assessment of the full extent and causes of stratospheric ozone depletion in the Arctic.	4	DOC, NASA, NSF	Programs being implemented in accordance with Section 2.3, 3.2.3 USARP 1991. NASA observations have verified depletion in the Arctic.

<u>RECOMMENDATION</u>	<u>SOURCE</u>	<u>IMPLEMENTING AGENCIES</u>	<u>DISPOSITION AND RESPONSE</u>
Research to understand the high-latitude upper atmosphere and its extension into the magnetosphere.	1 4	NSF, DOC, DOD, NASA, DOI, DOE	Programs being implemented in accordance with Section 3.2, USARP 1991.
Research in the health-culture-socioeconomic system: to identify and resolve the major health, behavioral, and cultural problems that derive from distinctive characteristics of the Arctic environment.	1 4	USDA, DOC, HHS, DOI, DOD, SI, State, NSF	Programs being implemented in accordance with Section 3.6, USARP 1991. Beringia program initiated, See Section 2.4, USARP 1991. Federal (HHS) - Alaska research cooperation.
Support four areas of arctic health research: injury control, cancer, diet, and infectious diseases.	2	HHS, DOD	Programs being implemented in accordance with Section 3.6.3 USARP 1991.
Research on the Arctic as a component of the global economic system	9	NSF, EPA, DOI, DOE DOC	NSF Arctic Social Sciences Program established, 1990. First research awards made in 1991. Also see Section 3.3 USARP 1991.
The economic importance of the commercial fishery in the Bering Sea to the U.S., Japan, and other nations requires a deeper understanding of that marine ecosystem as a rational basis for the prudent management of biotic resources and the safeguarding of U.S. interests in this area.	4	DOC, DOI, SI, NSF	Programs being implemented in accordance with Section 2.1, 3.1.2 and 3.6.2, USARP 1991.

<u>RECOMMENDATION</u>	<u>SOURCE</u>	<u>IMPLEMENTING AGENCIES</u>	<u>DISPOSITION AND RESPONSE</u>
Development of a program of enhanced science education at the elementary and high school levels in arctic Alaska.	4	NSF, DOI, SI	Federal support is available through NSF for Native American curriculum development. Other programs being implemented in accordance with Sections 3.6.1 and 3.6.2, USARP 1991.

Environmental Impact Statement Process

Impartial external scientific and engineering review mechanisms should be established (for environmental reviews).	6	All IARPC agencies	This policy already exists under CEQ regulations, 40 CFR, Parts 1500-1508.
External reviewers should be carefully selected for their expertise in the relevant fields.	6	All IARPC agencies	Agency policy.
External reviewers should be protected from litigation.	6	All IARPC agencies	Reviewers of public documents usually do not face direct litigation.
The full text of all reviews should become part of the public record.	6	All IARPC agencies	Required under Section 102(2)(C) of National Environmental Policy Act.
Agencies should stipulate that new scientific or technical information obtained during the course of an EIS process should be published in the refereed literature.	6	All IARPC agencies	Agency policy.

RECOMMENDATION

SOURCE

IMPLEMENTING AGENCIES

DISPOSITION AND RESPONSE

The identification, review and resolution of environmental issues should be channeled through a single coordination team.

6

All IARPC agencies

Most major EIS's are coordinated by agency interdisciplinary teams.

The Council on Environmental Quality (CEQ) should set guidelines for the implementation of the external review process.

6

CEQ

Guidance already exists in CEQ regulations.

CEQ has offered to host an interagency discussion regarding applying these recommendations in the context of a particular EIS.

Arctic Engineering

The IARPC should develop an arctic engineering research plan with special emphasis on the following priority items:

7

DOT, NSF, DOI, EPA, DOD

Engineering research being implemented. See Section 3.5, USARP 1991.

- Oil spill prevention technology, including containment and spill cleanup.
- Waste disposal and air pollution control.
- Power generation and energy storage.
- Improved arctic construction techniques.
- Transportation systems for arctic conditions.
- Materials and processes with properties for arctic operations.

Private industry research programs complement Federal research.

RECOMMENDATION

SOURCE

IMPLEMENTING AGENCIES

DISPOSITION AND RESPONSE

Priority areas of applied scientific research whose results are of crucial importance for arctic engineering:

- Physical properties of ice and snow.
- Physical and chemical behavior of arctic soils.

7

NSF, DOD

Research being implemented in accordance with Section 3.1.1, USARP 1991 for physical properties of ice and snow; Section 3.4.2 for arctic soils.

More extensive communication and cooperation should be developed between the various government agencies and the professional societies.

7

All IARPC agencies

Most communication and cooperation is on the basis of individual participation in professional society activities.

High priority should be given at U.S. universities to the improvement of existing, and the development of new engineering courses and programs.

7

NSF, DOD

Federal support is available for curriculum development.

The U.S. should support a strong component of cooperative arctic engineering research in the programs of the International Arctic Science Committee (IASC).

7

NSF, DOD, DOC

IASC programs are under development at the time of this report.

Arctic Data and Information

IARPC should take the lead in developing U.S. policy directives for the management of arctic data and information.

5

All IARPC agencies

Data Policy Statement developed in context of Global Change Research Program.

RECOMMENDATION

SOURCE

IMPLEMENTING AGENCIES

DISPOSITION AND RESPONSE

Arctic data policy and guidelines should be based on the needs of the user community.

5

Prototype Arctic Environmental Data Directory Working Group (AEDDWG) involves agency, academic, international Arctic community.

An adequate portion of funds allocated to arctic research by the Federal Government should be set aside for the successful management of data and the dissemination of information.

5

Some IARPC agencies share funding for AEDDWG; each operates independently with preservation of and access to Arctic data and information.

An Arctic Data and Information System (ADIS) should be planned and developed under the guidance of IARPC to handle publicly available scientific and technical data and information.

4

Preliminary effort is joint development of Arctic Environmental Data Directory, linked to Earth Science Data Directory. Arctic data are referenced, but data reside in host agencies.

The policy and plans for an ADIS should address the following, listed in order of decreasing priority: (1) interlinking data and information; (2) defining needs for environmental monitoring and long-term data; (3) ensuring quality control of data;

5

Programs being implemented in accordance with Section 2.5, USARP 1991.

OSTP policy addresses priorities 1,3,5,6,7 and 9. Interagency plans for the prototype Arctic

<u>RECOMMENDATION</u>	<u>SOURCE</u>	<u>IMPLEMENTING AGENCIES</u>	<u>DISPOSITION AND RESPONSE</u>
(4) devising strategies to arrest the proliferation of "gray literature"; (5) improving the mechanisms for international exchange of arctic data and information; (6) providing for standardization of data and information; (7) minimizing the cost to the user of data and information services; (8) safeguarding confidentiality (9) providing for the recording of historical and proxy data; (10) protecting data and information from environmental and human hazards.			Environmental Data Directory address the first steps for priorities 1,2,3,5,6,7,9,10. Agency and interagency plans for the Arctic Data and Information System are preliminary, viewing development of the Global Change Data and Information System as the model to follow.
IARPC should consider a cooperative interagency agreement as the vehicle for the implementation of arctic data and information policy.	5	All IARPC agencies	OSTP Data Policy Statement provides policy guidelines for "full and open sharing" of scientific data and information.
<u>Arctic Logistics</u>			
Provide Arctic Research vessel with ice-breaking capabilities	1 3 4 9	NSF, DOT	Commenced acquisition of replacement Coast Guard polar icebreaker. Bids opened Oct 11, 1991. Contract award Feb/Mar 1992.

RECOMMENDATIONSOURCEIMPLEMENTING AGENCIESDISPOSITION AND RESPONSE

Multi-year upgrade of scientific support capabilities of USCG Polar-class icebreakers nears completion.

Additional arctic research vessel under consideration by NSF. Conceptual design completed for class 3 ice capable ship.

Support Land-based logistics centers

1
3
4

NSF, DOE, DOD, DOI

Many land based centers exist. See Section 4 of USARP 1991. State of Alaska has published a directory of Federal and State research sites and facilities.

Provide high-latitude sounding rocket launch facility

1
3
4

NSF, DOD, NASA

Poker Flat Rocket Range, Alaska is being upgraded to state of the art capability.

Provide central logistics coordination

1
3
4

NSF, DOD

See Section 4, USARP 1991

IMPLEMENTING AGENCIES

SOURCE

DISPOSITION AND RESPONSE

RECOMMENDATION

Logistics Support of US Research in Greenland

The Department of Defense (DOD) should give careful consideration to the continuance of an adequate logistic support capability at Sondrestrom Air Force Base.

DOD

Department of Defense will terminate operations at Sondrestrom Air Base by September 30, 1992. Air National Guard flights will continue for transport of passengers and cargo.

Alternative scenarios of Danish takeover of Sondrestrom Air Base should be considered.

DOD, NSF

Currently under negotiation with Greenland Home Rule Government.

New modes of research operations for the major projects in Greenland should be designed.

NSF

The NSF-funded Polar Ice Coring Office would consider new operational modes as projects require.

Closer research ties with Danish and other European researchers should be developed.

DOD, NSF, NASA

On-going process. Agencies attend annual meeting with Danish Commission for Research in Greenland.

<u>RECOMMENDATION</u>	<u>SOURCE</u>	<u>IMPLEMENTING AGENCIES</u>	<u>DISPOSITION AND RESPONSE</u>
Agencies should alert the U.S. scientific community concerned with research in Greenland and provide them with details on the ongoing U.S./Denmark negotiations regarding Sondrestrom.	8	All IARPC agencies	Information being provided on an on-going basis.
<u>International</u> Continued vigorous participation of the U.S. in the planning process for the establishment of an International Arctic Science Committee.	4	All IARPC agencies	IASC was established, 1990. U.S. participation is through the Polar Research Board.

SOURCES

1. National Needs and Arctic Research: A Framework for Action (May 1986)
2. Entering the Age of the Arctic (Annual Report, January 1988)
3. Logistic Support of Arctic Research (July 1988)
4. Goals and Objectives to Guide United States Arctic Research (December 1988)
5. Arctic Data and Information: Issues and Goals (June 1989)
6. Improvements to the Scientific Content of the Environmental Impact Statement Process (December 1989)
7. Arctic Engineering Research: Initial Findings and Recommendations (April 1990)
8. Logistic Support of United States Research in Greenland: Current Situation and Prospects (December 1990)
9. Goals, Objectives and Priorities to Guide United States Arctic Research (January 1991)

Appendix B:

Status Reports on IARPC Program Implementation

The Interagency Arctic Research Policy Committee (IARPC) is developing integrated interagency programs to meet national needs for arctic research. At its June 5, 1991 meeting, the IARPC Chairman requested that status reports on implementation of these integrated interagency programs be included in this biennial report. Reports on these IARPC programs follow:

I. Arctic Ocean/Atmosphere Research

The Arctic Ocean/Atmosphere Research Working Group was formed in 1989. It is coordinating multiagency research programs for the Bering-Chukchi-Beaufort Sea region based on the following agency programs.

The National Science Foundation's (NSF) Arctic System Science (ARCSS) Program is an Arctic-wide study to understand the physical, geological, chemical, biological, and social processes of the arctic system that interact with the total Earth system and thus contribute to or are influenced by global change. Its Ocean-Atmosphere-Ice Interactions component initiated 26 projects in Fiscal Year 1991.

The Office of Naval Research's (ONR) Arctic Sciences Program has three principal components that include or are being conducted in the western Arctic: Arctic Research, Sea Ice Mechanics, and LEADEX (a study of large open cracks, or leads, in pack ice and their implications for air-sea coupling). A pilot study related to leads investigations was initiated in FY91.

NASA's Alaska Synthetic Aperture Radar (SAR) Facility began acquiring and processing SAR images and derived products from the ERS-1 satellite shortly after launch of the satellite in July 1991. Distribution of these products to the research community will begin as soon as approval to do so is received from the European Space Agency. Meanwhile, the National Snow and Ice Data Center (NSIDC) is continuing routine distribution of CD-ROM data disks containing high-latitude information derived from the passive-microwave sensors Scanning Multichannel Microwave Radiometer (SMMR) and Special Sensor Microwave/Imager (SSM/I). NASA-supported research using data from the Alaska SAR Facility and from NSIDC addresses primarily the role of the Arctic in global climate, with a focus on ocean/ice/atmosphere interactions. This work complements the process studies and in situ investigations supported by other agencies. NASA is also assessing the feasibility of using airborne laser altimeters to monitor the mass balance of the Greenland Ice Sheet.

NOAA's arctic research capabilities address mission-related specific problems and support other agency programs (e.g., ONR studies of leads). NOAA's Fisheries Oceanography Coordinated Investigations (FOCI) is examining the rich fisheries of the Bering Sea with a focus on pollock. NOAA conducted assessments of bottom fish and shellfish resources, and continued studies of certain marine mammals (e.g., northern fur seals and sea lions, and bowhead whales) in the Bering Sea. A joint study of the ocean circulation from Bering Strait into the Arctic basin was undertaken with Russian researchers.

NOAA and the Navy initiated studies to improve predictions of sea ice through communication of synthetic aperture radar (SAR) data from the NASA-supported Alaska SAR Facility at the University of Alaska to the Navy/NOAA Joint Ice Center (JIC) in Suitland, Maryland. The Navy/NOAA JIC is also expanding the Arctic Drifting Buoy Program through an interagency coordination effort established to maintain a network to satisfy both operational and global change research requirements.

The Office of the Oceanographer of the Navy continued to modernize and improve its sea ice analysis and forecasting capabilities at the JIC through the development of the Digital Ice Forecasting and Analysis System (DIFAS), the Polar Ice Prediction System (PIPS) ice forecasting model, and a communications link between U.S. and Canadian ice centers for the routine exchange of sea ice and iceberg data and products.

The Fish and Wildlife Service continued cooperative investigations with Russia to improve and standardize methods for Pacific Walrus assessments. Studies of polar bears continued, including investigations of potential impacts of oil exploration on the Arctic National Wildlife Refuge.

Marine Geology and Geophysics

The Office of Naval Research, U.S. Geological Survey, and NSF Marine Geology and Geophysics programs conduct projects to understand the Arctic continental margin and deep ocean basin, one of the least understood geological regions of the world. Geophysical and geological research is underway to understand the tectonic history, geological structure, sediment distribution, and climatic and glacial history of the deeper basin.

Current marine geology and geophysics programs include a sediment dynamics field effort led by ONR with participation by USGS and NSF in the Storfjorden and Kangerdlugssuaq Fjords. Extensive sediment coring by the POLAR STAR and POLARSTERN was accomplished in the eastern Arctic as part of the International Arctic Oceanographic Expedition; and an airborne gravity meter/magnetometer survey was completed over the southern half of Greenland by Navy/Defense Mapping Agency.

II. Arctic Monitoring

The Arctic Monitoring Working Group was established by the Interagency Arctic Research Policy Committee (IARPC) at its June 5, 1991 meeting to support the newly developed international Arctic Monitoring and Assessment Program (AMAP). The Committee directed that NOAA and EPA serve as the co-chairs of the Working Group.

The purpose of the Working Group is to promote the integration of U.S. monitoring activities in the Arctic regions, and to provide a focal point for U.S. interactions with the Arctic Monitoring and Assessment Program (AMAP) established by the Arctic Environmental Protection Strategy.

The first meeting of the AMAP Task Force was held in December 1991 in Tromso, Norway. The major issues discussed were: 1) defining a mandate, rules, and procedures

for AMAP, 2) developing a monitoring and assessment framework, 3) tasking lead countries to develop expert reports in the areas of emissions and sources (Secretariat), atmosphere (Canada), marine (Norway), freshwater (Finland), terrestrial (Sweden), human health (Denmark), and remote sensing and modeling (USA), 4) proposing the nature and scope of a harmonized monitoring network, 5) developing a plan for the management of key Arctic data, 6) defining the relationship between AMAP and other international fora, including IASC (the International Arctic Science Committee).

III. Arctic Data and Information

The Arctic Environmental Data Directory Working Group was formed in 1989. Its goal is to develop a system of primary sources for information on data for Arctic environmental research. To achieve this goal, it has developed the Arctic Environmental Data Directory (AEDD), a subset of the Earth Science Data Directory, published and distributed the Arctic Data Interactive (ADI) compact disc, and held workshops and symposia.

The AEDD entries represent significant Arctic holdings managed by several IARPC agencies, several Alaska state and local agencies, various universities which conduct Arctic research, and Ministries in Canada and other Arctic nations. AEDD is maintained by the U.S. Geological Survey.

A prototype digital data publication, the Arctic Data Interactive (ADI), on Compact Disc Read-Only Memory (CD-ROM) was developed to disseminate AEDD. The ADI compact disc was distributed to Arctic scientists, educators, libraries, and the public. The ADI won a Federal design and achievement award and is a candidate for a Presidential Design Achievement Award by the National Endowment for the Arts.

The Group has an outreach program to contact organizations which gather and manage Arctic data and those which use Arctic data and information. Workshops have been held in many Alaska locations, and presentations on Arctic data activities have been given to Federal and academic groups and conferences.

Future priorities are to increase the number of references to Arctic data in the AEDD, especially to the holdings of U.S. agencies, to improve and maintain the quality of the references in AEDD, and to increase socio-economic and health-related data entries. It is working with international programs such as the Arctic Monitoring and Assessment Program to use AEDD to represent Arctic data from other nations.

IV. Arctic Social Sciences/Bering Land Bridge

IARPC's Implementation Working Group on the Bering Land Bridge was established in 1991. Beringia, the lands and seas adjacent to Bering Strait, are a crossroads of the New and the Old Worlds. The region is an important focus of scientific cooperation. Proposals for trans-Beringian research are being formulated by American and Russian scientists. Among the subjects being addressed are North Pacific oceanography and fisheries; paleoecology, botany, and zoology; and the cultures, languages, history, and archeology of native peoples. Other concerns include problems of extracting natural resources without

damaging the environment, and preserving cultural heritage while facilitating human adaptation to rapidly changing environmental, social, economic, and political conditions.

The Smithsonian's international exhibition, "Crossroads of Continents: Cultures of Siberia and Alaska," the National Park Service's Beringian Heritage International Park program, the NSF Arctic Social Sciences Program, and a series of recent international symposia illustrate the potential for trans-Beringian scientific research programs to be implemented through the IARPC. In the summer of 1991 ethnographic and archaeological field projects were initiated in Northwest Alaska with NSF, Smithsonian, and National Park Service support.