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Congressional Record

PROCEEDINGS AND DEBATES OF THE 93d CONGRESS, FIRST SESSION

SENATE—*Friday, December 7, 1973*

The Senate met at 10 a.m. and was called to order by the Vice President.

PRAYER

Dr. C. Ralston Smith, special assistant to the Reverend Billy Graham, offered the following prayer:

Almighty and ever-blessed God, on this historic day we stand between the memories of yesteryear and our hopes for tomorrow.

We recall how, a generation ago, the acts of infamous men plunged our Nation into the holocaust of war. In our recollections of those times we acknowledge Thee as sovereign over all things. It was by Thy mighty arm that order was brought out of chaos, triumph issued out of tragedy, and righteousness prevailed over evil.

Now we look ahead in the confidence that You will direct and guide the deliberations of this Senate that its achievements might be in accordance with Thy will. We pray for each Member that he might be responsive to Thy purposes and promptings.

Especially do we ask Thy blessing upon our Vice President, GERALD FORD, as he undertakes the responsibility of presiding at these significant sessions. Endue him plentifully with wisdom and grace. May efficiency and understanding, joy and peace, be the badges of his leadership.

These things we ask in the name of Jesus Christ who calls us to follow Him in every vocation of our common life. Amen.

THE JOURNAL

Mr. MANSFIELD. Mr. President, I ask unanimous consent that the reading of the Journal of the proceedings of Thursday, December 6, 1973, be dispensed with.

The VICE PRESIDENT. Without objection, it is so ordered.

COMMITTEE MEETINGS DURING SENATE SESSION

Mr. MANSFIELD. Mr. President, I ask unanimous consent that all committees may be authorized to meet during the session of the Senate today.

The VICE PRESIDENT. Without objection, it is so ordered.

BOSTON NATIONAL HISTORICAL PARK, MASS.

Mr. MANSFIELD. Mr. President, I ask unanimous consent that the Senate proceed to the consideration of Calendar No. 577, S. 210.

The VICE PRESIDENT. The bill will be stated by title.

The assistant legislative clerk read as follows:

S. 210, to authorize the establishment of the Boston National Historical Park in the Commonwealth of Massachusetts.

The VICE PRESIDENT. Is there objection to the present consideration of the bill?

There being no objection, the Senate proceeded to consider the bill, which had been reported from the Committee on Interior and Insular Affairs with amendments on page 2, after line 8, strike out "(3) The area identified as the Old North Church area, 193 Salem Street; Boston;"; at the beginning of line 11, strike out "(4)" and insert "(3)"; at the beginning of line 13, strike out "(5)" and insert "(4)"; at the beginning of line 14, strike out "(6)" and insert "(5)"; on page 3, line 12, after the word "Copp's" strike out "Hill." and insert "Hill; (6) Thomas Dillaway House; (7) The area identified as the Old North Church area, 193 Salem Street, Boston."; and on page 6, at the beginning of line 20, strike out "such sums as are necessary to carry out the purposes of this Act;" and insert "not to exceed $360,000 for land acquisition and $8,067,000 for development of the historic site;"; so as to make the bill read:

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

BOSTON NATIONAL HISTORICAL PARK

SEC. 2. (a) In order to preserve for the benefit and inspiration of the people of the United States as a national historical park certain historical structures and properties of outstanding national significance located in Boston, Massachusetts, and associated with the American Revolution and the founding and growth of the United States, the Secretary of the Interior (hereinafter referred to as the "Secretary") is authorized, in accordance with the provisions of this Act, to acquire only with the consent of the current owner by donation or by purchase with donated or appropriated funds, and all lands and improvements thereon or interests therein comprising the following described areas:

(1) Faneuil Hall, located at Dock Square, Boston;

(2) Paul Revere House, 19 North Square, Boston;

(3) The Old State House, Washington and State Street, Boston;

(4) Bunker Hill, Breeds Hill, Boston; and

(5) Old South Meeting House, Milk and Washington Streets, Boston.

(b) At any such time as the Secretary determines that he has acquired sufficient lands, improvements, and interests therein or entered into cooperative agreements with sufficient numbers of private, municipal, or State owners as provided in section 3 of this Act, to provide an efficient administrative unit, he is authorized to establish such lands, improvements, and interests as the Boston National Historical Park by the publication of that fact in the Federal Register, together with a detailed map setting forth the boundaries thereof.

(c) In addition to the above described areas, the Secretary is authorized to study the following locations, and any others he deems appropriate for inclusion in the park, either by donation or by purchase with the consent of the owner with donated or appropriated funds, or by entering into cooperative agreements:

(1) Boston Common;

(2) Charlestown Navy Yard;

(3) Thomas Crease House (old Corner Book Store);

(4) Dorchester Heights;

(5) following burying grounds: King's Chapel, Granary, and Copp's Hill;

(6) Thomas Dillaway House;

(7) The area identified as the Old North Church area, 193 Salem Street, Boston.

(d) No site will be included in the park which has not been either acquired with the consent of the owner or the subject of a cooperative agreement as outlined in section 3.

COOPERATIVE AGREEMENTS

SEC. 3. In furtherance of the general purposes of this Act as prescribed in section 2 thereof, the Secretary is authorized to enter into cooperative agreements with the city of Boston, the Commonwealth of Massachusetts, and private organizations to assist in the preservation and interpretation of such of the properties listed in section 2, or portions thereof, which, in his opinion, would best be preserved in private, municipal, or State ownership, in connection with the Boston National Historical Park. Such agreements shall contain, but shall not be limited to, provisions that the Secretary, through the National Park Service, shall have right of access at all reasonable times to all public portions of the property covered by such agreement for the purpose of conducting visitors through such properties and interpreting them to the public, that no changes or alterations shall be made in such properties except by mutual agreement between the Secretary and the other parties to such agreements, except that no limitation or control of any kind over the use of any such properties customarily used for church purposes shall be imposed by any agreement. The agreements may contain specific provisions which outline in detail the extent of the participation by the Secretary in the restoration, preservation, and maintenance of the historic site. Any historical properties not acquired by negotiated purchase, donation, or not the subject of a cooperative agreement may be excluded from the Boston National Historical Park.

AUTHENTICATED U.S. GOVERNMENT INFORMATION GPO

ADDITIONAL AREAS

SEC. 4. The Secretary is authorized to accept donations of property of national historical interest and significance located in the city of Boston which he may deem proper for administration as part of the Boston National Historical Park. Upon such acceptance, such property shall be deemed part of such park. The Secretary may purchase with the consent of the owner or enter into a cooperative agreement with the owner of any additional historic sites which he deems appropriate for inclusion in the Boston National Historical Park.

ADVISORY COMMISSION

SEC. 5. The Secretary is authorized to establish a suitable advisory commission. The members of the advisory commission shall be appointed by the Secretary, with three members to be recommended by the Governor of Massachusetts, three by the mayor of the city of Boston, Massachusetts, and one each by the organizations with which the Secretary has concluded cooperative agreements pursuant to section 3 of this Act. The advisory commission shall render advice to the Secretary, from time to time, upon matters which he may refer to them for consideration.

HISTORICAL MARKERS

SEC. 6. The Secretary is hereby authorized to carry out a program of historical marking in the city of Boston, Massachusetts, and other municipalities within the Commonwealth of Massachusetts, to cover nationally significant sites of the colonial and Revolutionary periods of American history, and such sites as are related to any unit of the national park system within the Commonwealth of Massachusetts, through agreements with the owners of such sites.

VISITOR CENTER

SEC. 7. The Secretary with the consent of the advisory commission is authorized to construct on lands acquired by him in accordance with this Act or upon other lands that may be donated to him for such purpose, or make use of existing facilities with proper restoration, a suitable visitor center for the interpretation of the historical features of the Boston National Historical Park.

ADMINISTRATION

SEC. 8. The Boston National Historical Park shall be administered by the Secretary in accordance with the provisions of this Act, the Act of August 25, 1916 (39 Stat. 535), as amended and supplemented (16 U.S.C. 1 et seq). and the Act of August 21, 1935 (49 Stat. 666; 16 U.S.C. 461–467).

AUTHORIZATION

SEC. 9. There are hereby authorized to be appropriated not to exceed $360,000 for land acquisition and $8,067,000 for development of the historic site; except that no such sums shall be used for the purchase of property owned by the Commonwealth of Massachusetts, or the city of Boston, Massachusetts.

Mr. KENNEDY. Mr. President, I am delighted that the Senate is now about to approve the important legislation which I introduced last January to establish the Boston National Historic Park. The bill authorizes $8 million to be appropriated for the preservation of major Revolutionary War sites in Boston.

The bill recommends the appropriation of funds for the following sites:

Visitor Center	$3,412,000
Bunker Hill	1,215,000
Old State House	1,550,000
Faneuil Hall	2,050,000
Old South Meeting House	200,000

In addition other sites will be studied for inclusion in the park:

Old North Church.
Boston Common.
Charlestown Navy Yard.
Old Corner Book Store.
Dorchester Heights.
Dilloway-Thomas House.
King's Chapel Burying Ground.
Granary Burying Ground.
Copp's Hill Burying Ground.

The outstanding feature of this National Historic Park in Boston is its dynamic concept—sites can be added to the park at any later time if cooperative agreements are reached between the site owners and the National Park Service. These cooperative agreements may range from the purchase of the site by the Park Service to simply the placing of markers and the retention of the site by the current owner. There will be absolutely no taking of any homes for this park. Those assurances which the residents of Boston have received since this legislation was introduced have been emphasized in the report filed by the Interior Committee.

On July 17, 1972, I met with community leaders in Boston to discuss the drafting of legislation to prevent the further deterioration of some of our Revolutionary War sites, the enhancement of others, and the costs of maintaining the sites, especially in light of the expected visitor influx for the bicentennial celebration. On September 20, 1972, I introduced the Boston National Historic Park bill which was largely the result of the work of historic preservation groups, site owners, city and State officials, and the residents of Boston, who have dedicated themselves for so long to caring for these sites.

Since that time there has been an enormous outpouring of support for this proposal. The Governor of the Commonwealth, the mayor of Boston, bicentennial officials, site owners, school groups, individual citizens—everyone has demonstrated through public statements and letters and phone calls that we have a unique proposal in the Boston National Historic Park.

I am delighted for the citizens of Boston who have cared for these historic treasures for so long without financial assistance from the Federal Government that they can now look forward to the kind of financial aid which will restore these sites for the families and schoolchildren of Boston. For 200 years dedicated men and women have devoted their time and efforts and schoolchildren have contributed their pennies to preserve the relics of the Revolution. Passage of the Boston National Historic Park by the Senate today is a recognition of that commitment to our history. I am hopeful that the House of Representatives will act quickly on companion legislation introduced by Congressman THOMAS P. O'NEILL so that the enormous task of restoration can begin early next year.

We have very little time left in Boston to prepare for the Bicentennial. Visitors will start coming to the Commonwealth in less than 15 months to begin the celebration of our 200th birthday.

The population of Masachusetts is 5½ million people. The lowest estimate of visitors to Massachusetts for the Bicentennial Celebration is 6 million people in 1 year. The highest estimate ranges to 12 million. The number of people in the Commonwealth for our 200th anniversary will double or triple in 1975 and 1976.

The city of Boston alone estimates that it will cost over $6 million to provide essential police and sanitary services during this period. The numbers of visitors to the landmarks of the American Revolution will obviously increase enormously. Last year 175,000 people visited Faneuil Hall; over 50,000 visited the Old State House.

The citizens of the Commonwealth of Massachusetts are grateful for the distinguished leadership of Senator ALAN BIBLE of Nevada, who came to Boston for public hearings on this legislation and through whose efforts this bill has passed the Senate. Again, I am hopeful that the House will act quickly to insure that citizens from all across this Nation will have the opportunity to visit Boston in 1975 and 1976 to step into our past by visiting these historic treasures. It will not be simply a history lesson. It will mark a recognition of the principles on which this Nation was founded.

Ben Franklin once said that he would like to return to America in 200 years to see if Americans still value their freedom. We do. And in Boston we now can continue to preserve the memory of the struggle to achieve that freedom.

The amendments were agreed to.

The bill was ordered to be engrossed for a third reading, read the third time, and passed.

ENROLLED BILLS SIGNED

The VICE PRESIDENT affixed his signature to the following enrolled bills previously signed by the Speaker of the House of Representatives:

S. 1747. An act to amend the International Travel Act of 1961 to authorize appropriations for fiscal years 1974, 1975, and 1976, and for other purposes; and

H.R. 8877. An Act making appropriations for the Departments of Labor, and Health, Education, and Welfare, and related agencies, for the fiscal year ending June 30, 1974, and for other purposes.

EXECUTIVE SESSION

Mr. MANSFIELD. Mr. President, I ask unanimous consent that the Senate go into executive session to consider nominations on the Executive Calendar, beginning with new reports.

There being no objection, the Senate proceeded to the consideration of executive business.

The VICE PRESIDENT. The nominations on the Executive Calendar, beginning with new reports, will be stated.

U.S. AIR FORCE

The second assistant legislative clerk read the nominations in the U.S. Air Force, as follows:

Lt. Gen. Thomas K. McGehee (major general, Regular Air Force), to be a lieutenant general.

Maj. Gen. Royal N. Baker (major general, Regular Air Force), to be a lieutenant general.

Mr. MANSFIELD. Mr. President, I ask unanimous consent that the nominations be considered en bloc.

The VICE PRESIDENT. Without objection, the nominations are considered and confirmed en bloc.

U.S. NAVY

The second assistant legislative clerk read the nominations in the U.S. Navy, as follows:

Rear Adm. Eli T. Reich, U.S. Navy, retired, to be vice admiral.

Adm. Richard G. Colbert, U.S. Navy, to be admiral.

Mr. MANSFIELD. Mr. President, I note that the first name on the list is Rear Adm. Eli T. Reich. I understand that he is head of the oil agency in a Department of the Interior. I should like to know whether he was occupying that position on an active or retired status. I raise the question rhetorically.

Mr. President, I ask unanimous consent that the nominations be considered en bloc.

The VICE PRESIDENT. Without objection, the nominations are considered and confirmed en bloc.

U.S. MARINE CORPS

The second assistant legislative clerk read the nominations in the U.S. Marine Corps as follows:

Lt. Gen. Leo J. Dulacki, U.S. Marine Corps, to be lieutenant general.

Maj. Gen. Samuel Jaskilka, U.S. Marine Corps, to be lieutenant general.

Mr. MANSFIELD. Mr. President, I ask unanimous consent that the nominations be considered en bloc.

The VICE PRESIDENT. Without objection, the nominations are considered and confirmed en bloc.

NOMINATIONS PLACED ON THE SECRETARY'S DESK

The second assistant legislative clerk proceeded to read sundry nominations in the Air Force, the Army, and the Navy, which had been placed on the Secretary's desk.

The VICE PRESIDENT. Without objection, the nominations are considered and confirmed en bloc.

Mr. MANSFIELD. Mr. President, I ask unanimous consent that the President be notified of the confirmation of these nominations.

The VICE PRESIDENT. Without objection, it is so ordered.

LEGISLATIVE SESSION

Mr. MANSFIELD. Mr. President, I ask unanimous consent that the Senate return to legislative business.

There being no objection, the Senate resumed the consideration of legislative business.

ORDER OF BUSINESS

The VICE PRESIDENT. Does the Senator from Pennsylvania desire to be heard?

Mr. HUGH SCOTT. Yes, Mr. President.

A NEW BASEBALL TEAM FOR WASHINGTON

Mr. HUGH SCOTT. Mr. President, I rise this morning to note that Washington has moved another giant step in the long route toward acquiring a professional baseball team. The patience that the leaders of this movment have demonstrated during this frustrating experience must go down in the books with that demonstrated by Job.

Mr. President, on behalf of the baseball fans in this area, may I take this opportunity to thank Mr. Joseph Danzansky and his associates for having this patience. May I also take this opportunity to point out that with the addition of a Washington National League baseball team—if all goes well—this will make Washington an all-sports city—professional basketball professional football, professional hockey, and once again professional baseball. Let us not forget that we have what we might call professional fans who support these teams.

Mr. President, I take particular note of the fact that my Philadelphia Phillies will open the season with the new Washington team which yet remains nameless. I, for one, see no reason why the team should not be named again the "Senators." That has a nice ring to it. In this Chamber I think we might have a unanimous vote for such a rechristening. Perhaps it might even inspire us in the Senate to win a few games.

ORDER OF BUSINESS

The VICE PRESIDENT. Under the previous order, the distinguished Senator from South Dakota (Mr. McGOVERN) is recognized for not to exceed 15 minutes.

(The remarks Senator McGOVERN made on the introduction of S. 2789, the Vietnam veterans GI bill, and the ensuing discussion are printed in the routine morning business section of the RECORD under Statements on Introduced Bills and Joint Resolutions.)

TRANSACTION OF ROUTINE MORNING BUSINESS

The PRESIDING OFFICER (Mr. CLARK). Under the previous order, there will now be a period for the transaction of routine morning business, for not to exceed 15 minutes, with statements therein limited to 3 minutes.

Mr. GRIFFIN. Mr. President, I ask unanimous consent that a staff member of the Committee on Commerce, David Clinton, have the privilege of the floor during the consideration of S. 1283.

The PRESIDING OFFICER. Without objection, it is so ordered.

ORDER FOR ADJOURNMENT UNTIL 10 A.M. MONDAY

Mr. ROBERT C. BYRD. Mr. President, I ask unanimous consent that when the Senate completes its business today, it stand in adjournment until 10 a.m. on Monday.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. ROBERT C. BYRD. Mr. President, I do not know whether this order will be changed, but for the moment it is 10 a.m. on Monday.

ORDER FOR TRANSACTION OF ROUTINE MORNING BUSINESS ON MONDAY

Mr. ROBERT C. BYRD. Mr. President, I ask unanimous consent that on Monday, after the two leaders or their designees have been recognized under the standing order, there be a period for the transaction of routine morning business, for not to exceed 15 minutes, with statements therein limited to 3 minutes.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. ROBERT C. BYRD. Mr. President, I suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

The second assistant legislative clerk proceeded to call the roll.

Mr. ALLEN. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered.

ALABAMA'S CRIMSON TIDE—NO. 1 FOOTBALL TEAM

Mr. ALLEN. Mr. President, as an Alabamian, as a representative of the people of Alabama in the U.S. Senate, as a follower of the football teams in Alabama, and as an alumnus of the University of Alabama, I am proud of Alabama's position as the No. 1 football team in the Nation.

The final regular season ratings for collegiate football have just been announced and to the surprise of no one—at least to those having a knowledge of intercollegiate athletics—the mighty Crimson Tide of the University of Alabama is ranked as the top football team in the Nation by the prestigious polls of United Press International and the Associated Press.

Coached by the fabulous Paul "Bear" Bryant, the 1973 edition of the Crimson Tide swept through a tough 11-game schedule in impressive fashion. Alabama completed regular season play undefeated and untied by defeating its arch cross-State rival, Auburn University, which is a great university in the State of Alabama, last Saturday, by a score of 35 to 0, before a nationwide television audience. On two other occasions this year, Alabama's Crimson Tide also graced the Nation's television screens by defeating the University of Tennessee and Louisiana State University whose teams were undefeated at the time.

En route to their undefeated season this year, the University of Alabama established an impressive array of new offensive records for intercollegiate football. These records are too numerous to mention here, although I would like to point out that in its game against Virginia Tech it set an alltime NCAA record for net rushing yards with 748 yards and a team single-game high of rushing and passing with 833 yards gained. These two national records are but an example of the awesome offensive strength which characterized Alabama's 1973 football 11 and made them the most feared football foe in all the land.

Winning national football championships is, of course, nothing new to Coach Bear Bryant. A legend in his own time, Bear Bryant coached national championship teams at Alabama in 1961, 1964, and 1965. Since returning to his alma mater in 1958, his teams have amassed 140 victories, lost just 30 times and tied 7 games. Coach Bryant has won seven Southeastern Conference titles at Alabama, plus one at the University of Kentucky for a total of eight conference crowns, more than any other coach in the history of the conference. All in all, Coach Bryant has seen his teams win 231 victories, more than any other active coach and he ranks fourth in the alltime victory list in the football coaching profession.

Mr. President, on New Year's Eve the University of Alabama will play in its 15th consecutive postseason bowl classic when the Crimson Tide meets the powerful undefeated and untied Fighting Irish of Notre Dame University in the Sugar Bowl at New Orleans. Considered from any viewpoint this contest is in truth the "dream game" of this or any other football season.

I congratulate Coach Bryant, his staff, and the splendid young men of the University of Alabama's football team on their magnificent accomplishments this year. The parents of these young men are also due recognition for rearing such fine sons and instilling in them the spirit of clean competitiveness which is one of the great qualities on which our great Nation was founded.

I am quite sure that when the smoke of battle clears in the Sugar Bowl shortly before the New Year is rung in, any doubt which may linger in the minds of a few regarding the No. 1 ranking of the Crimson Tide will be forever erased.

Mr. McCLELLAN. Mr. President, will the Senator yield to me briefly?

Mr. ALLEN. I yield.

Mr. McCLELLAN. As a footnote to the Senator's remarks, I would like to note that Coach Bear Bryant is from Arkansas.

Mr. ALLEN. Yes, we are proud of the contribution by Arkansas to the University of Alabama and we are proud of his Arkansas origins.

Mr. McCLELLAN. I thank the Senator very much.

Mr. ALLEN. Mr. President, I wish the distinguished Senator from Nebraska (Mr. CURTIS) were in the Chamber at this time, because in the past a part of his wardrobe that he wore from time to time was a pin with the number "1" on it. I have noticed the absence of that pin in recent months, and since he has no occasion to use that pin any more, for a while at least, I would like to borrow the pin from him for use, certainly up until New Year's Day.

COMMUNICATIONS FROM EXECUTIVE DEPARTMENTS, ETC.

The VICE PRESIDENT laid before the Senate the following letters, which were referred as indicated:

PROPOSED LEGISLATION BY THE CIVIL AERONAUTICS BOARD

A letter from the Chairman of the Civil Aeronautics Board transmitting a draft of proposed legislation to amend the Federal Aviation Act of 1958 to make it clear that the civil penalty provisions of the act are applicable to ticket agents who grant rebates, and to authorize the Civil Aeronautics Board to inspect the records of ticket agents (with accompanying papers). Referred to the Committee on Commerce.

REPORTS OF COMMITTEES

The following reports of committees were submitted:

By Mr. KENNEDY, from the Committee on Labor and Public Welfare, with an amendment:

S. 2373. A bill to regulate commerce and protect consumers from adulterated food by requiring the establishment of surveillance regulations for the detection and prevention of adulterated food, and for other purposes (together with supplemental views) (Rept. No. 93-605). Referred to the Committee on Commerce.

S. 1745. A bill to provide financial assistance for research activities for the study of sudden infant death syndrome, and for other purposes (Rept. No. 93-606).

By Mr. SPARKMAN, from the Committee on Banking, Housing and Urban Affairs, with amendments:

H.R. 8547. An act to amend the Export Administration Act of 1969, to protect the domestic economy from the excessive drain of scarce materials and commodities and to reduce the serious inflationary impact of abnormal foreign demand (Rept. No. 93-607).

INTRODUCTION OF BILLS AND JOINT RESOLUTIONS

The following bills and joint resolutions were introduced, read the first time and, by unanimous consent, the second time, and referred as indicated:

By Mr. HUGH SCOTT:

S. 2788. A bill for the relief of Felicidad D. Medina. Referred to the Committee on the Judiciary.

By Mr. McGOVERN (for himself, Mr. MATHIAS, Mr. DOLE, Mr. INOUYE, Mr. JACKSON, Mr. McGEE, Mr. ABOUREZK, Mr. METCALF, Mr. HATHAWAY, Mr. TAFT, Mr. CHURCH, Mr. HUGH SCOTT, Mr. MONDALE, Mr. GRAVEL, and Mr. RIBICOFF):

S. 2789. A bill to amend title 38 of the United States Code in order to increase the rates of educational assistance allowances; to provide for the payment of tuition, the extension of educational assistance entitlement, acceleration of payment of educational assistance allowances, and expansion of the work-study program; to establish a Vietnam Era Veterans Communication Center and a Vietnam Era Advisory Committee; and to otherwise improve the educational and training assistance program for veterans. Referred to the Committee on Veterans' Affairs.

By Mr. BURDICK:

S. 2790. A bill to amend the Internal Revenue Code of 1954 to provide that the tax on the amounts paid for communication services shall not apply to the amount of the State and local taxes paid for such services. Referred to the Committee on Finance.

By Mr. GRAVEL:

S. 2791. A bill to provide cost-of-living allowances for officers and employees of the judicial branch of Government stationed outside the continental United States or in Alaska. Referred to the Committee on Post Office and Civil Service.

By Mr. HUMPHREY (for himself and Mr. McGOVERN):

S. 2792. A bill to amend the Agricultural Trade Development and Assistance Act of 1954 to provide the United States with the flexibility with which to participate in efforts to alleviate the suffering and human misery of hunger and malnutrition. Referred to the Committee on Agriculture and Forestry.

STATEMENTS ON INTRODUCED BILLS AND JOINT RESOLUTIONS

By Mr. McGOVERN (for himself, Mr. MATHIAS, Mr. DOLE, Mr. INOUYE, Mr. JACKSON, Mr. McGEE, Mr. ABOUREZK, Mr. METCALF, Mr. HATHAWAY, Mr. TAFT, Mr. CHURCH, Mr. HUGH SCOTT, Mr. MONDALE, Mr. GRAVEL, and Mr. RIBICOFF):

S. 2789. A bill to amend title 38 of the United States Code in order to increase the rates of educational assistance allowances; to provide for the payment of tuition, the extension of educational assistance entitlement, accelecation of payment of educational assistance allowances, and expansion of the work-study program; to establish a Vietnam Era Veterans Communication Center and a Vietnam Era Advisory Committee; and to otherwise improve the educational and training assistance program for veterans. Referred to the Committee on Veterans' Affairs.

VIETNAM VETERANS GI BILL

Mr. McGOVERN. Mr. President, it was 32 years ago today that the Japanese attacked Pearl Harbor and forced the United States to become involved in World War II. Millions of young Americans of whom I was one left their homes and families to fight in that war. Many of them lost their lives, but most of them came home to a Nation eager to show

its gratitude for the sacrifices they had made.

Part of that gratitude showed itself in the form of the GI bill. A study recently completed by the Educational Testing Service calls the World War II GI bill—

One of the most important and effective pieces of social legislation Congress had ever enacted. It profoundly affected the fortunes of veterans and postwar society, and it transformed the nation's higher education system.

In addition to producing 450,000 engineers, 360,000 teachers, and hundreds of thousands of professionals in the fields of medicine, law, and science, the World War II GI bill helped pay for the education of 21 U.S. Senators and 65 Congressmen.

The same level of benefits is not available to veterans of the Vietnam era. When I used the GI bill after World War II, I received a monthly subsistence allowance and a tuition payment of up to $500 per year. Without it, I doubt that I could have completed my degree. At present, a veteran attending school receives only a monthly subsistence allowance. The ETS study shows that the allowance falls short of the financial needs of veterans attending 4-year public institutions by a considerable amount. Single veterans come up short an average of $628, married veterans lack $1,644, and married veterans with children are short $2,032.

The simple fact, Mr. President, is that in the past 25 years, the cost of a higher education has risen three times as much as GI educational assistance.

Thousands of our veterans are prisoners of peace. And so are we. We are prisoners of our own desperate desire to escape the past, to free mind and memory from what we have done to ourselves and others in dubious battle half a world away. But the veteran who is crippled or addicted or unemployed rebukes our flight from truth—and so we are tempted not to see him. We are tempted to put aside the wreckage of this war and the oppression it has brought in its wake. We are tempted to turn away, consigning the lessons and costs of Vietnam to the historians of another day. But unless we learn those lessons, we may again lose our way. We can make real a resolve of no more wars of that kind only if we understand what it was in our national character and leadership that created the conflict through which we have just come—and only if we face what it has done to several million Americans to whom we still owe a heavy obligation.

Mr. President, I am pleased to introduce on behalf of myself, Senators MATHIAS, INOUYE, and DOLE, the Comprehensive Vietnam Era Veterans and Educational Benefits Act of 1973. I am also pleased that, after only 1 day's notice, Senators ABOUREZK, MCGEE, METCALF, HUGH SCOTT, HATHAWAY, TAFT, CHURCH, MONDALE, GRAVEL, and RIBICOFF have asked to be named as cosponsors.

This bill seeks to correct the inadequacies of the present GI bill and bring benefits up to a level comparable to what they were following World War II.

I ask unanimous consent that a summary of the bill be printed in the RECORD.

There being no objection, the summary was ordered to be printed in the RECORD, as follows:

THE COMPREHENSIVE VIETNAM ERA VETERANS EDUCATIONAL BENEFITS ACT OF 1973

Inadequacies in the present GI bill deny the Vietnam veteran the assistance and opportunities that Congress intended they have. This is the conclusion of the Congressionally commissioned report published by the Educational Testing Service on educational assistance programs for veterans. Their findings are confirmed by independent hearings conducted by the National League of Cities, U.S. Conference of Mayors, and the American Association of Junior Colleges.

This bill is designed to overcome the specific inadequacies of the present GI bill and provide assistance and opportunities to veterans who are currently unable to use their benefits. It is also designed to meet the mandates of major veterans organizations in the most comprehensive, flexible, and effective manner possible.

MAJOR PROVISIONS

1. A tuition payment made to the veteran for tuition costs above $400 per school year. The ETS study showed $400 to be the average tuition cost at a 4 year public institution. The veteran would pay the first $400 himself and the V.A. would reimburse him for tuition costs up to a total of $1,000. Out of a total tuition cost of $1,000, the veteran would pay $400 and the V.A. $600. Any cost above $1,000 would have to be paid by the veteran.

This would enable veterans in states with high cost public education to use the GI benefits. The GI bill participation rates in Ohio, Pennsylvania, Indiana, New Jersey, and New York (states with public education costs averaging over $750) are half those of states with low cost public education (California, Texas, and Massachusetts). The inability of the veteran to make an initial tuition payment of $600 or $800 is the most formidable obstacle preventing participation in an education or training program.

2. An increase in the subsistence allowance paid to veterans in vocational rehabilitation and education programs of 13.6%. This is consistent with action already taken in the House of Representatives and covers the 8% inflation rate since the present rates were enacted.

3. An extension of the present 36 month entitlement period for up to 9 additional months subject to case by case approval by the V.A. This will allow veterans who are subject to special circumstances to complete the course of education they set out on. Specifically, it is intended for those who have lost credits because they have transferred from one school to another or because they lacked sufficient preparatory background and need additional courses to complete their program of instruction.

4. An increase from 8 to 10 years in the eligibility period. Presently veterans have eight years from date of discharge to complete their education with the help of GI assistance. Many veterans discharged in 1964, 1965, and 1966 were unable to use the benefits until 1970 when the subsistence rate was raised above $130. Others have attended on a part time basis and also face the prospect of losing part of their 36 month allotment when the eight years is up.

5. A provision allowing a veteran to draw his full 36 month entitlement in larger amounts over a shorter period of time. Present subsistence allowance for a single veteran is $220 per month. This provision would allow the veteran to draw up to $440 per month for only 18 months. This would enable veterans with prior education to complete their programs with a minimum of money worries. It would also enhance the prospects for those who may wish to attend medical or law school or a two year vocational objective.

6. The bill removes the restrictions of the work study program. This will enable the V.A. to untilize veterans to fulfill vitally needed outreach work while allowing them to earn money that will help defray their college costs.

7. Establishment of a Vietnam Era Veterans Communication Center and a Veterans Advisory Committee. The center would insure that the input, advise, experience, and knowledge of young veterans would be used in the coordination and implementation of programs effecting Vietnam era Veterans. The advisory task force would combine government and private efforts to make veterans programs more effective and more widely utilized.

COST

(A consensus reached after consulting the V.A., OMB and various private concerns.)

1. Tuition payment, $200 million.
2. Subsistence increase, $370 million.
3. Extension of entitlement, $15 million.
4. Extension of eligibility period, $20 million.
5. Accelerated subsistence, no new cost.
6. Expansion of work-study, $25 million (to be determined by VA and congressional authorization).
7. Communication Center, funded out of existing VA funds.

Mr. DOLE. Mr. President, will the Senator yield?

Mr. McGOVERN. I yield.

Mr. DOLE. Mr. President, I am pleased to join my distinguished colleagues from Hawaii, Maryland, and South Dakota in introducing Comprehensive Vietnam Era Veterans Educational Benefits Act of 1973. It is appropriate that this bill should be introduced on the 32d anniversary of American involvement in World War II. The legislation we are presenting today is designed to bring current veterans education assistance up to a level comparable to those of the period after the last world war. This measure is long overdue. The benefactors of this bill are the Vietnam veterans of Kansas and every other State. However, it should not be overlooked that the people of Kansas and the people of our entire Nation stand to gain from this measure. The Vietnam Veterans Educational Benefits Act of 1973 is an investment in the future—the future of our veterans and the future of the whole country. We can look to the GI bill of post-World War II to see that this is true.

The benefits of the World War II GI bill are often taken for granted. The contributions veterans educated under the GI bill have made to our country and economy are immeasurable. It is a matter of record that 450,000 engineers and 360,000 teachers received their training under the World War II GI bill. Hundreds of thousands of professionals were educated in the fields of medicine, law and science. At least 65 Members of the House of Representatives and over 20 percent of my distinguished colleagues in the Senate, including three sponsors of this bill, received educational assistance from the Veterans' Administration. Over the past 25 years since the end of World War II, the GI bill of that period has come to fruition.

The enormous benefits to our country of the investment in educating veterans

then is clearly evident now. In view of these benefits, it is only logical that the Vietnam era GI bill should be at least equivalent to the World War II assistance. The fact that current VA education benefits are not on the same level as assistance in the earlier period is substantiated constantly by Kansas veterans contacting my office. World War II veterans have shown me repeatedly in dollars and cents figures that they received greater assistance than their Vietnam veteran sons are getting. Studies mentioned by my fellow cosponsors further substantiate this fact.

What is the meaning of lower educaticnal benefits for Vietnam veterans? In simple language, it means that fewer veterans are going to school and receiving professional training. In the short term, it means higher unemployment rates among Vietnam veterans. In the longer term, it means that the State of Kansas and every other State in the Union lose professional talent and leadership that could have been otherwise developed.

The GI bill is an investment in the future, but it is an investment that can only be made now. When discharged from the services, veterans usually make a choice of going to work or pursuing further education or training. If a vet cannot afford the expense of schooling, he is forced to seek employment. Once employed, the vet is likely to become involved in his job and the chance to obtain further training is probably lost forever. The time to make adequate educational benefits available is now. In fact, more adequate assistance for Vietnam vets is long overdue.

A much needed provision in the GI bill is tuition assistance. The claim that the current subsistence allowance is sufficient to cover tuition costs is simply not true in a vast number of cases. A major provision of this bill is designed to correct this deficiency. It provides that the Veterans' Administration will pay up to $600 per year in tuition costs after the veteran pays the first $400. Anything in excess of a total of $1,000 is paid by the veteran.

Tuition payments were a major portion of the World War II GI bill. Concern about tuition assistance for Vietnam veterans appears to be based on abuses of tuition payments after World War II. I would like to address this isuue for a moment.

First of all, the bill has several provisions to prevent abuses. It is specifically stated in the bill that "in no event shall veterans be charged amounts exceeding those charged by nonveterans for the same service." The national average of tuition costs is about $400. Therefore, in many cases, the veteran would pay the entire tuition expense himself. In private institutions with tuitions over $1,000 per year, the veteran would pay the additional increment. This way, most veterans would have a financial incentive to report cases of schools abusing the system of tuition payments.

Specifically omitted from the bill are provisions as to how tuition rates will be certified. This omission is so the VA can prescribe the certification by detailed regulations which should probably require the veteran and the school both to certify tuition rates.

In addition, books and materials are not paid by the VA under this legislation as they were after World War II. Cases of law students being required to buy microscopes, which reportedly occurred then, could not happen now.

The second difference between this measure and the GI Bill of the World War II era is that conditions are greatly changed. After the last world war, the VA was suddenly faced with hundreds of thousands of vets attending school. The organization was simply insufficiently staffed to adequately administer the program and prevent abuses of the system. Today, the VA has offices at the local level which are capable of checking tuition policies at every institution.

After World War II, up to 80 percent of the student population consisted of veterans. Since the majority of students were veterans, learning institutions could more easily raise tuition rates across the board. Today, the number of veterans going to school is less than 15 percent of the student population. This number is held down, I might add, by inadequate education assistance. But even if all Vietnam veterans were attending school, the number would be much less than after World War II. The possibility that schools would be able to discriminate against veterans and take advantage of tuition payments is greatly reduced.

Mr. President, the measures of this bill are expensive. The estimated cost of the tuition payment measure is about $250 million dollars. I advocate fiscal responsibility. In no way could I support the expenditure of taxpayer money for useless projects. But in my opinion, there is no more worthwhile endeavor than the education of our young veterans. It is an investment in the future, and the time to invest is now. Money spent for some Government programs, such as defense, accrues no future return. Funds spent for the education and training of veterans are doubled, over and over again, in following years in the increased economic and moral strength of our country. I strongly urge every Member of the Senate to support this measure now, when the need is great.

This bill includes several other important parts. Many Kansas veterans of the Vietnam war have contacted me to express the need for an extension of the eligibility period from 8 to 10 years. Due to the low assistance rates in earlier years, it was impossible for many veterans to attend college. These men should not be penalized for this condition which was beyond their control. The extension of the eligibility period will enable many of these individuals to complete their training.

The Vietnam Veterans Education Act provides for the extension of the 26-month entitlement period in individual cases for the completion of ongoing training programs. Recognizing the length of training programs and the level of education and specialization these days, this measure is only a logical step.

The creation of a Vietnam Era Veterans Communications Center can be an invaluable aid to veterans and the effort to find them a place in the economy and society. This organization would help translate skills learned in the military into civilian occupations, Such a measure would increase the usefulness of the $6.6 billion training program conducted by the Armed Forces every year. The Department of Defense estimates that over 75 percent of a veteran's learned skills are related to civilian skills. Veterans are graduates of some of the most demanding, challenging, and scientifically designed training the Nation has to offer. The Communication Center can assist in obtaining better utilization of this training and the skills gained in the service.

Another provision of this legislation expands the veteran's work-study program. There exists a critical need for veteran-to-veteran outreach assistance. This need was noted in the findings of the Educational Testing Service and verified by hearings held by the National League of Cities and U.S. Conference of Mayors. Many vets are unaware of the assistance they can obtain from the VA. Others may be apathetic about improving themselves or taking a greater role in society. Vietnam veterans are the most effective people to reach and motivate other Vietnam veterans. The work-study program can greatly relieve the unemployment and social problems related to the Vietnam conflict.

Mr. President, the measures of this bill are much needed by the veterans of the Vietnam conflict. The expenditures under this bill are an investment in the future strength and well-being of the whole country. The time to make this investment is now and we must not fail our veterans and our Nation by failing to act quickly on this legislation. I urge every Senator in the strongest possible terms to lend their immediate support to the Vietnam veterans education bill of 1973.

Mr. President, I ask unanimous consent a letter from the Veterans of Foreign Wars in support of the bill be printed in the RECORD.

There being no objection, the letter was ordered to be printed in the RECORD, as follows:

VETERANS OF FOREIGN WARS
OF THE UNITED STATES,
Washington, D.C., December 6, 1973.

Hon. ROBERT J. DOLE,
U.S. Senate, Washington, D.C.

DEAR SENATOR DOLE: One of the Veterans of Foreign Wars Priority Legislative Goals for this year, as approved by Commander-in-Chief, Ray R. Soden, is comparable assistance for Vietnam veterans, as was provided veterans of previous wars.

In that regard, it is noted that you are proposing to introduce a comprehensive Vietnam Era veterans education benefits Act of 1973. This office has had the opportunity to review your proposed bill and note further that it carries out a number of the V.F.W. mandates approved by the delegates to our National Conventions.

Further, many of the provisions in your proposed bill will go a long way toward providing comparable GI Bill and readjustment assistance to Vietnam veterans, as was available to veterans of previous wars.

The V.F.W. supports for example, your proposal to increase GI Bill rates by 13.6%,

or from $220 to $250 for a single veteran in fulltime training. Extension of the delimiting dates for GI Bill entitlement is also supported by the V.F.W., as is additional tuition assistance, as a step toward comparability.

In summary, the Veterans of Foreign Wars commends you and your co-sponsors, Senators Inouye, Mathias and McGovern, for introducing this most important bill at a crucial time for the returning Vietnam Era Veterans. The word "crucial" is used because the cost of education has skyrocketed much faster than the average cost of living. Most of these veterans are young and it is most important to not only their welfare but to the welfare of the Nation that they make a quick, successful readjustment upon their return to civil life.

Thank you for introducing this legislation which implements V.F.W. Priority Legislative Goals.

With kind personal regards, I am

Sincerely,

FRANCIS W. STOVER,
Director, National Legislative Service.

Mr. McGOVERN. Mr. President, the Senator from Kansas has made a superb statement of the purposes of the bill and a good analysis of what it attempts to accomplish. I appreciate the Senator's cosponsorship because, at the outset, we have broad bipartisan support for this legislation. As the Senator may have heard me say, since the original four Senators—the Senator from Maryland (Mr. MATHIAS), the Senator from Kansas (Mr. BEALL), the Senator from Hawaii (Mr. INOUYE), and I—joined in this measure, 11 other Senators have asked that their names be added as cosponsors, for a total of 15. So I am very pleased to join the Senator in the proposed legislation.

Mr. DOLE. Mr. President, will the Senator yield?

Mr. McGOVERN. I yield.

Mr. DOLE. Mr. President, I commend the Senator from South Dakota for his leadership in this matter. I am very pleased, as one of the beneficiaries—as I am certain the Senator from South Dakota is—of the benefits we had following World War II, to be a cosponsor of this measure with the distinguished Senator from Hawaii. We served many months together in a hospital after World War II.

I think the Senator from South Dakota has underscored the very urgent need for the Comprehensive Vietnam Era Veterans Educational Benefits Act of 1973. I am pleased to join not only the Senator from South Dakota but also the Senator from Maryland, the Senator from Hawaii, and now the other Senators. There is broad support. It is not based on partisan consideration or philosophical consideration. To me, that underscores the strength of the proposal and the need for the proposal.

Mr. McGOVERN. I thank the Senator for his comments.

Mr. INOUYE. Mr. President, I am pleased to join my colleagues, Senators McGOVERN, MATHIAS, and DOLE, in proposing the Comprehensive Vietnam Era Veterans Education Benefits Act of 1973. This legislation incorporates in a comprehensive form a number of previous legislative proposals designed to provide veterans of the Vietnam war assistance and opportunities they deserve.

Although Americans disagreed over the motives, methods and purpose of American involvement in the tragic Vietnam war, there is no disagreement over our Nation's responsibility to the brave young men who served in that conflict. Unfortunately, the inadequacy of our Federal programs to assist veterans have kept us from fulfilling our responsibility and from providing those soldiers with the kind of support they require as they reenter society.

These men served our country valiantly in a time of national emergency. Fifty thousand of their compatriots gave their lives. Twenty-five thousand of these men gave their limbs. They all gave up the comfort of peaceful homes and years of economic and educational advancement to answer a call to duty. Now hundreds of thousands of them are denied benefits or receive benefits not at all comparable to those received by veterans of World War II and Korea because our laws have not kept pace with present realities. The legislation we introduced today will, if enacted, reaffirm our commitment to help Vietnam veterans in the traditional readjustment from military to civilian life by providing monetary and training assistance to aid veterans in acquiring employment and educational progress.

I wish to address myself to two aspects of this legislation which have been of special concern to me. In the 92d session of Congress, I introduced legislation designed to extend the time period within which veterans may be entitled to educational assistance after their discharge or release from active duty. The legislation being introduced today will increase from 8 to 10 years the eligibility period for use of educational benefits.

This extension will allow some equity with more recently discharged veterans to veterans who were discharged in 1964, 1965, and 1966 and who are reaching the end of their 8-year delimiting period, yet who have not finished their education or training nor exhausted their total entitlement. The increase in 1970 to a $130 monthly subsistance allowance was entirely justified, as is the increase provided in this legislation. The extension of eligibility is equally justified on the basis of equity to all of those veterans who served in Vietnam during the years of 1964 through 1973.

Many of these veterans have returned from Vietnam to family obligations which have hindered their ability to utilize their benefits. With the responsibility for providing for children, holding a job, and with the increased importance of advanced education, many veterans have had to complete their educations at a slower pace than in previous times. The law should reflect this situation and provide veterans the time to complete their education without undue pressure.

This legislation also provides for an acceleration of entitlement payments to veterans to reflect specific needs of particular educational programs. Veterans with prior education and those wishing to attend graduate programs with higher tuition requirements and compressed terms of study, oftentimes are faced with excessive financial burdens. By accelerating the statutory entitlement period to allow a recipient to draw up to $440 per month for only 18 months rather than limiting the 36-month entitlement period at a maximum of $220 per month, this legislation will provide a way for a recipient to design an academic program which can maximize his or her eduational attainment and minimize money worries.

The bipartisan support for the liberalization of requirements and the increase in benefits to Vietnam veterans that are included in this bill reflects the nonpartisan spirit that has always been part of our efforts to aid the American veterans. It also reflects the realization that our present system of benefit programs for veterans is outmoded and inadequate.

Thirty-two years ago today, as I heard the sirens signal the beginning of World War II, I realized that my country must go to war.

I did not realize that my country would be at war in some corner of the world for most of the next three decades.

After the war, I was able as a result of the GI bill to attain the education that allowed me to prepare for my present vocation. I do not believe I would be in the Senate today without having been the beneficiary of that program. The other Senators who have had the same experience as I have had, including the cosponsors of this legislation, harbor the same gratitude for the national spirit of mutual sacrifice that generated the first GI benefits. That spirit remains today and I am hopeful that the Congress and the President will reflect that spirit and take expeditious and favorable action on this legislation.

By honoring those men who sacrificed years of their lives and who risked death because of their sense of duty to our country, we can place a landmark on the trail from war to a truly honorable peace. May we all pray that this will be the last time that Congress will have to consider legislation which provides benefits to war veterans, because Vietnam can be our last war.

LET US GIVE VETERANS A FAIR CHANCE

Mr. MATHIAS. Mr. President, I am pleased to join the Senator from Kansas (Mr. DOLE), the Senator from South Dakota (Mr. McGOVERN), and the Senator from Hawaii (Mr. INOUYE) in introducing the Comprehensive Vietnam Era Educational Benefits Act of 1973. The bill we have introduced today, on the 32d anniversary of the attack on Pearl Harbor which launched us into World War II, represents the culmination of a long effort to devise a fair, comprehensive and fiscally responsible program of educational benefits for Vietnam-era veterans.

For 3 years, Mr. President, I have been urging that our most recent generation of veterans has a right to expect an increase in educational benefits sufficient to make the GI bill a realistic package of support for those young men now wishing to pursue college or technical training which they had to forgo to serve in Vietnam.

To date, little has been done to provide these GI's with such educational opportunity, despite hundreds of articles and voluminous testimony devoted to their financial and emotional plight. The Vietnam veteran finds himself the political football of the men who watch the bottom line—although many of these same officials saw fit to devote some $30 billion a year to the war in which they fought.

In particular I should point out that past legislative efforts have been largely geared toward providing vitally needed subsistence increases to veterans already enrolled in education and training programs, but have done little to assist the millions of Vietnam-era veterans who are unable to take advantage of the GI bill at all. These are the veterans who need readjustment assistance the most: the educationally disadvantaged, the veteran in States with high-cost public education, minority veterans, veterans with families to support, and the veteran who simply cannot qualify for a full 4-year college program. We also seek to assist these same veterans with the bill we introduce today.

Nothing more clearly underscores the obstacles veterans now face than the series of events which took place between last fall—when Congress ordered the Veterans' Administration to produce an independent study of veterans' benefits—and the actual delivery of that study to Congress in September. Last year, I sponsored the amendment to the GI bill which required the Veterans' Administration to commission an independent study comparing today's GI bill benefits with the World War II and Korean GI bills. My amendment was enacted into law, and the study was subcontracted by the VA to the highly respected Educational Testing Service of Princeton. My own doubts of 3 years ago were confirmed by the findings and conclusions of that comprehensive study. For the first time, figures were made available on the actual value of today's benefits compared with the assistance I received to go to college after the Second World War. I doubt that I would be in Congress today without that chance.

The principal finding of the ETS report stated that—

> The actual value of the educational allowance available to veterans of World War II was greater than the current allowance being paid to veterans of Vietnam, when adjustments are made for the payment of tuition, fees, books and supplies.

In addition, the study concludes that with the elimination of the World War II method of paying tuition directly to colleges and universities for enrolled vets, there was a simultaneous elimination of equitable opportunity for resident and nonresident students. The most disturbing fact here is that the State in which today's veteran resides is the main determining factor as to whether or not he can afford to use the GI bill, depending on the availability of well-developed community college systems and relatively inexpensive State-supported colleges.

These and other conclusions have proved somewhat embarrassing to the Veterans' Administration, so much so that they mobilized their own in-house repudiation team to go before the House Veterans' Affairs Committee on September 25, defending the adequacy of current benefits and attacking the conclusions of their own study. One complaint by the VA was that the study went too far beyond its original objectives.

If the study went too far, it is only because it told the VA exactly why many Vietnam veterans are finding it extremely difficult to use their GI bill benefits, and still feed and house themselves; why use of the current GI bill is, by definition, inverse to need, allowing only those more affluent vets who can supplement benefits with considerable outside help to go to school; why the opportunity to use these benefits is often based on geography. We find here the very agency, which is supposed to be the veteran's advocate in the government, defending the adequacy of present benefits, despite the conclusions of its own study.

It is important to examine the significant differences both in dollars and distribution formulas between today's GI bill and that of 1948. After World War II, veterans received tuition, books and fees up to $500, paid directly to the colleges of their choice. Pertinent here is the fact that at that time this $500 was sufficient to cover not only tuition at nearly all four-year public colleges, but also at 89 percent of all private colleges in the United States. In addition, above and beyond tuition costs, each veteran received $75 per month for personal living expenses, which at that time represented 35 percent of average U.S. monthly earnings. This level of tuition, plus subsistence funds, combined with an abundance of part-time jobs and veteran housing subsidies, gave every World War II veteran a healthy opportunity to gain the education most relevant to his future career.

Today, I fear, the picture is comparatively bleak. The Vietnam veteran receives a lump sum of $220 per month, or $1,980 per academic year, out of which he must pay not only tuition, books, and fees, but all living expenses. The system of paying tuition and fees directly to the colleges has been eliminated, as have been any variable payments attempting to equalize out-of-State and in-State opportunities. Ironically, this $220 per month, which represents a total, all-inclusive payment, equals roughly 35 percent of U.S. average monthly earnings in 1972—the same proportion which the veteran of my generation had available after tuition was paid.

As for tuition, the average tuition for 2- and 4-year colleges in the United States at present is $400 per year. Keep in mind that this average lumps 2-year community colleges with 4-year schools. The VA claims that any veteran paying no more than this national average of $400 has parity in benefits with World War II veterans. That is all well and good, but in States with more expensive tuition charges or in one of the eight States which rely on private institutions for more than 40 percent of their higher education facilities, the Vietnam veteran is in real trouble. As his tuition increases above $400, he rapidly loses any parity he might have had with the World War II GI.

In my own State of Maryland, a veteran attending the University of Maryland, paying $698 per year for tuition and the national average of $216 for books and required fees, has $119 a month left out of which he must pay rent, buy food, and clothe himself. Now I do not know about my colleagues, but I would have a very difficult time as a student in 1973 trying to survive on $119 a month. And the University of Maryland is by no means alone in its high tuition cost. The major universities in California, Connecticut, Illinois, Indiana, Michigan, Minnesota, New Jersey, Ohio, Pennsylvania, and Rhode Island all charge more than $640 per year for tuition.

In sum, State colleges in many States such as Maryland are very nearly beyond the financial reach of too many of today's veterans, and private institutions are out of the question for most of them. The Vietnam veteran, without a benefactor other than the Nation he served, might just as well forget education altogether.

My question is simply this: If we have a commitment to today's veterans similar to our commitment to men who received a quality education after World War II, why should we not only price the Vietnam vet out of private colleges but head also toward pricing him out of major public universities? In addition, why should we deny readjustment assistance to the veterans who need it the most? Why should our programs deal largely with helping veterans already in school while neglecting the needs of those who cannot afford to pay the high costs required to get into school. Subsistence increases do no good for someone who cannot even afford tuition. Why should benefits be restricted to a 4-year period when the Nation needs technicians and vocational specialist training in 2-year programs and community colleges? Why should we deny veterans the opportunity to finish their education at a private school, to pursue graduate school in law or medicine, or to receive education and training that would enhance their present career by restricting them to a 4-year allotment of total benefit they have rightfully earned?

The bill we are introducing today, Mr. President, reflects the view that the answer to all these questions is that we should not. For if some effort is not made to address these inequities, I can only conclude that we are not fulfilling President Nixon's own claim in his last budget message, that veteran's education is a Federal responsibility. And it certainly might lead a veteran to believe that now that he has done the dirty work, he is to be discarded, with a token allowance to get him off the backs of the VA, the Congress, and the administration.

The time has never been more crucial for putting together a realistic and com-

prehensive educational package for these men—a program which not only alleviates the very serious geographical disparities, but which makes it possible for a veteran to choose education without also resigning himself to 4 years of near poverty. At present, veterans are hard-pressed to supplement benefits with part-time jobs, both because of the current job market and the drying up of EEA jobs, and because they are for the most part excluded from work-study jobs at universities, since GI bill benefits are often counted as sufficient income to disqualify them. Right now we are at the peak of educational demand by veterans, a peak which will shortly level off as the last of these young men are given their opportunity to enroll and graduate.

The comprehensive legislation we are introducing today, Mr. President, includes a number of important elements:

A realistic variable tuition payment program, up to a total of $600 above and beyond the $400 national average for tuition, with restrictions to discourage abuses by institutions which seek to milk qualifying veterans by inflating their charges;

An accelerated payment provision, similar to the one provided by the World War II GI bill, so that a veteran can compress the payments to which he is entitled into 2 years instead of 4, if he so chooses;

An increased subsistence payment to account for today's soaring cost of living;

An expansion of the work-study program;

Extension of the entitlement for veterans who would otherwise be unable to complete their courses of study; and

The creation of a task force to provide Vietnam-era veterans with direct access and input relating to public and private programs which affect them, as well as counseling to inform veterans of the full level of benefits available to them.

As my colleagues well know, Mr. President, our most recent war was not a popular one. Many young Americans who could afford to remain in college during the fighting, did so. Others, with no wealth and no influence, were drafted or enlisted. The men who fought deserve the opportunity given to so many of their peers. I hope my colleagues will join us in giving thousands of these young men their chance to pursue a productive program of education and training rather than relegating them to the role of bitter and disillusioned patriots. And I am pleased that the Senator from Pennsylvania (Mr. SCOTT), the Senator from Ohio (Mr. TAFT), the Senator from Montana (Mr. METCALF), the Senator from Minnesota (Mr. MONDALE), the Senator from Idaho (Mr. CHURCH), the Senator from Wyoming (Mr. MCGEE), the Senator from South Dakota (Mr. ABOUREZK), and the Senator from Washington (Mr. JACKSON) have already joined us as cosponsors of this crucial legislation.

If we look back 32 years to this day, Mr. President, the attack on Pearl Harbor is a vivid reminder of the terrible suddenness with which we sometimes have to call on our young citizens to defend our Nation—and the sacrifices we ask of them. But when the conflict is over, let it not be said that we were unwilling or unable to remember their sacrifice, no matter how unpopular the war we asked them to fight.

By Mr. GRAVEL:

S. 2791. A bill to provide cost-of-living allowances for officers and employees of the judicial branch of Government stationed outside the continental United States or in Alaska. Referred to the Committee on Post Office and Civil Service.

Mr. GRAVEL. Mr. President, I introduce today a bill giving the judicial branch of the Government the authority to grant cost-of-living allowances to employees stationed outside the continental United States or in Alaska.

The need for this remedial legislation is indicated by the cost-of-living allowances given by the executive branch. For instance, executive branch employees in my State receive a 25-percent cost-of-living allowance. It is only fair and equitable that equal pay adjustments be made available to judicial employees.

I would like to point out that this bill does not stipulate how much of an adjustment this should be, or even that there must be an adjustment. What it does do is give the Judicial Conference of the United States the authority to make such determinations. Furthermore, I have included a provision stipulating that the maximum adjustment allowable is 25 percent, the same maximum that applies to civil service employees.

I ask unanimous consent, Mr. President, to include at this point in the RECORD the text of a letter I received from Mr. Rowland F. Kirks, Director of the Administrative Office of the U.S. Courts.

There being no objection, the letter was ordered to be printed in the RECORD, as follows:

WASHINGTON, D.C., *October 20, 1972.*

Hon. MIKE GRAVEL,
U.S. Senate,
Washington, D.C.

DEAR SENATOR GRAVEL: This is in response to your letter of October 11, 1972, pointing out that in the interest of equity, federal judges and other judicial employees should receive the same consideration of a 25 percent cost-of-living allowance as do Executive Branch employees in Alaska.

I can assure you that this matter has been a concern of the Judicial Conference of the United States over a period of many years. Bills that have been introduced to achieve the same consideration for judicial employees as is given to Executive Branch employees have repeatedly been endorsed by the Judicial Conference. In addition, the Judicial Conference specifically recommended enactment of such legislation and sent a draft bill to the President of the Senate and the Speaker of the House to achieve this purpose in February 1965. Enclosed is a copy of a letter that was sent to Vice President Humphrey on February 2, 1965, enclosing a bill to provide cost-of-living allowances for judicial employees stationed outside the continental United States or in Alaska or Hawaii. Representatives of this office have likewise testified before congressional committees in behalf of such legislation.

In the 92d Congress a bill, S. 457, was introduced. In commenting favorably upon this proposal this office pointed out that S. 457 did not completely achieve the objectives of the Conference because it omitted two subsections previously recommended which are deemed essential because of the aggregate salary limitations imposed upon a judge and because of the question whether the Internal Revenue Code provision for an exclusion from gross income on amounts received by employees of the Government as cost-of-living allowances while stationed outside the United States applies to employees of the judiciary.

If this office can be of any assistance to you in connection with the objectives of this legislation, please feel free to call upon me.

Sincerely,

ROWLAND F. KIRKS,
Director.

Mr. GRAVEL. Mr. President, in his letter, Mr. Kirks states that the Judicial Conference supports this concept and has commented favorably on similar bills. Mr. Kirks also points out what are considered two deficiencies in previous bills which I believe I have corrected in the bill I am introducing today.

I hope my colleagues will support my bill in order to provide equity to certain Government employees and to the judicial branch.

By Mr. HUMPHREY (for himself and Mr. MCGOVERN):

S. 2792. A bill to amend the Agricultural Trade Development and Assistance Act of 1954 to provide the United States with the flexibility with which to participate in efforts to alleviate the suffering and human misery of hunger and malnutrition. Referred to the Committee on Agriculture and Forestry.

Mr. HUMPHREY. Mr. President, during the consideration of the Foreign Assistance Act of 1973, I proposed an amendment which was designed to deal with the changed international commodity situation which has threatened the food security of millions throughout the world. The amendment requested the President to initiate a study of the world food situation so that our policymakers could have the benefit of better information with which to plan for the security of both this country and of the food deficit areas of the world.

The perspective of such a study should be that of world agriculture as a system. An attempt should be made to build a model of future world production-and-demand relationships which includes the role and interrelationship of such factors as the known or anticipated world availability of agricultural inputs such as fertilizer and fuel, the adequacy of transportation and distribution facilities, constraints on increased world agricultural productivity, and humanitarian food assistance needs of the less-developed world over the coming years.

Other issues which this study should address include the impact of chronic energy shortages on agricultural production, future sources of protein including the significance of the slowdown of world fish catches, and the role of national trade policies in facilitating and encouraging the productive capacities of world agriculture. The study should report on a spectrum of policy initiatives which the United States might pursue in regard to agriculture and

trade policy including positions traditionally rejected by the United States in the past. The objective of this study shall be to report on policies both domestically and internationally which the United States should be considering to provide for assured supplies of food and fiber for the United States and the world through the end of this century. The report shall be forwarded to the Congress no later than December 31, 1974.

The amendment called for the cooperation of the President in working with international efforts to establish a plan providing for a minimum level of food security. Understanding that the willingness of the developing countries to respond to their own requirements to increase agricultural production will depend on the security of world markets, that the further expansion of world agricultural trade requires a greater degree of market and price stability, and that the swings in world production which has resulted from the increasing interrelationship of commodity markets threatens the food security of the citizens of the world and most seriously that of the food deficit regions of the world, the President shall take immediate steps to cooperate with the other nations of the world in their efforts to establish a mechanism to provide at least a minimum level of food security. One such mechanism would be an international system of strategic food reserves and the President should participate in any efforts to explore the feasability of such a system. It also called upon the President to instruct the Special Representative for Trade Negotiation to request the consideration of world food security mechanisms within the context of the next round of GATT negotiations. Any such system for world food security should provide for an equitable distribution of the direct and indirect costs between the producer and consumer nations. The amendment also requested the President to direct the Special Representative for Trade Negotiations to request the members of the GATT to address the issue of market access within the context of the next round of multilateral trade negotiations.

Finally, this measure intended to amend the Agricultural Trade Development and Assistance Act of 1954 to allow the Secretary of Agriculture greater flexibility in making determinations of the available supplies of agricultural commodities which could be used to meet emergency humanitarian food assistance requirements. Because of a jurisdictional question in regard to this last point the Foreign Assistance Act of 1973 was modified in conference to change the language of my amendment to "the sense of the Congress".

In testimony before the Subcommittee on Foreign Agricultural Policy which I have the privilege to chair, the administration has indicated the need for such flexibility. Certainly the problems in meeting food emergencies which we encountered over the last year suggest the need to review our policies in regard to humanitarian food assistance. Therefore, I would like to reintroduce my amendment in the form of a separate bill so that it may receive proper consideration within the respective Agriculture Committees which have jurisdictional responsibility over the legislation involved. I assure you that I will be urging the respective Agriculture Committees to act as promptly as possible on this legislation.

I ask unanimous consent that the text of the bill be printed at this point in the RECORD.

There being no objection, the bill was ordered to be printed in the RECORD, as follows:

S. 2792

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, The last sentence of Section 401 of the Agricultural Trade Development and Assistance Act of 1954 is amended by striking the period and inserting a comma and the following: "unless the Secretary determines that some part of the exportable supply should be used to carry out the national interest and humanitarian objectives of this Act."

ADDITIONAL COSPONSORS OF BILLS AND JOINT RESOLUTIONS

S. 147

At the request of Mr. INOUYE, the Senator from South Carolina (Mr. HOLLINGS) a bill to extend the time period within which veterans may be entitled to educational assistance under such chapter after their discharge or release from active duty.

S. 1283

At the request of Mr. JACKSON, the Senator from Hawaii (Mr. FONG) was added as a cosponsor of S. 1283, a bill to establish a national program for research, development, and demonstration in fuels and energy and for the coordination and financial supplementation of Federal energy research and development; to establish development corporations to demonstrate technologies for shale oil development, coal gasification development, advanced power cycle development, geothermal steam development, and coal liquefaction development; to authorize and direct the Secretary of the Interior to make mineral resources of the public lands available for said development corporations, and for other purposes.

S. 1340

At the request of Mr. JACKSON, the Senator from Alaska (Mr. STEVENS) was added as a cosponsor of S. 1340, the Federal Employees Indian Tribal Organization Transfer Act.

S. 1687

At the request of Mr. JACKSON, the Senator from North Dakota (Mr. BURDICK) was added as a cosponsor of S. 1687, the Menominee Restoration Act.

S. 1745

At the request of Mr. ROBERT C. BYRD (for Mr. MONDALE) the Senator from Massachusetts (Mr. KENNEDY) was added as a cosponsor of S. 1745, a bill to provide financial assistance for research activities for the study of sudden infant death syndrome, and for other purposes.

S. 2373

At the request of Mr. ROBERT C. BYRD (for Mr. MAGNUSON), the Senator from Massachusetts (Mr. KENNEDY), the Senator from New York (Mr. JAVITS), and the Senator from Iowa (Mr. HUGHES) were added as cosponsors of S. 2373, a bill to regulate commerce and protect consumers from adulterated food by requiring the establishment of surveillance regulations for the detection and prevention of adulterated food, and for other purposes.

S. 2642

At the request of Mr. TAFT, the Senator from Michigan (Mr. GRIFFIN) was added as a cosponsor of S. 2642, a bill to establish an independent Special Prosecution office, and for other purposes.

SENATE RESOLUTION 213—SUBMISSION OF A RESOLUTION RELATING TO THE FISHERIES JURISDICTION OF THE UNITED STATES

(Referred to the Committee on Commerce.)

Mr. STEVENS. Mr. President, 32 years ago the Japanese won a battle but lost a war. It has been said that the raid on Pearl Harbor, devastating though it was, backfired on Japan because it so effectively united the American people in outrage and determination to fight.

Having learned their lesson, the Japanese today are engaged in a quiet offensive, which promises Japan rich returns in the natural resources she so desperately needs. My colleagues know better than I the extent of Japanese investment in their States. However, the impact is perhaps most obvious in Alaska where there is a richness of undeveloped resources—oil, natural gas, minerals, timber, and fish—and where exploration is more visible than in the more complex economies of the urban areas.

The most advanced element of the Japanese thrust into our economy could be the one directed against our North Pacific fisheries. Complete conquest is coming swiftly and without opposition. It is being accomplished in two ways.

First, because our Nation has a basic general policy of admitting and treating foreign capital equally with domestic capital—except from Communist China and North Korea—the Japanese, under present law are allowed to own controlling interests in U.S. fisheries corporations, including their fishing vessels. With the acquisition this year of Whitney-Fidalgo Seafood, Inc. by Kyokuyo Co., Ltd., a Japanese corporation, a substantial portion of the Alaska-based fisheries industry in the North Pacific and Bering Sea is now Japanese owned.

Second, by disregarding conservation practices necessary to sustain North Pacific and Bering Sea fish stocks, the Japanese are destroying the resource and running our fishermen off the seas. To illustrate this, allow me to recite the most recent ten-year experience of the Bering Sea halibut fishery. In 1963, 104 U.S. and Canadian vessels caught 11 million pounds of halibut in the Bering Sea. In 1973 the seven remaining United States and Canadian boats caught 167,-

000 pounds. U.S. authorities believe the major cause of that decline in halibut, which led to the 93 percent reduction in United States-Canadian effort, is the incidental catch of halibut by Japanese trawl fleets. This has amounted to 10 to 11 million pounds of halibut annually since 1971. In other words, the Japanese, during that period, caught more halibut accidentally while fishing for other species than our U.S. and Canadian fishermen did on purpose before they were forced out.

Halibut fishing is just one activity which has suffered. I spoke two weeks ago on the subject of fisheries negotiation. At that time I discussed the annual meeting of the International North Pacific Fisheries Commission, held this year at Tokyo. The discouraging results of that meeting are reported in a news release issued by the National Marine Fisheries Service this week. Mr. President, I ask unanimous consent that this news release be printed, at this point, in the RECORD.

There being no objection, the news release was ordered to be printed in the RECORD, as follows:

U.S. CONCERNED OVER LACK OF ACCORD WITH JAPAN ON FISHERIES

Claiming that the sockeye salmon resource in Bristol Bay (Alaska) has decreased so drastically during recent years as to jeopardize the traditionally abundant stock, and that halibut stocks in the eastern Bering Sea are on the brink of extinction as a commercial resource, National Marine Fisheries Service Director Robert W. Schoning today criticized the Japanese for their failure to respond adequately to the two crucial conservation problems.

Mr. Schoning's remarks were made following the November meeting of the INPFC (International North Pacific Fisheries Commission) held in Tokyo. He attended as a representative of the Commerce Department's National Oceanic and Atmospheric Administration, the parent organization of NMFS, and as an alternate Commissioner of the INPFC. Other Commissioner representatives on the U.S. delegation in Tokyo were Elmer E. Rasmuson, Donald L. McKernan, and Chairman Milton E. Brooding. Member nations consist of Canada, Japan, and the United States.

The U.S. delegation had five basic objectives in an effort to resolve urgent conservation problems confronting U.S. fishermen in the North Pacific:

To seek adequate protection for Bristol Bay sockeye salmon in 1974;

To substantially reduce the incidental catch of juvenile halibut by Japanese trawlers in the eastern Bering Sea;

To prevent Japanese violations under the treaty* and the Commission's conservation recommendations by more stringent enforcement efforts by Japan;

To encourage study by scientists of the three member countries of the vulnerability of western Alaska chinook salmon to Japan's high-seas salmon fisheries;

To expand INPFC studies to include all fisheries resources in the Bering Sea.

Describing the situation surrounding the Bristol Bay sockeye salmon as critical, Mr. Schoning said: "The expected run of five million sockeye salmon to Bristol Bay in 1974 is only about half our spawning requirement of nine million fish—and the State of Alaska contemplates no harvest in the major fisheries districts of Bristol Bay during the sockeye salmon season in 1974. In past years, these have been the largest sockeye salmon runs in the world."

He blamed adverse climatic conditions in recent winters for the 1973 "lowest return ever recorded of sockeye salmon to Bristol Bay," but added that small runs of the salmon *had* been predicted at the 1972 INPFC meeting and that the Japanese were aware of the need for cooperative conservation measures. At that time, Japan indicated it would operate its high-seas fishery with due concern for the Bristol Bay runs. Scientific information revealed at the recent Tokyo meeting clearly demonstrates, however, that Japan *increased* rather than decreased its fishing effort in 1973 in key areas where Bristol Bay sockeye salmon are vulnerable to capture during migration.

Mr. Schoning noted that evidence on hand shows clearly that any high-seas interception of Bristol Bay sockeye salmon in 1974 by the Japanese can have a strongly adverse effect on stock survival. As a preventive measure, the United States sought restrictions on salmon gillnetting in 1974 by the Japanese in high-seas areas when the Bristol Bay sockeye salmon is especially vulnerable to capture. The Japanese response, characterized by Mr. Schoning as "totally inadequate in view of the tremendous importance of Bristol Bay sockeye salmon to the livelihood of U.S. fishermen" merely noted an awareness of the problem but declined any assurance of positive action on the proposal that Japanese fishing practices be altered.

The drastic reduction in the abundance of halibut in the eastern Bering Sea is illustrated by data that show a massive decline in the North American setline fishery in the eastern Bering Sea, which dropped from a peak of 11 million pounds in 1963 to under 200,000 in 1973. Whereas 104 Canadian and U.S. vessels participated in the fishery in 1963, only 7 vessels fished in 1973—a 93 percent reduction in number of vessels. In contrast, in the same time frame, Japan increased its annual trawl catch in the same area by about 500 percent—to more than 4 billion pounds of fish in 1972—which in 1971 included 11 million pounds estimated as the "incidental" halibut catch.

Mr. Schoning stated that the major cause of the decline in halibut stocks is mortality associated with the high incidental catch of juvenile halibut by the large trawl fleets of Japan and the Soviet Union, which results in the destruction of fish that, if allowed to achieve their full growth potential, would permit maintenance of a viable setline fishery. He noted that the best cooperative efforts of Canada and the United States, working toward restoration of halibut stocks through the International Pacific Halibut Commission (on which Mr. Schoning serves as a U.S. Commissioner) for 50 years, have, therefore, been unsuccessful, despite stringent conservation regulations imposed on North American setline fishermen.

At the Tokyo meeting, Canada and the United States, with the concurrence of scientists from the three member nations, urged that the INPFC adopt minimum conservation proposals aimed at protecting juvenile halibut from capture by trawls. The proposed measures were intended to effectively prevent the commercial extinction of this important food fish, yet minimize disruption to Japan's trawl fisheries. The proposed restrictions would apply during periods when Japan's trawling effort is relatively low but coincides with periods when a high proportion (sometimes reaching 40 percent of total catch) of juvenile halibut is taken in trawl catches. Japan said, however, that it would not agree to the proposals because a substantial reduction in the halibut catch by trawlers also would result in a large decrease in trawl catches of other species.

Japan noted that it would take certain domestic actions to conserve the halibut resource, such as a continuation of the domestic size limit in the Bering Sea, maintenance of a large no-trawling area in the southeastern Bering Sea, and the placing of additional restrictions on trawling in specific periods and areas. Mr. Schoning said that the U.S. delegation views the domestic regulations proposed by Japan for 1974 as ineffective as a means of helping to restore the badly depleted halibut resource in the eastern Bering Sea.

He added: "The U.S. and Canadian delegations were extremely distressed by Japan's negative attitude toward their conservation proposals which in our view, would have caused only a 10 percent loss in Japan's total trawl catch in the eastern Bering Sea. Whereas the United States and Canadian halibut fisheries in the eastern Bering Sea have for all practical purposes, been eliminated, the Japanese appear to be fearful of the impact on their industry, which we look upon as minimal, particularly, in view of evidence that a reduction is needed in trawling to maintain all elements of the complex of groundfish species at high levels of productivity.

"We are talking in these exchanges of protecting a valuable resource which is in imminent danger of commercial extinction, not just sharing the catch. North America fishermen have suffered from severe restrictions imposed on them by the United States and Canada over a period of years in efforts to save the halibut resource. Many of the fish we have refrained from taking in our continuing conservation efforts have not however, accrued to either the resource or our fishermen, but rather have been taken by the expanding Japanese and Soviet trawl fisheries."

The INPFC meetings ended on a note of impasse with respect to the halibut issue inasmuch as a unanimous vote is a requisite to the adoption of new conservation measures. The United States and Canada may—as they have done in the past—adopt halibut conservation measures through the International Pacific Halibut Commission.

The U.S. delegation at the Tokyo meeting stressed its serious concern over continuing Japanese violations under the treaty. Clearly, some Japanese fishermen have been ignoring INPFC's conservation recommendations and Japan's domestic regulations as well. The Japanese delegation replied that violations of the treaty's salmon abstention provisions by Japanese nationals have been met with severe punishment. Japan promised that in 1974 it would increase patrols near the abstention line and would improve communications between patrol vessels and the salmon fleet. Mr. Schoning said he remains to be convinced, in view of previous assurances and unfavorable results as evidenced earlier this year when three Japanese vessels were caught fishing illegally for salmon in the Gulf of Alaska, 600 miles east of the abstention line.

Concerning halibut enforcement measures, the Japanese reported that they had increased substantially the number of inspectors aboard their trawl vessels in 1973; they said that in 1974 they would intensify enforcement of existing regulations with regard to halibut at ports of landing. The Japanese Government also agreed to permit U.S. scientific personnel aboard their trawl vessels in 1974 (as they did in 1972 and 1973), pending approval of such arrangements by the fishing companies, to observe the incidental catches of king and Tanner crabs, and halibut. Japanese spokesmen stated that they would adopt a law prohibiting the export of undersized halibut.

The NOAA–NMFS delegate, Mr. Schoning, said that preventing the export of undersized halibut—thus reducing the market

* International Convention for the High Seas Fisheries of the North Pacific Ocean

incentive for capture—is helpful, but emphasized that the most effective action would be to put into effect strong measures to minimize the capture and resultant mortality of juvenile halibut taken by trawlers. To that suggestion Japan would not agree.

The Japanese delegation, indicated a willingness to work with the United States and Canada in conducting research concerning the vulnerability of western Alaska chinook salmon to Japan's high-seas fishery in the central Bering Sea. The sharp increase in Japenese catches of chinook salmon, many believed to be from North American stocks, is of increasing concern to U.S. fisheries.

The NMFS Director said he was pleased that the Japanese delegation had reversed its 1972 position and agreed to accept the U.S. proposal that the Commission study all Bering Sea fisheries resources, whereas in the past the Commission had undertaken studies only on stocks taken in substantial quantities by more than one party. Of the three member nations of INPFC, only Japan carries on a substantial groundfishing effort in the Bering Sea. The United States is concerned about the total catches by foreign vessels in the area, and is determined to restore or maintain the various stocks—such as pollock, yellowfin sole, and shrimp—at an optimum level, though no extensive U.S. fishing effort is yet involved.

Ample evidence exists of an ecological inter-relationship among all stocks, which can be affected by an imbalance of populations of various species. In view of the tremendous expansion of total landings of all stocks in the Bering Sea (which have increased from about 28 million pounds in 1954 to nearly 5 billion pounds in 1971), the United States has criticized Japan because of its narrow interpretation of the treaty, which in the past permitted Commission studies in the Bering Sea only as they related to halibut. Some fish hitherto precluded from scientific study by the Commission have been severely reduced in numbers.

"We went to Tokyo expecting responsible and meaningful action by the Commission in addressing these issues. Now it is abundantly clear that the United States should seek other alternatives designed to protect halibut and salmon in these areas and the livelihood of our fishermen, and to conserve all living resources in the North Pacific—resources that have been maintained too long to risk losing them now because of Japan's failure to take appropriate action," Mr. Schoning said.

The NMFS Director expressed the hope that the forthcoming Law of the Sea Conference, scheduled for 1974, will lead to a meaningful solution to frustrating fisheries problems such as those experienced recently at the Tokyo conference.

Mr. STEVENS. Mr. President, acquisition of our industries by Japan must be stopped—and stopped as soon as possible. Meanwhile, we must adopt the procedure of first aid and attend to the most dangerous wound first. In the case at hand, the Japanese drain on our fish stocks is the severed artery which must be tied off immediately, before it is too late.

Long-term solutions to the problems of our commercial fisheries, hopefully, will evolve from next year's Law of the Sea Conference, and/or from interim legislation. Meanwhile, I am introducing today a resolution asking the President of the United States to extend the boundaries of U.S. fishing jurisdiction in the Bering Sea and North Pacific, and to impose therein a conservation moratorium on non-North American foreign fishing to be enforced by whatever military or economic resources necessary.

I ask unanimous consent to print the resolution at this point in the RECORD.

There being no objection, the resolution was ordered to be printed in the RECORD, as follows:

S. RES. 213

Resolved, whereas The scientifically forecast return of Red Salmon to the Bristol Bay fisheries is only about half the spawning for maintenance of the stock, and

Whereas the volume of halibut caught by Japanese trawlers incidental to their groundfish catch is moving the Bering Sea halibut toward extinction; and

Whereas U.S. scientists predict that the continuing annual Japanese catch of billions of pounds of groundfish bodes eventual depletion of those species; and

Whereas the Japanese fishing fleets have so depleted the Bering Sea herring stock that recovery may not be possible; and

Whereas losses of the Tanner crab population incidental to groundfish catch exceeds permissible quotas; and

Whereas all efforts of the United States to gain voluntary constraints by the Japanese in their fisheries harvests, including those exerted through the twenty-year old International North Pacific Fisheries Convention and the fifty year old International Pacific Halibut Commission, have been unsuccessful despite stringent controls being imposed on North American fishermen; and

Whereas The resulting declines in the population of such fish threaten to destroy the commercial fishing industry of the North Pacific Ocean and Bering Sea;

Resolved: (1) It is the sense of the Senate that the President of the United States be requested to immediately, by Executive Order, declare U.S. fisheries jurisdiction beyond present territorial waters to include all waters of the North Pacific Ocean and Bering Sea lying within the boundaries established by the U.S.-Russian Convention of 1867. The Western limit would thereby be extended from a point in the Bering Strait on the parallel of sixty-five degrees, thirty minutes North latitude, between the Big Diomede Island and Little Diomede Island, proceeding thence in a course nearly Southwest so as to pass midway between the Northwest point of St. Lawrence Island and the Southeast point of Cape Choukotski, to the meridian of one-hundred-ninety-three degrees west longitude, so as to pass midway between the island of Attu and the Copper Island of the Kormandorski couplet or group in the North Pacific Ocean, to the meridian of one-hundred-ninety-three degrees west longitude, as to include in the territory conveyed the whole of the Aleutian Islands east of that meridian.

(2) That the President is requested to impose, within the full areas of extended fisheries jurisdiction, a conservation moratorium on commercial fishing, other than U.S. and Canadian, until such time that conservation rules and regulations are worked out on a permanent basis with the nations involved, or, when it is determined that a particular fish is in no danger of commercial depletion.

(3) That the President be requested to mobilize whatever resources as may be necessary to enforce the moratorium.

ADDITIONAL COSPONSOR OF A RESOLUTION

SENATE RESOLUTION 173

At the request of Mr. MCINTYRE, the Senator from Florida (Mr. GURNEY) was added as a cosponsor of Senate Resolution 173, directing the Securities and Exchange Commission to examine its rules and regulations and make such amendments as may be appropriate in order to reduce any unnecessary reporting burden on broker-dealers and help to assure the continued participation of small broker-dealers in the U.S. securities markets.

LEGAL SERVICES CORPORATION ACT—AMENDMENTS

AMENDMENTS NOS. 777 THROUGH 796

(Ordered to be printed and to lie on the table.)

Mr. BROCK submitted 20 amendments intended to be proposed by him to the bill (S. 2686) to amend the Economic Opportunity Act of 1964 to provide for the transfer of the Legal Services Program from the Office of Economic Opportunity to a Legal Services Corporation, and for other purposes.

ADDITIONAL COSPONSOR OF AN AMENDMENT

AMENDMENT NO. 767

At the request of Mr. BUCKLEY, the Senator from Texas (Mr. BENTSEN) was added as a cosponsor of amendment No. 767, intended to be proposed to the bill (S. 1283) to establish a national program for research, development, and demonstration in fuels and energy and for the coordination and financial supplementation of Federal energy research and development corporations to demonstrate technologies for shale oil development, coal gasification development, advanced power cycle development, geothermal steam development, and coal liquefaction development; to authorize and direct the Secretary of the Interior to make mineral resources of the public lands available for said development corporations, and for other purposes.

ANNOUNCEMENTS OF HEARINGS ON MILITARY ASSISTANCE TO ISRAEL

Mr. ROBERT C. BYRD. Mr. President, at the request of the chairman of the Committee on Foreign Relations, I wish to announce that hearings will be held by that Committee on December 13 on S. 2692, a bill to authorize military assistance to Israel. The hearings will begin at 10 a.m. in room 4221 of the Dirksen Senate Office Building when executive branch witnesses will be heard. Outside witnesses will be heard at the afternoon session beginning at 2:30 p.m.

NOTICE OF HEARING ON NOMINATIONS

Mr. ROBERT C. BYRD. Mr. President, at the request of Senator EASTLAND, on behalf of the Committee on the Judiciary, I desire to give notice that a public hearing has been scheduled for Thursday, December 13, 1973, at 10:30 a.m., in room 2228, Dirksen Office Building, on the following nominations:

Albert J. Engel, of Michigan, to be U.S. Circuit Judge for the Sixth Circuit, vice W. Wallace Kent, deceased; and

Russell James Harvey, of Michigan, to be U.S. district judge for the eastern district of Michigan, vice Ralph M. Freeman, retired.

At the indicated time and place persons interested in the hearing may make such representations as may be pertinent.

The subcommittee consists of the Senator from Mississippi (Mr. EASTLAND) chairman; the Senator from Arkansas (Mr. MCCLELLAN) and the Senator from Nebraska (Mr. HRUSKA).

ANNOUNCEMENT OF HEARINGS BY THE DISTRICT OF COLUMBIA COMMITTEE

Mr. EAGLETON. Mr. President, the Senate Committee on the District of Columbia has scheduled a public hearing at 9:30 a.m., Wednesday, December 12, 1973, in room 6226, Dirksen Senate Office Building, on the following bills:

S. 1243, to permit the Capital Yacht Club of the District of Columbia to borrow money without regard to the usury laws of the District of Columbia;

S. 1986, to amend the Act of March 16, 1926 (relating to the Board of Public Welfare in the District of Columbia), to provide for an improved system of adoption of children in the District of Columbia;

S. 2262, to amend the District of Columbia Minimum Wage Act so as to enable airline employees to exchange days at regular rates of compensation, and for other purposes,

H.R. 6186, to amend the District of Columbia Revenue Act of 1947 regarding taxability of dividends received by a corporation from insurance companies, banks, and other savings institutions,

H.R. 6758, to amend chapter 33 of title 28 of the District of Columbia Code, relating to usury, and for other purposes,

H.R. 10806, to amend the District of Columbia Minimum Wage Act so as to enable airline employees to exchange days at regular rates of compensation, and for other purposes, and

H.R. 11238, to amend the Act of March 16, 1926 (relating to the Board of Public Welfare in the District of Columbia), to provide for an improved system of adoption of children in the District of Columbia, and for other purposes.

Persons wishing to present testimony on any of these bills should contact Mr. Robert Harris, staff director, Senate Committee on the District of Columbia, room 6222 Dirksen Senate Office Building, by the close of business on Monday, December 10, 1973.

ADDITIONAL STATEMENTS

ESTABLISHMENT OF THE LYNDON BAINES JOHNSON MEMORIAL GROVE

Mr. HUMPHREY. Mr. President, I am honored to be listed as a cosponsor of Senate Joint Resolution 178, with Senators BENTSEN, AIKEN, and GOLDWATER, introduced yesterday for the establishment of the Lyndon Baines Johnson Memorial Grove on the Potomac.

The intent of this resolution is to establish a living memorial to the 36th President of the United States, under whom I was privileged to serve as Vice President and whom many of us in the Senate remember as a beloved colleague and an outstanding leader in the history of this legislative body.

The memorial grove would be developed within the area along the Potomac shoreline that has been designated as Lady Bird Johnson Park, in recognition of the well-known efforts by the widow of the late President, while she was First Lady and since, toward the beautification and enhancement of this Nation's environment.

As Mr. BENTSEN pointed out in introducing this resolution on Thursday, the memorial will not cost the public a cent. But I am sure it will give much in pleasure and enjoyment to the American people, by further enhancing the view of their Nation's Capital from the park.

Mr. President, Mrs. Johnson has approved the plan for this memorial, and I am sure that when it is completed it will reflect her fine esthetic tastes. I respectfully urge the support of my colleagues for this resolution, to permit prompt completion of the Lyndon Baines Johnson Memorial Grove.

I ask unanimous consent to have printed in the RECORD the text of the resolution.

There being no objection, the joint resolution was ordered to be printed in the RECORD, as follows:

S.J. RES. 178

Whereas friends and admirers of the late President Lyndon Baines Johnson wish to pay tribute to him by developing a living memorial in the form of a Lyndon Baines Johnson Memorial Grove on the Potomac and have formed a Committee, in cooperation with The Society for a More Beautiful National Capital, Inc., a non-profit corporation established under the laws of the District of Columbia on April 21, 1965, to that end;

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Interior is authorized to cooperate with the Committee for a Lyndon Baines Johnson Memorial Grove on the Potomac and The Society for a More Beautiful National Capital, Inc., in developing an appropriate memorial in the form of a living grove of trees and related facilities to honor Lyndon Baines Johnson, the 36th President of the United States.

SEC. 2. The grove shall be located on a portion of the land designed by the Secretary of the Interior on November 12, 1968, as Lady Bird Johnson Park, Washington, D.C. The design of the grove shall be subject to the approval of the National Capital Planning Commission and the Commssion of Fine Arts.

U.S. SECURITY ISSUES IN EUROPE

Mr. MATHIAS. Mr. President, Senator STUART SYMINGTON, the chairman of the Foreign Relations Subcommittee on U.S. Security Agreements and Commitments Abroad, released an extraordinarily perceptive report on December 2, written by two members of his staff, James G. Lowenstein and Richard M. Moose. This report entitled "U.S. Security Issues in Europe: Burden Sharing and Offset, MBFR and Nuclear Weapons," is based on a 3-week investigation of our security commitments in Europe. NATO is our most important security commitment and the Symington-Moose-Lowenstein report is the best available assessment of the present state of the alliance. The report addresses three and perhaps the most crucial questions which face the United States and fellow members of the alliance. In my view, how the United States meets the questions of burden sharing, MBFR, and the future disposition of nuclear weapons in Europe will in large measure determine NATO's future role. Because of the importance of the report, I ask unanimous consent that the conclusions of the report and some press commentary on the report be printed in the RECORD at the conclusion of my remarks.

There being no objection, the material was ordered to be printed in the RECORD, as follows:

U.S. SECURITY ISSUES IN EUROPE: BURDEN SHARING AND OFFSET, MBFR, AND NUCLEAR WEAPONS

A staff report prepared for the Use of the Subcommittee on U.S. Security Agreements and Commitments Abroad, September 1973

LETTER OF TRANSMITTAL

NOVEMBER 26, 1973.

HON. STUART SYMINGTON,
Chairman, Subcommittee on U.S. Security Agreements and Commitments Abroad, U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: The attached report was prepared after we returned on October 4 from three weeks in Europe where we examined, at the Subcommittee's request, questions relating to our security commitments to Europe. While there are obviously many such questions, we have concentrated in this report on three specific interrelated issues: burden sharing and offset negotiations, the negotiations on Mutual Balanced Force Reductions (MBFR) and nuclear weapons in Europe.

Before leaving we were briefed in the Departments of State and Defense and the Central Intelligence Agency. In Europe we met with the American Ambassadors to the European Economic Community, Belgium and Germany and the U.S. Permanent Representative to the North Atlantic Council, and members of their staffs; General Andrew Goodpaster, the Supreme Allied Commander in Europe and Commander in Chief of U.S. Forces in Europe, and members of the SHAPE staff; Joseph Luns, Secretary General of NATO; a number of other Ambassadors to NATO; Emile Noel, Secretary General of the European Economic Commission, Sir Christopher Soames, Vice President of the Commission and other Commission officials; members of the NATO Military Committee; the Deputy Commander of U.S. Forces in Europe, the Commanders of the U.S. Air Forces and Army in Europe, the Seventh U.S. Army Corps Commander in Germany, and members of their staffs; Belgian, German and French defense and foreign office officials; and various other knowledgeable American and foreign observers, including academicians and journalists.

Following completion of this report, which was originally classified, a review was begun on November 5 at your request in order to determine what deletions should be made for security reasons before the report was published. That review, in which officials of the Departments of State and Defense participated, was completed on November 26 and the deletions made are so indicated.

Sincerely yours,

JAMES G. LOWENSTEIN,
RICHARD MOOSE.

V. CONCLUSIONS

The negotiations on offset, burden sharing and MBFR test two current central assumptions of U.S. policy in Europe. Offset and burden sharing test the viability of the NATO commitment to collective defense. The MBFR negotiations test the reality of detente.

Offset negotiations with the German govment are, of course, nothing new. But this time the political context in which they are

set is different. With the confidence their economic success and political achievements have brought, German officials are for the first time questioning U.S. cost figures. While apparently willing to do about what they have done in the past to defray some of the U.S. balance of payments costs incurred in their own country and to defer most of the remainder, they seem firm in their determination not to be pressured into going much further, and they appear to be approaching irritation over the multiple and continuous financial demands which they face from the United States. At the same time the Germans are acutely aware that U.S. sentiment is shifting more strongly in favor of U.S. force reductions.

The burden sharing negotiations call into question the willingness and ability of the allies, other than Germany, to absorb the cost of maintaining U.S. ground forces in Europe. The attempt to extract budgetary assistance from these NATO countries is being pursued by the United States but, given the perception of these governments of their own political and budgetary limitations, this attempt is unlikely to produce even the $130 million incremental budgetary cost involved in this fiscal year. The possibility that the allies other than Germany might be able to offset the military balance of payments deficit incurred by the United States in their own countries—a deficit in this fiscal year estimated at somewhere between $600 million and $1.4 billion—seems even more unlikely. Some of them, for example the British and the Belgians, already have military payments deficits as a result of the stationing of their own forces in Germany, and such devices as large arms purchases and loans which the Germans have used to provide offsets are not practical possibilities in their cases.

Furthermore, the allied governments find it difficult to take the attempt to share the incremental budgetary cost seriously on its economic merits because, first of all, they have for years heard the argument used in Congressional debates that it costs less for the United States to maintain forces in Europe than at home and, secondly, because even the $440 million incremental U.S. budgetary cost seems small in relation to the total U.S. defense budget. Nevertheless, the Europeans are concerned about the prospect of any significant reduction in U.S. forces, for they regard U.S. ground troops as the link to the American strategic deterrent as well as the factor which validates the argument they have used with their own publics that they should maintain forces, an argument which they fear could not be sustained were a significant and constant number of U.S. forces not present.

In both the offset and burden sharing negotiations, then, the ultimate concern of Europeans is that U.S. forces will be reduced unilaterally. To the extent that we emphasize this possibility in these negotiations, however, our position in the MBFR negotiations is weakened. Our position in the MBFR negotiations is also constrained by the fact that any result achieved must meet the full approval of our NATO allies or we will have failed to meet one of our basic objectives which is not to harm allied solidarity and confidence. But the allies generally are apprehensive about the negotiations, regarding them as a way for the U.S. Executive Branch to stave off Congressional pressures for troop reductions and therefore as negotiations which, from their point of view, do not necessarily have to produce a result. Hence they will only approve positions to be taken in the negotiations that the Soviets may well consider to be advantageous to the West and disadvantageous to them. The United States thus faces the difficult task of developing proposals that are both acceptable to the allies and negotiable with the Soviets.

To many in the United States, European willingness to make a greater contribution to the maintenance of U.S. forces in Europe is regarded as a primary index of the devotion of the European NATO countries to the principle of common defense. On the other hand, while they accept the necessity of some greater effort on their part, Europeans appear to believe that the United States must acknowledge that its own national interests are served by the maintenance of significant conventional forces in Europe regardless of what the Europeans do to support them. They also believe that the American willingness to acknowledge European concerns is, in turn, a measure of our willingness to make the alliance a true partnership and not only an instrument of U.S. policy.

Despite the apparent public desire in Europe to believe in detente, European leaders are highly dubious that long term Soviet intentions have changed or that the Soviets are entering the MBFR negotiations in good faith. Nevertheless, the possibility of stabilizing the central European military equation at lower levels of risk and expenditure has obvious appeal. Furthermore, if it is likely, as many European leaders believe, that the United States will in any event withdraw major forces within the next few years, it seems to them only sensible to seek compensatory reductions of Soviet forces, provided that this process can be accomplished without lowering the tactical nuclear threshold or undermining the credibility of the American strategic deterrent.

In connection with the last of these concerns, in almost every meeting we had with European officials, whether on offset and burden sharing or on MBFR, they emphasized the importance of maintaining the linkage between NATO's strategy of flexible response and the U.S. strategic deterrent, the attitude of Europeans, particularly the Germans, about the relationship of tactical nuclear weapons to flexible response continues to be highly ambivalent. As a means of lending credibility to the conventional deterrent, they accept tactical nuclear weapons as a theoretical concept and recognize that the ambiguity in NATO nuclear doctrine enhances the allied deterrent because potential adversaries do not know under what circumstances nuclear weapons would be used. But the thought that tactical nuclear weapons might actually be used in central Europe is far more difficult for them to accept. Hence the extreme German sensitivity regarding ADM's and mini-nukes.

In the United States more attention is devoted to the cost and size of U.S. ground forces in Europe than to the implications of the presence of U.S. nuclear weapons there, in part because of the lack of public knowledge. As a result public understanding or evaluation of such critical factors as the relationship between ground forces and nuclear weapons in Europe is severely inhibited. Yet the security of the United States itself is inextricably linked to nuclear weapons in Europe, first of all because the weapons are American, and secondly, because their use perhaps could, and more probably would, involve U.S. strategic nuclear forces and thus, in turn, inevitably produce a U.S.-Soviet nuclear exchange.

[From the New York Times, Sunday, Dec. 2, 1973]

UNITED STATES-NATO CLASH ON COSTS IS SEEN

(By David Binder)

WASHINGTON, December 1.—A high State Department official said today that he believes the United States is heading for a major clash with its North Atlantic allies over sharing the financial burden resulting from the stationing of American troops in Europe.

The official said that the balance of payments deficit, the difference between what the United States spends overseas and what it receives from imports, is expected to reach $600-million to $1.4-billion in 1974.

"I think we are moving toward the most serious confrontation the alliance has ever seen," the official said, "because the Administration is demanding full compensation for balance-of-payment losses resulting from having troops in Europe, and the Europeans simply are not going to pay it."

The official referred to estimates of the United States deficit released today in a Senate Foreign Relations subcommittee report on security commitments abroad.

WRITTEN BY CONSULTANTS

The report was written by two staff consultants, James G. Lowenstein and Richard M. Moose, after three weeks in Western Europe. The estimates of the deficit were reluctantly declassified by the State and Defense Departments.

Since June Secretary of Defense James R. Schlesinger has been telling North Atlantic Treaty Organization countries that the United States expects all its $2.5-billion deficit in outlays related to European defense to be covered by the Europeans.

Included in the $2.5-billion for 1974 is $440-million in increased costs, which Mr. Schlesinger is seeking the allies to pay directly. He is expected to take this up next week at the annual meeting of NATO ministers in Brussels.

NEW PRESSURE ON BONN

West Germany, traditionally the only European ally to make substantial contributions toward offsetting the deficit caused by the stationing of 309,000 American servicemen in Europe, is again being asked to pay heavily.

Bonn is negotiating an agreement with Washington, in which it expects to contribute more than $1-billion toward offsetting the American deficit. Washington also expects the West Germans to provide $310-million of the extra $440-million.

The remaining $130-million is supposed to come from the other Europeans, Mr. Schlesinger has said, although some of these allies have described this as a paltry demand from a country that spends $80-billion a year on its military establishment.

But even this projected easing of the American deficit leaves a huge gap, the Lowenstein-Moose report makes clear, and none of the proposals for additional assistance seem likely to fill it.

NEW PROPOSAL BY UNITED STATES

The State Department official predicted that the confrontation on the deficit would principally revolve around American demands that West Germany participate in a new alliance-wide plan for sharing costs that was proposed by Mr. Schlesinger.

Bonn has stiffened its resistance to these new demands, pointing out that besides paying the lion's share of such costs already, it has made additional sacrifices, including supporting the falling United States dollar in the form of revaluation of the mark, and acceptance of dollar devaluations. As a result, the Moose-Lowenstein report notes, German monetary reserves have decreased $10-billion since October, 1969.

[From the Washington Post, Dec. 2, 1973]

SENATE REPORT ANALYZES U.S. NUCLEAR FORCE IN EUROPE

(By Murrey Marder)

American nuclear warheads are stored in more than 100 special ammunition sites in Western Europe under heavy guard, floodlit at night, with some weapons always loaded for atomic blasts, a Senate staff study reported yesterday.

The attempt to make public the nuclear facts of life at the threshold of potential U.S.-Soviet nuclear war, in Europe, emerged in Swiss-cheese format, massively censored. Despite tantalizingly heavy deletions, however, the report is the fullest accounting so far officially cleared on the pervasive military, diplomatic and psychological implications resulting from the presence of about

7,000 American nuclear weapons in Europe for defense of the Atlantic Alliance.

About 11½ censored pages of nuclear weaponry survived in a 27-page report on U.S. security issues in Europe, made public by the Senate Foreign Relations subcommittee on security agreements and commitments abroad. It is based on a three-week study in Europe in September by staff members James G. Lowenstein and Richard M. Moose.

In issuing the report, subcommittee chairman Stuart Symington (D-Mo.) said, "The relationship of the United States with its European allies is presently under greater stress than at any time in the recent past." He recalled that on Oct. 25 the world suddenly found U.S. nuclear forces in Europe and throughout the world "placed on alert in response to Soviet moves in the Middle East—apparently with little notice to our allies."

Symington said neither his committee, nor the public, ever before has been given "any comprehensive picture of our nuclear deployments in Europe . . ." Despite heavy censorship, he said, the current report significantly helps break down past "arbitrary barriers to information."

The published account shows:

A 7,000 figure on U.S. nuclear warheads in Europe, first used by then Defense Secretary Robert S. McNamara in 1966, has varied up and down since, but is still the best public approximation available. The original figure covered only land-based tactical nuclear warheads in Europe, excluding warheads for bombers of the Strategic Air Command or warheads carried aboard ships at sea.

As of July 31, land-based nuclear warheads were "stored at over 100 special ammunition sites" in Western Europe. One-third of them are for use by American forces and two-thirds for allied forces, but all "are kept in the custody of the United States. . ."

In a typical North Atlantic Treaty Organization storage site, the warheads are in storage igloos or maintenance and assembly buildings. "The site is surrounded by a double perimeter fence which is floodlit at night." U.S. forces control entry to the storehouses, with the outer perimeter guarded by the user nation.

"Some weapons, both American and foreign, with nuclear warheads are kept loaded at all times on quick reaction alert (or 'QRA,' as they are known)." The number of aircraft, missiles and Polaris and Poseidon missile-firing submarines on armed alert depends on the force level being maintained.

At a site the Senate staff members visited, they asked whether the U.S. officers controlling release of allied plans armed with nuclear weapons "could prevent the allied pilot from dropping his nuclear bomb once his plane was airborne." The answer was censored from the report. (Other sources yesterday indicated that if necessary in emergency, such a plane could be ordered shot down.)

Although the United States first initiated the stockpiling of tactical nuclear weapons in Europe in 1957, it was not until 1967 that the United States "agreed to inform countries of the details of the nuclear weapons stockpiled in their territory or stockpiled elsewhere for the use of their forces."

Atomic demolition munitions (ADMs), to be used to block valleys, mountain passes, or other entry points to allied territory in Europe, are handled by teams of five or six men. West Germany, whose public is highly sensitive to the use of such explosives since controversy over them broke out a decade ago, permits no "prechambering" of holes to implant ADMs. But European nations have "chambers for conventional explosives" that can be used for atomic munitions, although they would result in greater fallout because they are shallower than special ADM chambers.

As previously known, in NATO there are "over 2,000 U.S. and other NATO forward-based nuclear capable aircraft." NATO countries also have, in addition to such aircraft, Honest John missiles, Pershing missiles, and 155-mm and eight-inch howitzers that can fire nuclear shells.

What the report underscored by its disclosures is what is widely known in Europe but realized by relatively few Americans: to a great degree, Europeans are hostages to American decisions for their defense, which means they are also hostages to the vagaries of American politics which determine who will make the decisions in the White House. This is a major reason why the Watergate scandals, while they registered late on European consciousness, have become a continuing sensation there.

The Senate report stated that basic NATO strategy for both conventional and nuclear warfare is set forth in a document known colloquially by its serial number as "14/3," dated Jan. 16, 1968. This establishes the doctrine of "nuclear deterrence, forward defense and flexible response," informally accepted several years earlier substituting for a strategy based on massive nuclear retaliation. The Kennedy administration first initiated the strategy shift.

If "deterrence" fails to prevent war, the present doctrine holds out three levels of military responses.

They are defined in the report as first, "direct defense—that is, defeating the enemy on the level at which he chooses to fight, a concept which includes the use of such available nuclear weapons as may be authorized either on a pre-planned or case-by-case-basis."

Second is "deliberate escalation which seeks to defeat the aggressor by deliberately raising, but where possible controlling, the scope and intensity of combat, making the cost and risk disproportionate to the aggressors' objectives and the threat of nuclear response progressively more imminent."

"The third kind of military response," the report relates, "is general nuclear response—that is, massive nuclear strikes against the total nuclear threat, other military targets and urban industrial targets. General nuclear response is considered to be the ultimate deterrent and, if used, the ultimate military response."

But a general nuclear response under NATO strategy, the report emphasizes, can be undertaken only in conjunction with the U.S. Joint Chiefs of Staff plan for the widespread synchronized use of U.S. nuclear weapons. This doubly emphasizes U.S. control of NATO's ultimate strategy.

A NATO nuclear planning group is drawn from all 15 NATO countries except France, Iceland, Portugal and Luxembourg—which are the nations where no U.S. nuclear stockpile exist. A request to use nuclear weapons, the report relates, goes to the broader defense planning committee, composed of all NATO nations except France, which took itself out of the NATO military system, but remains in the alliance.

"The release of nuclear weapons," the report relates, "can only be authorized by the President of the United States (or, for British weapons, the British prime minister). Before releasing or ordering the use of nuclear weapons in Europe, the President is bound to consult if time and circumstances permit."

The estimated interval in time of crisis to complete the consultation process and authorize the firing of nuclear weapons is deleted from the report.

In a section of the report discussing the British and French nuclear forces, based on "unofficial unclassified sources," the report notes that Britain's nuclear force has American strings on it because the United States "provides support for the British forces," including the fuel used in the nuclear propulsion plants of its four Polaris A-3 submarines. Britain also had a force of 56 nuclear-capable Vulcan bombers as of 1971, but they are being gradually phased out.

France's nuclear force, the report pointed out, "is far more diversified than the British and is not dependent on the United States." It includes two submarines, with three more due by 1979, a force of intermediate-range missiles capable of reaching Moscow, Mirage nuclear bomb-carrying aircraft and tactical guided missiles.

"In the last analysis," the study found, "the Germans and the other European governments place their greatest faith in the U.S. strategic deterrent—to which, in their view, the presence of U.S. ground forces provides the essential link—and they do not want any European arrangement which might loosen the link to the U.S. strategic deterrent."

[From the New York Times, Dec. 2, 1973]

Europe Deeply Insecure Over U.S. Troop Plans

(By John W. Finney)

WASHINGTON, December 1.—The North Atlantic Treaty allies have agreed upon a strategy providing that any large-scale use of nuclear weapons by forces within Europe should be accompanied by strikes by United States forces stationed outside Europe, a report by the staff of the Senate Foreign Relations Committee disclosed today.

A clear implication of this NATO strategy is that "a general nuclear response" by the tactical forces of the European allies would not be limited to Europe, but would include strikes against the Soviet Union by United States missiles and planes.

The strategy thus forges a direct link between the so-called tactical nuclear weapons that the United States has in Europe to deter a conventional Soviet attack and the strategic weapons deployed around the world to deter a nuclear war between the United States and the Soviet Union.

As a result, the staff report observed, "the security of the United States itself is inextricably linked to nuclear weapons in Europe, first of all because the weapons are American, and secondly because their use perhaps could, and more probably would, involve United States strategic forces and thus, in turn, inevitably produce a United States-Soviet nuclear exchange."

There had been persistent doubts in Europe that the United States would risk nuclear retaliation against its territory by attacking Soviet targets in the event of a Soviet attack on Europe. In recent months, the report observed, "this concern has been aggravated by the growing belief among Europeans that the United States is prepared to deal over their heads on security matters with the Soviet Union."

The nuclear strategy developed by the North Atlantic Treaty Organization was described in a staff report prepared by James G. Lowenstein and Richard M. Moose for Senator Stuart Symington, Chairman of the Senate Foreign Relations subcommittee on United States security agreements and commitments abroad. While heavily censored by the State and Defense Departments, the report provides probably the first official and public description of the options the allies have agreed upon for using nuclear weapons.

SOME DETAILS REVEALED

In an area in which, as Senator Symington said, only limited and fragmentary information has been given Congress and the American people, the report provided the following details about the American nuclear weapons that have been stockpiled in Europe for more than 15 years:

The weapons are stored at more than 100 sites in Europe guarded by American troops. About a third of the sites are for weapons to be used by United States forces, the remaining two-thirds for weapons to be used by allied forces in the event of war.

About 80 per cent of the more than 7,000 warheads can be used for offensive or defensive purposes, such as bombs for fighter-

bombers, missile warheads or artillery shells. The remaining 20 per cent are purely defensive weapons, such as for surface-to-air missiles, demolition mines and antisubmarine devices.

Some allied aircraft on "quick-reaction alert" are loaded with atomic weapons supplied by the United States, supervised by American guards who are under orders not to permit the aircraft to move "unless a properly authenticated release order is given him." Deleted from the report was an examination of whether the United States has any form of positive control to prevent a foreign pilot from dropping a nuclear bomb once his aircraft is airborne.

The United States has atomic-demolition teams—each team with five or six men—in West Germany and Italy. The mission of the teams is to place atomic mines at critical points, such as mountain passes. But the report noted that such mines present "a particularly sensitive question" to the European allies, especially West Germany, "because their use would require an early decision to escalate to nuclear weapons and because they would presumably be used in friendly areas before the arrival of the enemy." The West German Government has refused permission for the digging of holes in which the mines could be implanted.

The European allies are not enthusiastic about the effort of the American military to deploy "mini-nukes"—a new series of tactical weapons with reduced yields and enhanced capability for killing by radiation. The European concern is that the deployment of the weapon would significantly lower the nuclear threshold and could lead to reduction of American conventional forces.

TWO DOCUMENTS STUDIED

The NATO nuclear strategy is spelled out in two documents, which are paraphrased at length in the Senate report.

One document is entitled "Over-all Strategic Concept for the Defense of the NATO Area," dated Jan. 16, 1968. It formalized the shift away from the strategy of massive retaliation to the doctrine of flexible response, in which the allies would have both conventional and nuclear capability to deal with a Soviet attack.

The alliance's nuclear policies are defined in a second document entitled "Concepts for the Role of Theater Nuclear Strike Forces in ACE (Allied Command Europe)," originally adopted by the North Atlantic Council in 1970 and revised in 1972.

On the basis of this document, the report says the NATO headquarters has drawn up what is called a general strike plan and lists of targets.

The general strike plan provides for two categories of nuclear warfare—selective use and general response.

Both levels of nuclear warfare require consultations among the allies as well as the approval of the President of the United States. But the report says that within the selective category the Supreme Allied Commander in Europe, who has always been an American general, has "the capability for deliberate escalation with which he can expand the scope or intensity of combat in order to strengthen his defensive effort or to insure the survival of his forces within the scope of the authority the President has authorized him to use."

The clear implication is that once the Supreme Allied Commander has been authorized by the President to make selective use of nuclear weapons, he has a certain discretionary authority to determine how broadly to use the weapons.

THREAT OF ESCALATION

According to the report, NATO strategy "specifies that selective employment would be used on a controlled or limited scale either for demonstrative or tactical purposes" to confront the aggressor with the risk of escalation so that he would halt the attack.

Under the selective concept, the nuclear weapons could be used in the immediate area of the attacking force or on a broader "theater" basis, with attacks on such targets as supply lines. "Theater nuclear warfare," as it is called, is the ultimate level of nuclear warfare that the Supreme Allied Commander would be authorized to conduct subject to Presidential approval, the report said.

Should selective warfare fail or be impractical, the report said, the general strike plan provides for "general nuclear response," which contemplates "massive nuclear strikes against targets [deleted by censors] in order to [deleted]."

COORDINATED ATTACK

Despite the heavy censorship in this phase of the report, it was apparent that the plans for general nuclear response call for a coordinated attack by the 2,000 allied tactical aircraft in Europe and the strategic forces of the United States.

"The general nuclear response would not be undertaken by theater nuclear strike forces alone but only in conjunction with the execution of the United States Joint Chiefs of Staff plan for the widespread synchronized use of United States nuclear weapons in an all-out war," the report said.

"Accordingly," the report continued, "responsibility for carrying out NATO's general nuclear response falls on United States strategic forces based outside Europe."

Furthermore, it said, the targets to be struck in a general nuclear response have been coordinated with the United States target list maintained by the Joint Strategic Targeting Center at Omaha, Neb.

[From the Washington Post, Dec. 2, 1973]

FURTHER STRAIN SEEN FOR NATO ALLIANCE

(By Dan Morgan)

A Senate staff study released yesterday foreshadows continued strains in the Atlantic alliance resulting from the costs of maintaining U.S. forces and installations in Europe.

The study also details for the first time the intricate link between this issue, which has plagued the alliance for a decade, and the East-West discussions on mutual force reductions.

While these East-West talks make the Europeans "apprehensive," the study reports that it is "unlikely" that they will come forward with any major new contributions to help the United States keep up its force levels.

The report estimates that the American balance-of-payments deficit caused by stationing forces in Europe will be between $600 million and $1.4 billion after various European offsetting financial and commercial deals are figured in.

The Europeans "appear to be approaching irritation over the multiple and continuous financial demands which they face from the United States," it declares.

While this may provoke new American calls for the Europeans to do more to share the Western defense load, the study spells out European arguments against this. In this respect, the study could buttress forces in Congress which, like the Europeans, are opposed to any unilateral American reductions on the Continent.

"Europeans appear to believe that the United States must acknowledge that its own national interests are served by the maintenance of significant conventional forces in Europe regardless of what the Europeans do to support them," it says.

The study notes that the additional annual costs the Defense Department incurs by stationing the forces in Europe rather than in the United States—an estimated $440 million—are "small in relation to the total U.S. defense budget."

Also, the report suggests that traditional methods for offsetting some of the American balance-of-payments drain—arms purchases and loans—are not as practical as they once were.

Even as the report was being released, top American officials were suggesting that the Europeans might do more. Defense Secretary James R. Schlesinger said Friday that while European support for NATO is increasing, "The European nations have been inclined to provide the minimum support necessary to maintain the United States commitment to the defense of Europe."

However, the Senate staff study suggests that there is resistance in Europe.

The allies "seem firm in their determination not to be pressured into going much further," it writes.

The study, written by James G. Lowenstein and Richard M. Moose for the Senate Subcommittee on U.S. Security Agreements and Commitments Abroad, was heavily censored before publication. The most heavily deleted section deals with the alliance's negotiations with the Soviet Union and its allies over reducing forces in East and West Europe.

However, it reveals that lengthy, secret negotiations with the allies preceded the negotiations with the Soviets.

The United States sent its allies two notes, on April 30 and July 27, setting down its position for the coming talks. On Sept. 13, NATO completed a document with a formal negotiating stand for the talks which began in Vienna in October.

Many European officials regard the East-West talks as a means for the U.S. government to stave off congressional pressures for troop reductions, the report says.

West Germany is mainly interested in a process that would enable it, in a second round, to cut back its own defense forces in line with Chancellor Willy Brandt's policy of relaxation in Central Europe.

Britain is most opposed to the negotiations, says the study. Having just made the difficult decision to associate itself more closely with Europe, it does not want to see Soviet influence increased on the Continent.

France feels the talks cast further doubt on the sincerity of the U.S. commitment to defend Europe. It has ruled out any reduction of its own forces, including the 50,000 troops it stations in West Germany.

Greece and Turkey are concerned that a thinning out of forces in the north would increase Soviet pressures in the south. Holland and Belgium, both of which station small numbers of troops in Germany, are interested in reducing their own forces in a second round.

The authors do not outline what they think may be the Soviet interest in the force reduction talks.

Analysts usually say that Soviet motives combine a desire to continue détente with the United States, reduce West German forces, increase dissension in NATO and secure a cutback of NATO's tactical air force units capable of striking the Soviet Union.

Frictions over financing the alliance long predate the latest flare-up between the United States and Europe over conflicting Middle East policy. The frictions persist even during the delicate negotiations with the Soviets on force reductions.

A new element has been added this year in the U.S. demands that the Europeans pay the extra costs this country incurs by stationing forces abroad instead of at home. West Germany is expected to cover all but $130 million of this.

The Senate staff study says there is "some chance" that the other NATO allies will pick up this remainder—implying that this issue is far from resolved and may yet cause more Atlantic frictions.

SUPPORT VOICED FOR NEW HAMPSHIRE LEGAL ASSISTANCE

Mr. McINTYRE. Mr. President, as the Senate prepares to consider the bill which would establish a National Legal

Services Corporation, I believe it is important to give my colleagues an indication of the widespread support the current legal services program has received in my State of New Hampshire.

New Hampshire legal assistance has been in existence since 1966, and in that period has represented a significant number of poor people in New Hampshire. Last year alone, NHLA handled more than 6,000 cases, ranging in subject matter from family problems to consumer cases to housing.

According to the program's 1972 annual report, NHLA has as its purpose "to seek social justice through the legal procedures and institutions of our society." This goal is achieved in two ways: By providing individual counsel on a case-by-case basis, and by attempting, through legal challenges connected with cases, to attack the problems that underlie the symptoms of poverty.

Of course, any challenge to the "establishment" or to the status quo brings complaints and hostility from some. But it is a credit to New Hampshire legal assistance that it has, in its 7 years of existence, built a solid reputation for providing competent legal representation and a high level of service to the people of the State.

In fact, the program has won well-deserved praise and support from the legal profession, members of the judicial branch and members of the legislature.

Supporters include the New Hampshire Bar Association, the Judicial Council of New Hampshire, bar associations of Sullivan and Merrimack Counties, the Manchester Bar Association, the Nashua Bar Association, Operation Low Income People.

Mr. President, I ask unanimous consent that a number of letters and resolutions expressing support for New Hampshire legal assistance be printed in the RECORD.

There being no objection, the material was ordered to be printed in the RECORD, as follows:

NEW HAMPSHIRE BAR ASSOCIATION—RESOLUTION*

Whereas, there is a continuing need for legal service for the poor in New Hampshire.

Whereas, there is a federally funded legal service program to meet this need in New Hampshire.

Whereas, this program is facing an expanding demand for legal services and also facing increased operating expenses.

Whereas, the funding for this program has not increased since 1970 is spite of the increase in demand and operating expenses.

Whereas, this Association continues to support the need for adequate legal services to the poor and the need for vital and independent programs to provide this representation.

Now therefore, It is resolved:

1. The United States government should increase the level of funding of New Hampshire Legal Assistance to enable it to provide adequate legal services to eligible clients and to prevent a serious deterioration of the quality and quantity of service because of increased expense and mounting caseload.

2. Governments at all levels and lawyers from both the public and private sectors should take every step necessary to insure that legal services lawyers remain independent from political pressures in the cause of representing clients.

3. The Congress of the United States should enact a legal service corporation of a design consistent with the foregoing principles and the need to maintain full and adequate legal services for the poor.

*Passed unanimously by the Board of Governors of the New Hampshire Bar Association, January 25, 1973.

RESOLUTION OF THE JUDICIAL COUNCIL OF THE STATE OF NEW HAMPSHIRE

On motion of Judge Kenison, duly seconded, the following resolution was unanimously adopted:

Resolved: That the Judicial Council hereby records its continuing support of the work of New Hampshire Legal Assistance, declares that the services being rendered by New Hampshire Legal Assistance to the poor of this State are vital to realization of the ideal of equal justice, and, recognizing that providing legal representation to the poor is an obligation of society, urges that the work of New Hampshire Legal Assistance be more adequately funded by the Federal Government.

MERRIMACK COUNTY BAR ASSOCIATION RESOLUTION

Whereas the Board of Governors of the New Hampshire Bar Association unanimously resolved, on January 25, 1973, that:

"1. The United States government should increase the level of funding of New Hampshire Legal Assistance to enable them to provide adequate legal services to eligible clients and to prevent a serious deterioration of the quality and quantity of services because of increased expenses and mounting case loads.

2. Governments at all levels and lawyers from both public and private sectors should take every step necessary to insure that legal services lawyers remain independent from political pressures in the cause of representing clients.

3. The Congress of the United States should enact a legal services corporation of a design consistent with the program's principles and the need to maintain full and adequate legal services for the poor."

Now therefore be it resolved that the Merrimack County Bar Association endorses the resolution of the New Hampshire Bar Association, acknowledges that New Hampshire Legal Assistance has and continues to provide a necessary service for the indigent citizens of Merrimack County, and expresses its hope that New Hampshire Legal Assistance will continue serving Merrimack County.

MANCHESTER BAR ASSOCIATION RESOLUTION

Whereas, there is a continuing need for legal services for the poor in Greater Manchester.

Whereas, there is a federally funded legal service program, New Hampshire Legal Assistance to meet this need in Greater Manchester.

Whereas, this association continues to support the need for an independent program to provide adequate legal services to ensure that all receive equal justice under the law.

Now therefore, it is resolved:

1. Governments at all levels and lawyers from both the public and private sectors should take every step necessary to insure that the legal services program remains independent from political pressures in the cause of representing clients in any appropriate forum.

2. The United States Government and the State of New Hampshire should insure the continued funding of New Hampshire Legal Assistance to enable it to provide adequate legal services to eligible clients in the Greater Manchester area and to prevent a loss in the quality of service now being provided by said program.

3. The Manchester Bar Association recognizes and supports the vital necessity of New Hampshire Legal Assistance to continue providing legal services to the poor in this community.

NASHUA BAR ASSOCIATION RESOLUTION

Whereas the Board of Governors of the New Hampshire Bar Association unanimously resolved on January 25, 1973, that;

"1. The United States government should increase the level of funding of New Hampshire Legal Assistance to enable them to provide adequate legal services to eligible clients and to prevent a serious deterioration of the quality and quantity of services because of increased expenses and mounting case loads.

2. Governments at all levels and lawyers from both public and private sectors should take every step necessary to insure that legal services lawyers remain independent from political pressures in the cause of representing clients.

3. The Congress of the United States should enact a legal services corporation of a design consistent with the program's principles and the need to maintain full and adequate legal services for the poor."

Now therefore be it resolved that the Nashua Bar Association endorses the position of the New Hampshire Bar Association and expresses its support for the continuing efforts of New Hampshire Legal Assistance to provide representation for low-income people in Nashua.

As President of OLIP (Operation Low Income People), the only statewide poor peoples organization in New Hampshire, we wish to express our thoughts on the excellent record that New Hampshire Legal Assistance has demonstrated in serving New Hampshire's poor.

First, the state would be in a crisis if NHLA did not exist to aid the poor in solving their common problems. As the poor have no funds with which to retain an attorney, it would be a gerat loss to all if NHLA ceased.

Second, not only does NHLA help with individual cases but also broader issues on the state level. This has included important suits on behalf of low-income consumers, welfare recipients, prisoners, and disadvantaged tenants. To its credit, it has won many decisions which have bettered the lives of several thousands of the state's poor.

It is our understanding that NHLA is in the process of being refunded. It is imperative that not only NHLA continue in operation, but to be funded at an adequate level. We ask that you do everything in your power to insure that these two things happen.

FUEL

Mr. BROCK. Mr. President, reality is something which American's sometimes find very difficult to grasp. Our history tells us that America has faced numerous crisis, but generally, have solved them in the face of real adversity. Such a situation appears to be the energy crisis that we now face. Vermont Royster, writing in the Wall Street Journal, points out that 2 years ago, Congress was warned of an impending energy crisis. Mr. Royster also points out that President Nixon in April sent Congress several measures to work toward preventing a serious energy shortage. However, Congress, as we know so well, did nothing to help solve the problems which have now grown to monstrous proportions. Mr. Royster also points out that it is easy to place the blame for the crisis, but, to his credit, he concludes that to solve our problems, we have to go back to the age old problems solver, the marketplace itself, the law of supply and demand. I would ask unanimous consent that Mr. Royster's article be printed in the RECORD.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

FROM WORSE, BETTER?

(By Vermont Royster)

One of the sad little rules of life seems to be that things have to get worse before they can get better.

We see it at work often in our private lives. It's a rare person who, feeling chipper, will harken to the doctor's advice to take off ten pounds, stop smoking, or change the diet; it takes those first twinges to promote better health measures. And since a democracy is people it's especially subject to the rule.

Examples abound. There are always a few who see the coming shadows—of war or inflation or whatever—and try to arouse the people to do something about it. Rarely will the many respond until the foreseen can be personally seen, and felt, in the painful present. Thus do we come to wars unprepared, or move against inflation only after it is rampant.

So it is now with the energy crisis. A great many people seem surprised that we have one, and cry out: Why didn't someone warn us? Why didn't somebody do something about it? Indeed, exactly those questions were put to President Nixon recently during his televised press conference with the newspaper editors. The implication was that the present crisis was allowed to sneak up on us all unheralded.

The facts are otherwise. For nearly two years the warnings have come repeatedly, not only from President Nixon but also from a few other prescient political leaders, including notably Senator Jackson, a leading Democrat. The trouble was that hardly anybody else paid attention.

As far back as the summer of 1971, for example, President Nixon sent a special message to Congress on the energy problem, the first such message, as he says, from any President. Re-read today his words have a phophetic ring.

"We cannot take our energy supply for granted any longer," the President began that message, citing the fact that even then soaring demand was outstripping the supply of oil. Hence, he concluded, "our efforts to expand the supply . . . must immediately be stepped up."

The measures he proposed then are familiar now to any newspaper reader. The development of nuclear power, expanding natural gas supplies, better use of coal, the development of oil resources in Alaska and the continental shelf, and a technological program to make other energy resources economically feasible, such as oil shale and geothermal energy.

Mr. Nixon returned to the subject in his State of the Union message last February and again in mid-April this year. The April warnings grew stronger: "If present trends continue unchecked, we could face a genuine energy crisis." He repeated his 1971 recommendations with an added plea for urgency on the Alaskan pipeline and added pleas for conservation in usage.

Mr. Nixon's voice was not the only one. In the private sector warnings came from the American Petroleum Institute. Across the political aisle in Congress Senator Jackson—this was in December, 1972—was saying, "I am convinced that development of a national energy policy is the most critical problem—domestic or international—facing the nation today." Several committees in both Houses began looking at the energy problem.

All this, note well, was before the Middle East war and the Arabian oil shut-off. Neither the President nor anyone else was prescient enough to anticipate that. But the turning off of the Middle East oil spigot, as everyone can now clearly see, was not the root cause of the problem. It dramatized the crisis, made it hit earlier; it would have come anyway.

That being so, why wasn't something done about it earlier?

One small incident may suggest the answer. In May of 1971 a proposal was before the House to create a select committee to investigate the energy problem. It was defeated not because those opposed denied the gravity of the problem but because such a committee would invade the territorial claims of other House committees, such as the Interstate and Foreign Commerce Committee and the Communications and Power subcommittee.

That is, in the absence of a sense of urgency to make action politically imperative the need of "business as usual" could not be dispelled. In a like manner, the Alaskan pipeline bill languished, despite presidential and other pleas, until the predicted crisis actually arrived. Then it was quickly passed by Congress.

It would be unfair, however, to castigate Congress alone for its sluggishness. Do you suppose that as late as last April, even with the coming crisis discernible, it would have been politically possible to cut speed limits to 50 miles an hour, cut home thermostats back to 68 degrees, de-control gas pipeline prices, allocate oil or do any of the other things that now will be done?

The public simply would not have put up with such things. Things had to get worse—enough worse so everybody could plainly see the extent of the problem—before much of anything could be done about it.

Now things are getting worse and we can give thanks to the Arabian oil princes. For out of the worse can come better.

To be sure, the "better" will be painful for a time. It requires a two-pronged effort to diminish the demand—which, let's face it, has included much waste—and to increase the supply.

This means, for one thing, higher prices; as Mr. Nixon said two years ago, energy has been a bargain in this country and now it must be priced on the basis of its "full cost to society." Higher prices will both decrease wasteful demand and spur new supplies as no system of rationing or allocation can. But for the immediate present we may have to have both—higher prices and allocation of a finite supply.

We must also change our minds about some of the trade-offs to get more energy, such as any environmental costs in coal strip-mining or offshore drilling. Also about the usage of nuclear energy. Also about our habits of using energy as if there were no limits to it.

But the point is that now we have perforce changed our minds and our attitudes. The arrival of reality has done what no amount of warnings could do—making things worse, no doubt, but making possible making things bettter.

ENERGY CRISIS RAISES HAVOC WITH GOVERNMENT BUDGETS

Mr. HUMPHREY. Mr. President, the fuel scarcity which we face this winter is having widespread and, in some cases, unanticipated effects throughout our economy. Some of these have been given little attention to date, despite their importance. One of these is the effect of fuel shortages on Government budgets.

The energy crisis will raise havoc with every Government budget in our Nation. The depressing effect of the fuel shortage on economic activity in the country, particularly during the first half of 1974, will result in unexpected shortfalls in revenue collections by all levels of government.

Recent estimates by the staff of the Joint Economic Committee, while admittedly speculative because of uncertainty regarding the duration of the Arab embargo on oil and regarding what steps the administration will be taking to deal with it, indicate that a decline in State revenues of from $1 to $2 billion and of up to $6 billion in Federal revenues in 1974, as a direct result of the additional economic slowdown attributable to fuel shortages, is a real possibility.

As the economy slows, corporate profits and personal income, the two principal sources of State and Federal revenues, stagnate, and, consequently, tax receipts fall. Most States are required by law to maintain a balanced budget and, therefore, these unanticipated revenue shortages will mean either immediate reductions on services to the public or immediate tax increases to make up for the tax-collection deficiencies. Of course, the Federal Government has the option of a larger budget deficit, but this would result in even more inflation.

Mr. President, because of the severe impact these revenue losses will have on our people and the great difficulty involved in correcting for them at a time when our economy is rapidly sliding toward a recession with high inflation at the same time, I have written to Secretary of the Treasury Shultz and asked him to provide me with the administration's estimates of the budgetary impact of the energy crisis and its plans for dealing with this grave budgetary problem.

APPOINTMENT OF A SPECIAL PROSECUTOR

Mr. BAKER. Mr. President, on Monday the Committee on the Judiciary reported, without recommendation, two bills calling for the appointment of a Special Prosecutor so as to insure a complete and uninterrupted investigation of the Watergate break-in and other matters related to the Presidential campaign of 1972. These two bills, which will be considered next week, are S. 2611 and S. 2642, providing for judicial appointment and Attorney General appointment of a Special Prosecutor, respectively.

While each of these bills has much to recommend it, I believe that the most viable approach for avoiding Constitutional uncertainties, while simultaneously providing for prosecutorial independence, is contained in S. 2734, a bill recently introduced by the distinguished Senator from Illinois (Mr. PERCY) and myself. S. 2734 provides for Presidential appointment of an independent Special Prosecutor and restricts the President's power to remove the Special Prosecutor to neglect of duty, malfeasance in office, or violation of the statute establishing the office. The Percy-Baker bill also provides that the President must provide the Congress with notice of dismissal of the Special Prosecutor 30 days before such dismissal becomes effective.

Certain Members of the Senate, however, have voiced doubts as to the constitutionality of imposing any restrictions upon the right of the President to dismiss a Special Prosecutor. This concern is cogently articulated in a brief inserted in the RECORD for November 28 by the distinguished Senator from Ohio (Mr. TAFT) and in a statement submitted by the distinguished Senator from Michi-

gan (Mr. HART) on December 4. While I congratulate Senator TAFT and Senator HART for their eloquence and their efforts in bringing the myriad issues involved to the attention of the Senate, I remain convinced that the removal provisions of S. 2734 are constitutional and wish to be associated with the legal memorandum substantiating the constitutionality of S. 2734 whch was inserted in the RECORD for November 30 by my distinguished cosponsor (Mr. PERCY).

The constitutionality of S. 2734 recently has been reaffirmed by Prof. Norman Dorsen of the New York University School of Law. Professor Dorsen, who has served as professor of constitutional law at NYU for the past 12 years, is general counsel for the American Civil Liberties Union and has briefed and argued many cases for the U.S. Supreme Court. A graduate of Harvard Law School, Professor Dorsen was law clerk to Supreme Court Justice John Marshall Harlan in 1957–58, after having served as legal assistant to the general counsel to the Secretary of the Army during the McCarthy hearings.

In a letter to me, Professor Dorsen specifically evaluated the constitutional propriety of S. 2734, and concluded that:

[T]he bill—and in particular, the removal provisions of Section 12—is constitutional and would be upheld by the Supreme Court if challenged.

In reaching this conclusion, Professor Dorsen considered the legal relevance of *Myers* v. *United States* (272 U.S. 52 (1926), the case most frequently discussed in connection with the constitutional permissibility of limiting the President's right to remove an employee of the executive branch. Noting that the statute at issue in Myers is not analogous to the removal section of S. 2734, Professor Dorsen determined that:

In my judgment, the *Myers* case is not applicable to S. 2734, and in any event has been qualified by subsequent decisions of the Supreme Court. Accordingly, it does not stand as a bar to the validity of S. 2734.

Mr. President, I ask unanimous consent that Professor Dorsen's letter be printed in the RECORD.

There being no objection the letter was ordered to be printed in the RECORD, as follows:

NEW YORK UNIVERSITY,
SCHOOL OF LAW,
New York, N.Y., November 30, 1973.

Hon. HOWARD H. BAKER,
U.S. Senate,
Washington, D.C.

DEAR SENATOR BAKER: Pursuant to your request, I have given consideration to the constitutionality of S. 2734, which provides for the appointment of a Special Prosecutor by the President with the advice and consent of the Senate. I have particularly considered Section 12 of the bill, which restricts the President's right to remove the Prosecutor to neglect of duty, malfeasance in office, or violation of the statute establishing the office.

In my opinion the bill—and in particular the removal provisions of Section 12—is constitutional, and would be upheld by the Supreme Court if challenged.

Article II of the Constitution vests "the executive power" in the President. Part of the executive power is to enforce the criminal laws of the United States, and to this and Presidents from the beginning have appointed officials of the Department of Justice and United States Attorneys. In this instance, the President is authorized to appoint a "Special Prosecutor" to assure that the laws are fully and fairly enforced against individuals for whose conduct he personally may have been responsible, and indeed against himself. In light of the findings contained in Section 2 of S. 2734 (see Communist Party v. U.S., 367 U.S. 1, on the importance and constitutionality of such findings), there seems no doubt that a congressional decision to entrust this delicate enforcement mission to a Special Prosecutor, and to restrict the grounds for his removal, is a "necessary and proper" law (see Article I, Section 8 of the Constitution) to carry out the President's power to execute the criminal laws.

The only constitutional question which is colorably difficult concerns the restriction on the President's removal power. Myers v. United States, 272 U.S. 52, held that a legislative provision that certain postmasters could not be removed by the President without the consent of the Senate was an unconstitutional restriction on the President's control over executive personnel.

In my judgment the Myers case is not applicable to S. 2734, and in any event has been qualified by subsequent decisions of the Supreme Court. Accordingly, it does not stand as a bar to the validity of S. 2734.

As others have pointed out, the statute in Myers did not provide that the President could remove the postmasters only for cause, but instead provided that the President could not remove those officers at all. Although the language of Chief Justice Taft in Myers is broad, the holding of the case is necessarily limited to the statute and the facts which gave rise to it. By contrast, S. 2734 permits the President to discharge the Special Prosecutor for cause and does not interpose a bar to the President's power to remove incompetent or even corrupt officials. The Congressional limitation on his removal power is therefore neither as broad as that in the Myers statute nor inconsistent with the holding in the case.

In at least two cases decided after Myers the Supreme Court retreated from that decision's broad pronouncements. Humphrey's Executor v. United States, 295 U.S. 602, upheld a statute that limited the President's power to remove a Federal Trade Commissioner for cause, and Wiener v. United States, 357 U.S. 349, held that the President lacked power to remove a member of the War Claims Commission even without an express statutory restriction on the President's removal power. The Court said that "no such power is given to the President directly by the Constitution, and none is impliedly conferred upon him by statute simply because Congress said nothing about it. The philosophy of Humphrey's Executor . . . precludes such a claim." 357 U.S. at 356.

It is true that in Humphrey's Executor the officer involved acted in a "quasi-legislative" capacity, and in Wiener the function of the officer had an "intrinsic judicial character." Both these later decisions nevertheless demonstrate that the unqualified language of the Myers opinion will not be read so broadly. I think the same result would follow if S. 2734 were to be challenged in court and that the law therefore would be upheld.

As I have discussed with your staff, other options are available to the Congress to provide for the appointment and removal of a Special Prosecutor. This letter is not intended to appraise the constitutionality of these alternative measures.

Sincerely,

NORMAN DORSEN,
Professor of Law.

FLOOD AND EROSION DANGER AROUND THE GREAT LAKES

Mr. STEVENSON. Mr. President, NOAA Week, an official publication of the Department of Commerce, National Oceanic and Atmospheric Administration, features a story entitled "NOAA Warns of Flood and Erosion Danger Around the Great Lakes." The story notes that continuing high water levels in the Great Lakes increase the threat of major damage from flooding and erosion during this winter storm season.

I ask unanimous consent that this article be printed in the RECORD so my colleagues can be apprised of the magnitude of this problem before the Senate considers the Water Resources Development Act of 1973.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

NOAA WARNS OF FLOOD AND EROSION DANGER AROUND THE GREAT LAKES

High water levels in most of the Great Lakes pose a threat of flooding and shore erosion as the region enters the peak of the winter storm season, NOAA has warned.

Flood danger is greatest in low-lying areas bordering Lake Erie, the Detroit River, Lake St. Clair, and Lake Huron's Saginaw Bay. Shores along the rest of Lake Huron, Lake Michigan, and Lake Superior could be seriously eroded.

The Lake Survey Center of the National Ocean Survey reports that the water level in all of the lakes except Ontario is well above the long term-average for November, although slightly lower than last year's record highs. Accelerated release of water from Lake Ontario through the St. Lawrence River has lowered its level to a point only three inches above the long-term November average.

The high water levels are not dangerous in themselves; it is the added ingredient of winter storms that brings the threat of flooding and erosion. Between September and April, winter storms approach the Great Lakes region from the central part of the country, with the greatest number occurring during November, December, and January. If the storm winds blow along the axis of a lake, the water is driven by the wind to the end of the lake. Piled-up waters flood into low-lying areas, and the wind-whipped waves beat at the shorelines, causing serious property losses. Just a year ago, on November 14, 1972, strong winds piled up Lake Erie's water at its western end, and the ensuing flood caused $22 million damage.

Great Lakes-area offices of the National Weather Service receive a continuous flow of lake-level observations from the Lake Survey Center. With this information, whenever there is a likelihood of strong, sustained winds over the lakes, forecasters are ready to provide computer-assisted predictions of storm surges in advance of the rising water. These Lake Shore Warnings, indicating that flooding or erosion is expected in a given area in six hours or less, are transmitted on Weather Service teletypewriter circuits for relay to the public through newspapers, radio, and television. NOAA's VHF radio weather broadcast facilities—located at Buffalo, Erie, Cleveland, Sandusky, Detroit, Chicago, and Milwaukee—carry the warnings on a round-the-clock basis on 162.55 or 162.40 megahertz.

Federal, state, and local agencies are continuing their cooperative preparedness programs to minimize death and destruction from Great Lakes flooding. The U.S. Army Corps of Engineers has invested $30 million this year for dikes and other temporary protective works, principally for Lakes Erie and St. Clair and also for Lakes Michigan and Ontario. Other Federal agencies involved, in addition to the NWS and LSC include the U.S. Coast Guard and the Department of Housing and Urban Development's Federal Disaster Assistance Administration, which

will take over if the President declares an affected community a Federal disaster area.

During the coming months, shore residents along the Great Lakes should be alert for the NWS warnings, and be prepared to leave low-lying areas if local public-safety officials recommend doing so.

THE CASE AGAINST SECRECY

Mr. BROCK. Mr. President, earlier this week, the Senate Subcommittee on Intergovernmental Relations released the findings of a survey commissioned by the subcommittee on the evaluation of public confidence in government. Noted pollster Louis Harris conducted this survey, and after reading and rereading it, more is gained upon each reading. The greatest single finding of the survey is that a great majority of Americans still feel that our system of government can work. Later, David S. Broder, in an article in the Washington Post, states clearly another major point, that Americans will not tolerate any abuse of public trust by secretive manipulations. In view of the importance of this survey, I would ask unanimous consent that Mr. Broder's column be printed in the RECORD as an example of some of what can be gleaned from the survey.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

THE CASE AGAINST SECRECY

(By David S. Broder)

It is a bit unusual for a congressional committee to spend $25,000 of the taxpayers' money to hire a private pollster to tell it what public opinion is. Congressmen are, like journalists, self-appointed experts on everything, and especially on public opinion. Such wisdom, it is believed, goes with the job.

But after reading the 300 page report pollster Lou Harris provided to Sen. Edmund S. Muskie's Intergovernmental Relations Subcommittee on the "citizens view of American government," the conclusion has to be that the legislators got their money's worth.

The headline-grabber in the study released earlier this week was the finding that the public has more faith in the competence of the people who run local trash collection than it does in those who control television or the press, the Supreme Court, Congress, state and local government or the White House—which finished dead last in the confidence race.

The news that the large and visible institutions of this country—government, the press, corporations, unions, churches and schools—are suffering from a hemorrhage of public confidence is not news at all in the autumn of 1973.

What is news, after years of deepening public cynicism, is that Americans are really not turned off on their "system," but have a clear perception of the changes that are needed to restore it to health.

To quote from Harris' conclusion, "Fundamentally, the American people in this survey are trying to articulate two profoundly held sentiments:

"1. That government secrecy no longer can be excused as an operational necessity, since it can exclude the participation of the people in their own government, and, indeed, can be used as a screen for subverting their freedom.

"2. That the key to any kind of successful future leadership must be iron bound integrity."

Harris argues that "once these preconditions of openness and integrity have been fulfilled, then the time may well come when the people can be approached to make the sacrifices necessary to solve the common problems of the country."

This hopeful conclusion rests on his finding that despite the growing disillusionment of recent years, the public continues to hold a view of government that is skeptical, shrewd, sophisticated—but essentially positive.

Asked if they believe with Jefferson that the less government, the better, most people say no. On the contrary, most approve the proposition that "we need a strong federal government to get this country moving again," perhaps because the rhetoric carries a Kennedyesque connotation of trustworthiness and high purpose.

However, on the question of the distribution of power in the federal system, large majorities say they want state and local government strengthened, while the portion of authority allotted to Washington is reduced.

What this means, essentially, is that despite the disillusionments of the past year, the voters have not forgotten or abandoned what they thought they were voting for in last year's election. That was a vigorous but not all-powerful President who was committed to a deliberate effort, through New Federalism programs like revenue sharing, to strengthen state and local government.

What they have also said, unmistakably, in this survey and in every other, is that they will not tolerate political leaders at any level who abuse the public trust by secretive manipulations.

If this finding were well understood by all political leaders—let alone the President—the survey might be of no great moment.

But when a cross-section of state and local officials were asked these same questions by Muskie's subcommittee staff, a majority of them rejected the view that secrecy in government is a serious problem. Harris concluded that "state and local leaders . . . neither sense nor advocate this public mood for opening up government at all levels. . . ."

That is damning news, because the lesson of this study for the officeholders of both parties may well be a lesson of political survival. Indifference to the moral and political imperative for "opening up government at all levels" could well cause the greatest house cleaning of incumbent politicians this country has seen in two generations.

The politicians cannot say they have not been warned. The warning is there in black and white—all $25,000 worth of it—and it is doubtful the taxpayers will spend much more money to "send them this message." Next come the votes.

GENETIC FIX

Mr. MONDALE. Mr. President, I wish to call the attention of the Senate to a remarkable new book, "Genetic Fix" by Dr. Amitai Etzioni, professor of sociology at Columbia University and director of the Center for Policy Research.

Few of us are fully aware of the incredible advances in the biological sciences which have been achieved over the past 50 years. Yet who would have thought 30 years ago that he would live to see the successful transplantation of a human heart—or delicate eye surgery performed by a beam of light.

And as impressive as the recent accomplishments of the health sciences have been, still greater accomplishments lie in the near future.

Advances in genetics and cell biology will give us the ability to affect—and perhaps ultimately to control—the genetic makeup of human beings.

Improvements in psychosurgery and drug therapy may give us the power to order human emotions—to call up fear, anger, anxiety, or indifference from human beings as we wish—to make fundamental, controlled changes in human personality.

Continuing improvements in medical practice combined with expanding knowledge of human biology may give us the power to expand human life—at least for a select few—far beyond its present span.

The revolution in medical science and technology presents profoundly new legal, moral, and ethical questions—questions which we must face now, before it is too late.

"Genetic Fix" explores these new issues with clarity and great sensitivity. I commend Dr. Etzioni's book to my colleagues, and to every American.

Mr. President, I ask unanimous consent that an article from the September issue of Society magazine, consisting of excerpts from "Genetic Fix," may be printed in the RECORD.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

[From the Society magazine, Sept.-Oct., 1973]

EXCERPTS FROM "GENETIC FIX"

(By Amitai Etzioni)

The Institute of Society, Ethic and Life Sciences, often referred to as the Hastings Institute issued a report in the *New England Journal of Medicine* (May 25, 1972) on the ethical and social issues raised by screening large numbers of people for genetic disease. Daniel Callahan, director of the Institute, explained that "the group who formulated the guidelines for mass screening was mostly opposed to the whole idea but favored a cautious and careful approach."

The report's most basic criterion for assessing the merits of genetic screening programs is that no system be set up before adequate testing procedures are available "to avoid the problems that occurred initially in PKU screening." (Mandatory screening for PKU [phenylketonurial], an inherited biochemical malady which, untreated, can result in severe mental retardation and shortened life span, was by 1971 required in 43 states, though the test is not 100 percent reliable. Many children were wrongly identified as having the disease, and quite a few who did have it passed the test as healthy.)

A hastily introduced program to test for the sickle cell trait (carried by about one out of every 500 black children) fails by the Hastings criteria. The program tests either schoolchildren, at an age when the illness very often has already struck, or newborns, a stage at which detection is difficult. Tests of couples considering having a child would make much more sense, although such programs are more difficult to administer than school programs, in which all students can be lined up at will.

Besides asking for safe tests, the Hastings group also called attention to a risk of possible psychological or social injury. The question is, How harmful will the "labeling" of persons be? As the result of mass screening tests, people will be labeled as carriers of sick genes, which may harm their social standing and their view of themselves. Social science standing and their view of themselves. Social science data leaves no doubt that at least in some areas, labeling (such as who is branded a criminal and who a law-abiding citizen) has rather serious consequences.

There is little doubt that if children are told that they have an XYY chromosome structure, which occurs in about one of every

1,000 males and which has been repeatedly reported as being associated with a predisposition toward seriously deviant behavior, they could easily begin to assume that a criminal destiny is inevitable. Moreover, parents who are told that their child carries the XYY gene may come to suspect normal assertive moves as being manifestations of their child's criminal potential; consequently, they push their child—whatever the influence of his genes—into an aggressive, ultimately criminal, personality and way of life.

Beyond parents, teachers and self-image, such labeling is likely to affect the attitudes of practically everyone who knows about a person's genetic test scores. This is no longer a hypothetical consideration. The undesirable consequences which the Hastings group warned were possible have already made themselves felt. In 1971 the state of Massachusetts, responding to the demands of black community leaders and their white supporters, passed a law requiring that all school-age children be tested for the sickle cell trait. A dozen states rushed to follow suit. The trait is harmless by itself, but when both parents have it, there is a one in four chance that their child will have sickle cell anemia, a horrible disease which first causes pain, then deterioration of major organs such as the liver and kidneys.

The results of the tests, presumably kept only on school records, have increasingly been used to brand carriers of the disease as poor employment and life insurance risks. Recently, many black people started wondering whether or not the undesirable consequences of the test outweighed its benefits, especially as there is, so far, no known cure for the illness.

Related questions must be asked about other genetic tests that are being increasingly used, promoted or sought. Screening programs for carriers of the gene for Tay-Sachs disease were started among Jews in Baltimore in 1971. A screening test for Cooley's anemia, most common among people of Mediterranean descent, is being developed, and a new genetic test which will predict people's susceptibility to emphysema, a degenerative lung disease, is being worked on. Tests for dysautomonia (a disease which affects chiefly Ashkenazi Jews) and cystic fibrosis (which hits one out of every 1,500 Caucasian babies) are being actively sought. Dozens of other tests are likely to follow. If they are to do more good than harm, there must be a mechanism for reviewing the programs before they are enacted.

The Hastings report also points out that it is necessary to accompany such a new program with carefully designed and executed public information programs. Experience shows that the public—even some doctors—confuse the sickle cell *trait*, quite harmless by itself, with the disease of sickle cell *anemia*, which is found only when *both* parents have the trait and then only in aproximately one out of four of their offspring.

The Hastings report also suggests other criteria for evaluating or designing mass genetic screening tests, including equal access, absence of compulsion and informed consent. The record shows that these recommendations have not often been followed in the past.

This particular Hastings report (other ones are being formulated) is not omprehensive. For instance, it does not deal with the question. How safe is safe?—an essential issue for new tests—or, How can safety be tested before tests are used en masse? In addition, because the report is based chiefly on deliberations and dialogue, it shows little benefit from empirical input to back up its points. Nevertheless, it is of immense value, if only because it provides all those who will listen with a detailed list of what must be taken into account before such programs are initiated. If similar efforts were undertaken by a national health ethics commission, composed of leading authorities in the respective fields, and representative members of the community backed up by congressional status and a staff, they would command an even greater following. Of course, even if such a national body were formed, private groups would still have to continue their deliberations. These issues must be as widely discussed as possible, for a continuous dialogue of many divergent viewpoints is essential if the bases for a new ethic as well as policy guidelines are to evolve. A national body would provide a much-needed focus for such private deliberations, but neither could it nor should it try to replace them.

PATIENT'S BILL OF RIGHTS

Another development illustrates how, without benefit of a review mechanism, the nation tries to cope with its need to review and form policy in the health and genetic field. The American Hospital Association first issued a bill of rights for patients in November 1972 and again in January 1973 to its 7,000 member hospitals. Formulated by a committee appointed by the trustees of the American Hospital Association, discussed by its regional advisory boards (which are composed of hospital administrators) and consumer representatives, the bill's 12-point protocol is summarized below:

1. The patient has the right to considerate and respectful care.

2. The patient has the right to obtain from his physician complete current information concerning his diagnosis, treatment and prognosis in terms the patient can reasonably be expected to understand.

3. The patient has the right to receive from his physician information necessary to give informed consent prior to the start of any procedure and/or treatment.

4. The patient has the right to refuse treatment to the extent permitted by law, and to be informed of the medical consequences of his action.

5. The patient has the right to every consideration of his privacy concerning his own medical care program.

6. The patient has the right to expect that all communications and records pertaining to his care should be treated as confidential.

7. The patient has the right to expect that within its capacity a hospital must make reasonable response to the request of a patient for services.

8. The patient has the right to obtain information as to any relationship of his hospital to other health care and educational institutions insofar as his care is concerned.

9. The patient has the right to be advised if the hospital proposes to engage in or perform human experimentation affecting his care or treatment.

10. The patient has the right to expect reasonable continuity of care.

11. The patient has the right to examine and receive an explanation of his bill regardless of source of payment.

12. The patient has the right to know what hospital rules and regulations apply to his conduct as a patient.

Several hospitals adopted the bill, and at least two (Boston's Beth Israel Hospital and New York's Martin Luther King Health Center) now provide their patients with their own version of it, but most hospitals did not embrace it. Yet, the charter is of great value. Both technological and social developments have rendered the existing hospital structure virtually obsolescent, and there is a particularly great need for a new definition of the relationship between the patient and the institution.

The fact that those who administer hospitals took the initiative in preparing this bill is hardly surprising, since there is no community-based body to assume such duties. However, it must also be noted that the charter, lacking public hearings of the kind a congressional committee would have generated, was not subject to wide discussion or involvement. It is no wonder, then, that the charter is easy to ignore. Moreover, the fact that it was formulated by a board composed chiefly of those in power will hardly reassure the more activist 'consumer" groups. (Dr. Willard Gaylin went so far as to indicate that the document "perpetuates the very paternalism that precipitated the abuses.") A more widely representative body would have given the bill more authority.

Like most documents formulated chiefly to express a sentiment and to affirm a position the charter is rather long on general statements, and somewhat short on specifics. For example, the statement, "The patient has the right to refuse treatment," is qualified by the phrase "to the extent permitted" by law," as though the law provided a clear guideline. Actually, if the patients themselves have the right to insist, for instance, that life-extending machines be turned off, they must be conscious when they so choose, but their action would be tantamount to suicide. On the other hand, if the patient has to be unconscious beyond recall before the machines can be turned off, the right to refuse service is not his. Who, then, exercises the right? one doctor? two? three? with or without consultation of the next of kin? under what medical conditions?

The Medical Society of the State of New York suggested adding the clause, "irrefutable evidence that biological death is inevitable," but such evidence may come long before a person loses consciousness. The society also suggested using the phrase, "is the decision of the patient and/or the immediate family with the approval of the family physician." But what if there is no family physician? Should not at least one other doctor, not as deeply involved, be consulted? Clearly the Patient's Bill of Rights leaves these and many other issues unresolved.

If the authors of the bill had expressed greater concern with procedure they would have been more aware of the need for local health ethics boards to review decisions made to "turn off" lives; the need for national and international boards to formulate guidelines; and the need for a research staff to study the actual results of various procedures in order to apply them in future deliberations. (There are review committees inside hospitals but these, with few exceptions, are limited to physicians associated with that hospital. Such insularity tends to limit their critical power.)

On January 22, 1973 the U.S. Supreme Court overruled all state laws that prohibit or restrict a woman's right to obtain an abortion during the first three months of pregnancy. It is now up to the woman and her physician to decide what course to follow. For the last six months of pregnancy, abortion can be "regulated" by the states to secure maternal health (for example, they can limit abortions to qualified facilities). Only in the last ten weeks of pregnancy, when the fetus is judged "viable," that is capable of surviving if born, may a state prohibit abortion.

This welcome act also turned a matter that was previously controlled by the government over to the individual choice. About 1.6 million American women undergo abortions each year. The risks are not trivial. While an abortion performed by a well-trained physician, during the first 12 weeks of pregnancy, is said to be safer than a tonsillectomy or an actual birth (out of 100,000 patients, the death rate for abortion is two; for tonsillectomy, 17; for pregnancy, delivery and postnatal period, 20) in the second trimester abortion complications are three to four times more likely to arise.

Arranging the public education campaign which must follow the court's ruling—for instance, advising those who either use no contraceptives or use an unreliable method not to rely on abortion for birth control, or cautioning those who need an abortion not to put it off—is the job of the Department of Health, Education and Welfare. But a public authority could go a long way to see to it that matters the Court leaves undone will be picked up by the appropriate executive agency, and with the desired vigor and scope. Such an authority could also develop and implement a systematic procedure through which the relevant medical data and considerations on this or any other matter are regularly brought before the Supreme Court before it makes a ruling.

Another highly relevant development came in October 1972, when Congress enacted a bill widely referred to as "H.R. 1," a large package of amendments to the Social Security Act. Among the numerous clauses of the bill is Section 249F, barely known to the general public. The amendment calls for setting up "professional standards review organizations" (PSROs) in order to subject hospitals and other health units to outside review, not only of proper use of funds—the typical accountability expected and required of anyone who uses public funds—but also of professional, that is, medical, matters. The main motive seems to be to reduce the number of poor and aged hospitalized charity patients. (The amendment calls for checking non-emergency cases with the PSRO before admission). At the same time, the provision opens the door, in principle, to outside or perhaps even public scrutiny of what doctors are doing.

The law is rather vague as to who is to provide these outside review boards. But the basic assumption is that doctors will oversee doctors. Even this is quite innovative because many doctors feel they need no overseer and that if review is to take place, it should be by their peers. Although peer reviews are often surprisingly strict, the PSROs, which are to be established throughout the United States by January 1, 1976, go one necessary step further, calling for outsiders to review insiders, acting as a kind of medical audit. Above all, it seems desirable that the PSROs should include not only doctors but also community representatives and "specialists" in societal and ethical matters to make sure that consumer, social and moral issues be taken into account, and to counteract any self-serving tendencies of doctors.

The PSROs represent an important spot at which to enter the closed professional system, because, unlike community advisory boards set up around hospitals or comprehensive health planning agencies, the PSROs will be able to control the main flow of taxpayers' funds to health units.

As the 93rd Congress got underway in early 1973, Senator Mondale reintroduced his 1971 biomedical technology study commission legislation, now numbered "Senate Resolution 71." The Senate may well approve it again, but no one can make any predictions as to what the House will do.

Early in 1973, Senator Edward Kennedy held extensive hearings on an issue that a health ethics commission, had it existed, would have dealt with: the conditions under which experimentation with human subjects can be tolerated. The press was again filled with gory reports about this or that ethical violation, but paid little attention to the more general questions concerning how such regulations could be implemented. Progress was made during the hearing—two expert witnesses called for the establishment of a more advanced, more potent, health ethics commission than the Mondale bill outlines. Dr. Bernard Barber testified before the Subcommittee on Health of the Senate Committee on Labor and Public Welfare that he favored ". . . the establishment of a National Board of Biomedical Research Ethics. As members of that board I would like to see not only members of the medical research profession, who are of course indispensable, but also people who are outsiders to the profession and who represent the public. These outsiders cannot be ordinary men-in-the-street or men given to absolute morals; they should be *informed outsiders*, lawyers or social scientists who have the expertise to deal with the fact that medical research ethics are also social and not just medical matters. . . . The Board could define goals, establish institutions and mechanisms, and provide necessary monitoring for standards and practices that are only what the profession rightly values and the public increasingly and rightly demands."

Jay Katz, adjunct professor of law and psychiatry at Yale University, suggested that a permanent body be established to regulate all federally supported research involving human subjects. Such a board, Katz said, should be independent from the government, since much experimentation that requires supervision is carried out in government-owned laboratories. He wanted the President to appoint the board, and suggested that "its members should come from many disciplines, including representatives from the public at large," and that the board should have "regulatory authority," that is, it should formulate policy and set up the needed regulations and mechanisms to promote them.

Note that the concern in the Kennedy hearings focused on those relatively few persons who are subjects in experiments. My feeling is that we are all "subjects"—the millions who take the Pill, the millions who do not receive genetic counseling, the millions exposed to food additives which may well be cancer-inducing and so forth. We need to develop a more effective review mechanism of all illness-producing and illness-preventing forces in our life. The focus on human subjects in laboratories should be the opening wedge, not just a conciliatory gesture that gives reprieve from much-needed nationwide, not just lab-wide scrutiny.

The reforms must not stop here. The efforts to form effective and responsive overview mechanisms cannot be advanced by a few senators and professors. Their future depends on the informed general public, led by active groups of citizens, taking on this issue, as they took on those for peace in Vietnam, civil rights and pollution control.

On the national level, Congress must be urged to set up a permanent national health ethics commission which includes members of a variety of disciplines, not just medicine, and representatives of the public, backed up by a research staff. Locally, each state, city and town needs a local review health ethics board—to oversee its hospitals and clinics, its medical healers and researchers. Individually, citizens and their leaders need to inform themselves about new medical and genetic developments and the public and private issues raised by their effects on matters of illness and health, life and death.

To reap the full benefits of the developments in genetics and medicine—and to be spared the many dangers—individual citizens must be both knowledgeable and aware of the implications of the new technology. A national health ethics commission plus local review health ethics boards would reveal problems and present possible solutions, furthering not only knowledge but also the physical and emotional well-being of the American people.

WAYNE SARGENT, PUBLISHER OF THE NASHVILLE BANNER

Mr. BROCK. Mr. President, Wayne Sargent is the publisher of the Nashville Banner, one of Tennessee's leading newspapers. Under his excellent leadership and the high caliber contributions of his writers and staff, the Banner has developed a reputation for forthright and honest reporting.

Mr. Sargent's personal contributions to this paper are frequent. Most of his readers learned long ago that anything bearing his byline was worth reading. But recently, Mr. Sargent wrote an article that is both cogent and compelling, not only for its timeliness, but for its effective articulation of a situation that many of us have felt instinctively was true. The fact that this article was written by an accomplished journalist and an outstanding publisher is in itself significant.

Mr. President, I submit this article by Mr. Sargent which appeared in the Monday, November 26, 1973, issue of the Nashville Banner, for the careful consideration of my colleagues. I ask unanimous consent that it be printed in the RECORD.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

EDITORIAL FLIP-FLOP—POST, TIMES ONCE FAVORED SECRET PRESIDENTIAL PAPERS

(By Wayne Sargent)

Consistency, for a chameleon, is to change color.

When one argues on behalf of consistency someone will quote Ralph Waldo Emerson: "Consistency is the hobgoblin of little minds."

Nonetheless, there seems to me to be an obligation for a newspaper to retain a consistency of principle in its arguments. Or confess that political expediency is its chief goal.

With that preface, I'd like to argue with the New York Times and the Washington Post, perhaps the most prestigious of American newspapers, increasingly the darlings of intellectual liberals and increasingly the scorned objects of intellectual conservatives.

May I set a scene? A U.S. Senate committee is investigating a matter of alleged government corruption. It has heard a volume of testimony, much of it contradictory. Many witnesses and most committee members believe the President of the United States has in his possession essential information. They urge him to submit evidence and testimony to the committee.

Then comes a surprise announcement that many Presidential conversations have been recorded. A demand is made for the recordings. The President, who at first implied full cooperation with the committee, now says no recordings will be released and that disclosure would be incompatible with the public good and the national security. Separation of executive and legislative authority is given as a reason for refusal.

I am indebted to Herschell Emery of Nashville for calling the aforegoing set of circumstances to my attention for they happened, not in 1972-73, but in the year 1954.

The President was Dwight Eisenhower. The Senate Subcommittee was headed by Joseph McCarthy of Wisconsin. A specific issue in those Army-McCarthy hearings was whether committee counsel Roy Cohn had acted improperly and with political pressure to gain advantage for his associate, Private G. David Schine.

Remember all those names—McCarthy, Cohn, Schine? McCarthy said Eisenhower's recordings of conversations and executive meetings would reveal that the Eisenhower administration had turned up the pressure to call off the Senate hearings. And would

further disprove that Cohn had brought any pressure on behalf of Schine.

Now let that political situation sit there a minute while I switch over to the New York Times and the Washington Post.

Did they like McCarthy? No, they sure didn't. They fought him and won prizes for "exposing" McCarthy and his investigative and publicity techniques.

Do they like President Nixon now? No, they sure don't. And they've already won some prizes for reporting of Watergate.

H. L. Stevenson, Editor of United Press International, Edward Jay Epstein of the Los Angeles Times, John Quinn, President of the Associated Press Managing Editors, and others, are pretty much agreed that "the press" as a generic quantity has not done much one way or another about investigating the Watergate sequence.

The real activists have been only the Washington Post, the New York Times, plus Time and Newsweek and the Los Angeles Times. All of us who work in news are now being both cheered and vilified for our roles in the Watergate reporting. But the fact is the overwhelming majority have done nothing but recite information from government investigators and government committees.

A sidelight truism was written recently by Epstein: "A real dilemma is that almost all journalistic honors are awarded for making exclusive disclosures, not for resisting the publication of unproven allegations."

It is thus that the coveted Pulitizer prize has been given in the last three years to the Post, the Times and to columnist Jack Anderson, each time for what amounted to publication of stolen documents.

Now that I've attempted to establish the Post and the Times as political activists let me tie them back to the events of 1954 and show their inconsistent position.

In May, 1954, in the McCarthy-Eisenhower era, the New York Times editorialized:

"The question is whether the powers of investigation which Congress has assumed, and which it seemingly must have if it is to investigate intelligently, include the power to invade the deliberations of the President or his confidential representatives against his will, on any issue whatever."

"Congressional committees have been increasingly tempted into lines of inquiry which are, legally and morally, none of their business. A limit had to be reached some time. Maybe it has been reached."

"If a congressional investigating committee could subpoena Presidential advisers of cabinet rank or of confidential status to testify . . . the constitutional separation of powers would be seriously weakened."

But . . . in 1973, the Times editorialized:

"There can be no practical justification for failure to make this evidence (The Nixon Tapes) publicly available. In the interests of the American Presidency and Nixon himself, the sooner it comes out, the better."

In May, 1954, the Washington Post editorialized:

"The President's authority under the Constitution to withhold from Congress confidences, presidential information, the disclosure of which in his judgment would be incompatible with the public interest is altogether beyond question."

But in 1973 the Post editorialized:

"President Nixon's refusal to accede to the request of the Senate Watergate committee to make some presidential papers and certain tapes of his conversations available to the committee . . . precipitated a constitutional crisis for no real constitutional or legal reason."

There should be recognition that Watergate, however moral the tone of the investigations at the start, has become a highly intense political fight. Principles of constitutionality, separation of powers, invasion of privacy, right of free press—these and others are just the tools by which the politics is being fought.

The target of the Post and Times in 1954 was McCarthy. The target now is Nixon. The tools are double-bladed, convertible, interchangeable and flexible.

What conclusions may you draw from my argument with the Post and the Times?

1. Their editorial posturing is rooted more to personalities than clear-cut principles.

2. While the Watergate investigations started for the purpose of exposing wrongdoings, they now have entered a new phase. The contrasting editorial positions of 1954 and 1973 by the activist press show what a thinly-veiled Get-Nixon movement this really is.

3. The zeal of these editorial activists may border on McCarthyism in reverse. The Post and the Times helped expose the excesses of McCarthyism, but have adopted some similar techniques. It is not enough to argue that ultimate proof distinguishes the two—that McCarthy's charges were false and Post-Times charges are proving mostly true. Such a position means the end justifies the means, a position both newspapers argue against. The point is that at the time the newspapers have aired some charges the newspapers did not know the truth. They took risks in running unproven allegations.

4. Activist elements of the press would have the public believe that fundamental principles essential to the future of the country are at stake in the Watergate-Nixon controversy. Not so. This is a good old-fashioned political fight and so long as the public realizes that, the country will emerge as strong as ever.

OIL PRICE INCREASES COST CONSUMERS BILLIONS

Mr. HUMPHREY. Mr. President, this week we again have seen retail price increases for gasoline of 2 or 3 cents per gallon. This represents more than 5 to 7 percent in one step, and it follows numerous recent steps in the same direction. Judging from statements by Treasury Secretary Schultz and new energy "czar" Simon, there is no end in sight to this relentless upward march in prices for oil products. It looks as though our so-called "price controls" program should be renamed our "price increase" program.

I wish to call to the attention of my colleagues and the pubic that each penny's increase in gasoline prices, nationwide involves a transfer of about $1 billion from the pockets of gasoline purchasers to the coffers of the oil companies. Therefore, if a 2- or 3-cent increase takes place across the country, we are talking about siphoning off no less than $2 or $3 billion to the companies through this most recent price boost alone. Increases over the last year add up to over 6 cents per gallon or $6 billion. These figures are for gasoline only and do not include higher revenues from crude oil, heating oil, diesel fuel, aviation fuel, natural gas or other products.

On the subject of heating oil, today we have been informed that the Cost of Living Council has decided to restrain future wholesale gasoline price increases by one penny in exchange for a 2-cent boost in distillate oil prices. This is to encourage production of distillates. Again the consumer loses in this two-for-one deal in favor of the oil companies. While it may be desirable to realign the relative prices of gasoline and distillates, the move has been used as yet another occasion to raise the overall price level.

It should be made clear that this drain on the consumer's pocketbook of recent increases for gasoline and heating oils does not go to the service station operator, the heating oil dealer, or the independent wholesaler. It represents a penny-for-penny pass-through by them of higher wholesale prices charged by the oil companies. We are told that these increases are justified mainly by higher prices for imported crude oil and products, but we know that the companies are collecting their full share of those higher foreign prices in their role as producers in the exporting countries.

There is a limit to public tolerance of these increases. It may be that some price realinement is necessary to encourage importation of badly needed supplies or stimulate a shift in refinery output toward high-priority products. Continuing at a time of record oil company profits, however, these multi-billion dollar revenue increases raise an insistent question as to how far profits will be allowed to soar while the consumer's purchasing power is depleted in this fashion. While the subleties of economic policy may be served, it is simply not equitable to allow private interests to profit so greatly at public expense during this shortage.

It is time now, therefore, for Congress and the administration's oil policy makers to confront the question of how to constrain or reverse this massive shift in income and also the question of how the allowable profits can be channeled more into actions to relieve the present shortage—actions to expand immediate supply and to develop new sources of energy.

THE 27TH AMENDMENT

Mr. BROCK. Mr. President, we in the United States are hearing cries of "Impeach"—"Resign"—"Get the crook out of office." It would be very irresponsible on my part not to hear these cries and to understand from where they come, and what they mean. But, I have said repeatedly, and I will say again, to those who cry impeachment, either present evidence for the impeachment of the President of the United States, or shut up. It is really that simple. We cannot, indeed, we must not, impeach a duly elected President of the United States on innuendo and hearsay evidence. In fact, regardless of the man who holds the office, we must even go a step further in our considerations. Any person the least familiar with our history recognized that our Nation's fathers built the Constitution to escape some of the pit-falls of the parliamentary type of government to set up greater checks and balances. Now, those who cry "Resign" are asking the President to disregard the Constitution, and the way our Government was intended to be run. Columnist William Safire called attention to this very fact

in an article recently, and I would ask unanimous consent that his essay be printed in the RECORD.

There being no objection, the essay was ordered to be printed in the RECORD, as follows:

THE 27TH AMENDMENT

(By William Safire)

WASHINGTON, November 7.—Because the President's popularity has nosedived in the public opinion polls, we are told, he has lost the ability to govern: On that eminently practical ground, some of our pragmatic editorialists insist, the wise and patriotic course would be for Richard Nixon to resign.

That would be the "easy way," and nothing would be more unwise or unpatriotic because it would radically alter the nature of our system of government.

In a parliamentary system, when a government becomes unpopular and loses a vote of confidence, it "falls" and a new election is held. That system is fine for Great Britain; what it loses in stability it gains in responsiveness; but it is not the system the United States has had for two centuries.

The American system provides several restraints on the wide swings of public opinion. For example, only one-third of the Senate comes up for election every two years, so that a popular surge at any one time cannot suddenly transform the ideological bent of the whole of that deliberative body.

More to the point, our "Founding Fathers"—that phrase was coined by Warren G. Harding, of all people—rejected the parliamentary system in favor of the election of a separately powerful President for a specific term, so that a President could, if he felt he must, make unpopular decisions without being thrown out of office immediately.

Those who now demand that this President resign because he has "lost the ability to govern" are calling for the most fundamental change—not just in a leader, but in the traditions that make up our governmental system.

They cannot escape the consequences of their demand, which would be a kind of 27th Amendment, written or unwritten, that would say: *"The President shall hold office for a term of four years, or until such time as his rating in the two leading national public opinion polls falls below 30 per cent for three consecutive months, at which time it can be assumed the President has lost the ability to govern and he must then resign."*

Nobody has actually proposed such an amendment, of course—why, that would be downright radical—yet that would be the inescapable result of any successful hounding-into-resignation of a President.

The enormous power of precedent that has helped keep Presidents from resigning under pressure through two centuries, thus stabilizing our system, would be flip-flopped by a Nixon resignation: The pressure of precedent in the future would be to force Presidents who lose popular favor to submit their necks to the pollsters' ax.

The consequences cannot be dismissed with a flip "Watergate is unique." Hard cases make bad law, and the precedents we set today will shape the system our grandchildren will be living with. The shrill keening for resignation will soon become muted for reasons as disparate as the situation is desperate:

First, a coup d'etat by forced resignation, by its nature, must be quick, but Mr. Nixon will not cooperate.

Second, Nixon-haters are already defecting from the quit-now ranks because they do not want to see him get off so easily—they want to nail their coonskin to the wall. And third, conservatives, no matter how angry or upset this week, will come to see the destabilizing effects of such a course, which is profoundly in opposition to conservative doctrine.

When Americans come to consider the real choice that the resigners have posed, they will see that the alternative is not Nixon and controversy versus somebody else and unity—but the continuity of the present system versus its replacement by the parliamentary system. The same people who claim our present situation to be unique, worthy of ditching 200 years of tradition, would—in all sincerity—find something uniquely disposable about next year's President. And the President in the year after that.

The legal overthrow of an elected leader is dirty work: people who demand that the President resign to avert impeachment are asking Mr. Nixon to do their dirty work for them. Is the prospect of the most extreme kind of struggle, followed by years of bitterness at what many will consider vindictive political usurpation, preferable to two years of a very careful Nixon Administration before the campaign of 1976 gets under way?

If Mr. Nixon's critics turn their accusation that he cannot govern into a self-fulfilling prophecy; if they make the cry of "Resign!" a part of the American political discourse, then we are likely to wind up with the kind of Constitution Lord Macauley accused Americans of having: "All sail and no anchor".

NATIONAL INSTITUTE ON BILINGUAL, BICULTURAL EDUCATION

Mr. HASKELL. Mr. President, this past week I had the opportunity to attend and participate in the National Bilingual, Bicultural Institute in the home State of my colleagues, Senators JOSEPH M. MONTOYA and PETER V. DOMENICI.

This important institute was sponsored by the National Education Task Force de la Raza and the National Education Association. It sought to give participants a view of the various aspects of bilingual, bicultural education in school settings with high concentrations of Mexican American students.

The over 400 teachers, administrators, college professors, and private citizens who attended were able to examine current programs and their influence on public education in the United States. Those fortunate enough to attend also acquired greater knowledge, skills, and expertise to enable them to influence the direction of bilingual, bicultural education.

I must say that the broad range of participation—over 26 States were represented—and the quality of the discussions and presentations given impressed me. I was most fortunate to have been invited and recommend such institutes to my colleagues as a fine method of acquiring a deeper understanding of the efforts of our educational institutions to implement programs and projects instituted by our legislative action.

An important part of the institute was the keynote address delivered by the senior Senator from New Mexico, JOSEPH M. MONTOYA. His personal knowledge of the history of our efforts to provide this important and necessary element in our educational efforts is remarkable. His comments were the most comprehensive and succinct I have heard on this subject and I commend his remarks to my fellow Senators.

Too often the abstract nature of the legislative process tends to overshadow the concrete efforts and results our actions have on the average citizen. Senator MONTOYA's deep and sincere interest in this bilingual, bicultural education permeates his address and provides us an opportunity to reacquaint ourselves with the fine programs established by title VII of the Elementary and Secondary Education Act.

Mr. President, I ask unanimous consent that the keynote address of Senator MONTOYA be printed in the RECORD.

There being no objection, the address was ordered to be printed in the RECORD, as follows:

NATIONAL INSTITUTE ON BILINGUAL BICULTURAL EDUCATION

(By Senator JOSEPH M. MONTOYA)

Tonight we are meeting to examine again an old problem and to renew a pledge we made eight years ago in Tucson, Arizona. Many of you were there when we pledged to recognize the educational inequality which faced millions of American children every day—and pledged to do something about it.

The National Education Association Symposium of 1966 was a challenge to those of us who lived in the Southwest, where the need was greatest for a change in the way we taught Mexican-American children.

It was a challenge for those of us who were Spanish-speaking Americans, because the majority of the children who needed that special kind of education we called "bilingual" were our children.

It was a challenge for those of us in government because it suggested that a real failure in our public school systems was causing the poverty and hardship which handicapped large numbers of our children.

It was a challenge for educators because it highlighted a need not being filled by America's teaching profession.

Maria Urguides has told us about that meeting in Tucson, and the sparks that were struck there. Most of us here tonight remember that it was there in Tucson that we first determined to build what we called "bridges of understanding" for the people in this country so that America would become the truly united nation it should be: a nation which valued its own variety and could speak and understand its own languages.

The realization that millions of children were waiting and that between us—the legislators and the educators—we might be able to produce a key for a new freedom for those children was exciting. We left that meeting determined to generate interest in new kinds of schools wherever language-minority children needed them. We wanted to generate new ideas in colleges and universities where teachers were preparing for the future. We wanted to generate concern in governments at every level.

That was what the National Education Association wanted to happen as a result of that meeting in Tucson—and it did happen.

Senator Yarborough and I returned to Washington with your words reinforcing our own awareness of the needs in our states and in the nation: The first Bilingual Education Act was the result.

That was eight years ago—a time when new and progressive ideas about education were welcome in Washington, and when many of us thought it was enough to spotlight a need, develop a program to meet that need, provide federal help to get things going—and then settle back to wait for the good results.

Well, that was naive, of course. Things didn't work out quite the way we planned. Our achievements under Title VII of the Elementary and Secondary Education Act—and in a small way in other pieces of legislation—are not what we dreamed they would be, or what you wanted them to be.

We have helped some children, produced some teachers, funded some programs—but

somehow in these last eight years we have failed to do the job we pledged to do. We were not able to make the rest of America share our concerns or our priorities.

We have not been able to help the millions of students who entered our schools in those years since 1966—children who were poor and spoke a language other than English. We called them "bilingual" children—but they were not bilingual, of course. That was the problem. They were monolingual—but in the wrong language. Wrong for most Americans, that is. And we encouraged that "wrong" definition by calling them children of "Limited English-speaking ability." We offered them, at best, remedial education as a temporary measure—and we found that "remedial" education was expensive, difficult, and unpopular.

So, of course, in most places in the United States we did not create the kind of change we had envisioned for the children who needed it most.

They brought to their schools the language and culture of their homes, and in kindergarten or the first grade they were asked to forget all that they had learned in their first six years, to sacrifice their heritage, their individual worth, their unique talents, their pride in their communities and homes—all so they could be taught to think and read and write in English and lose that definition of being "limited."

At six or seven years of age they were asked to perform a kind of mental miracle—and when that miracle didn't happen those around them too often pretended it was the children's failure, instead of ours.

Of course, it was our failure, because we did not understand the value of the languages and cultures we were asking those children to leave behind. Most of the programs we offered did not have the goal of real bilingualism, but simply offered a change in the brand of monolingualism the children used. We tried to turn a child with "limited English-speaking" ability into a child with "limited Spanish-speaking" ability or "limited Indian language ability."

In all the years between that first meeting in Tucson and this one in Albuquerque, we have only managed to provide programs for a few hundred thousand children—a tiny two percent of those who needed our help. And most of the programs we offered were transitional programs designed to change one "limiting" handicap for another.

Even now, eight years later and seven years after the legislation which was supposed to solve the problem, the federal government is helping only 217 programs—in the whole United States! Some states have joined in the effort to help, and some local schools have begun to think about the problem—but very few places have faced the depth of the need or the realities of the problem.

I don't have to tell this audience that for most children who spoke a language other than English in 1966 the reality of the last eight years has been not bilingual or bicultural education but instead the gradual loss of learning potential, the frustration and indignity of falling further and further behind other children every year, the anger at a system which refused to provide skills in a language they understood and demanded instead conformity in a language they could not comprehend.

Those children who entered school in 1966, when we first pledged to provide a better kind of education for them, should be in the seventh grade today. For those who did not speak English we know statistically what has happened. Ten percent of them have dropped out of school already. Of those who are still in school, sixty-four percent are reading below grade level and ten percent are at least two years behind—in the fourth or fifth grades. And by the time they should be in twelfth grade—just four years from now—forty percent of those students will have dropped out of school. Only five percent of them will ever complete college.

What those statistics mean to the drop outs is painfully clear. They will always face the handicaps of higher unemployment, less income, less opportunity. All the fringe benefits of poverty will be theirs: more illness, harder and less rewarding work, an earlier death.

And fifteen years from now when their children are ready for school—will the bilingual and bicultural schools they need be ready?

The truth is that we failed those children who entered school in 1966—and we may be going to fail their children, too.

What went wrong?

We did pass the legislation—but we failed to make it live up to its promise. Other priorities were greater in Washington, and in 1968 we elected a President who did not share our belief in this new kind of education. By 1970 we heard the rumblings of discontent from the White House about money we were "wasting"—and finally this year we heard the request that no money at all be budgeted for Bilingual Education.

Every year since 1967 Congress has tried to increase the money appropriated. Every year I have offered amendments while the Legislation was in the Appropriations Committee to support increases over the amounts requested by the Administration. Last year, after approving $60 million and seeing that money vetoed, we were still able to provide $45 million in a continuing resolution. But the President still refused to spend more than $35 million. This year we have managed to raise that amount to $53 million—but we face a new veto, I am sure. The struggle to keep this kind of education program alive has kept us busy for five years—and we have never been able to do what we originally planned.

In addition to our failures in government, educators themselves were discovering that the problem was more complex than we thought. Even if the money and support had been available, you educators were not really ready. You did not have the teachers trained, the texbooks written, the testing materials and teaching techniques developed.

But all of us know more today than we did in 1966, and understand more. We know that we need not only bilingual but bicultural programs—and that one without the other is meaningless.

We know more than we did about the children who need our help—that their limitations are no different than the limitations of any child who speaks only one language.

We know more about what it is possible for us to do—that education should be a way to open minds and open lives, to increase skills for working and for living.

We know that not just Spanish-speaking children or Indian children or children who speak any language other than English, will benefit from bilingual and bicultural education. We know that all children would benefit from that kind of opportunity in our schools.

We know that kind of opportunity is missing today in most of our schools—and that they are instead places which can destroy the self-image of a child who speaks a minority-language and places which shut off avenues of learning for all children who want to learn about the many cultures and the multicultural history of their country.

When schools close minds and warp personalities they are not educating at all, and that is happening in too many schools in America.

We know that in the few places where bilingual education has been tried the results have been a sharp increase in achievement, not only for the child who speaks a language other than English, but for the English-speaking child who shares the program.

We know that literacy in two languages is better than literacy in one—and that if children are allowed to learn to read and write first in the language they know best, they can soon learn to read and write in a second language at a faster pace. They can become literate in the language they bring to school and in the language they find in school—instead of becoming illiterate and nonfunctioning in both.

We know now that the teachers for successful bilingual programs are not just people who speak Spanish or French or Chinese or Indian—but are people who are biliterate and have been trained to teach in two languages, not one. That is something special—and in the last eight years we have discovered that we have very few universities or colleges which are prepared to train that special kind of teacher.

That is why we do not have enough teachers even for the few programs in existence. A recent survey shows that only about one-fourth of the teachers listed as being "bilingual" actually are trained to teach bilingually.

We know that it will take us many years to produce the teachers in the numbers needed, or the books and histories, the testing materials, the counseling and administration for these new programs. We are not ready yet—and we know that.

Most important of all, we know now that bilingualism means more than just getting through the transition period from kindergarten to third grade—and then being transformed overnight into a "normal" student who works only in English, the language of the majority. It means instead learning in two languages steadily right on through high school and college—so that in the end the language you bring to school and the language you find in school are tools you can use all your life.

Most challenging of all, we know that there are still many American citizens who don't share our concern and don't understand the valuable resources that our multicultural population represents. In the crisis world of 1973, with inflation and shortages and world environmental problems pressing from every side, it is going to be even more difficult to make bilingual education a first priority program.

Many of you provided the stimulus and the guidance for the legislation which Senators Kennedy and Cranston and I have recently introduced. The amendments which are now being considered by the Education Committee will provide more money, more teacher-training, a greater emphasis on biculturalism, an expansion into adult and vocational education, better supervision and administration, research into innovative techniques, and cooperation with state and local governments and families and communities. The help of those of you who came to testify at the hearings in Washington this month was invaluable. You made it clear to the Committee that the most important change in this legislation is that it presents the bilingual child as "advantaged and not disadvantaged" and that it offers opportunities to the monolingual English-speaking child as well as to the child who is monolingual in another language.

Still, as a legislator, I know that the money we can nonestly promise to appropriate will not be enough to do the job, not nearly enough. Before we can provide that kind of money from government at any level we are going to have to convince other Americans that bilingual education is not remedial or a program to help handicapped children.

We are going to have to make all Americans understand that this is resource education—that it will provide better education for

children who come to school speaking a language other than English and it will provide better education for children who come to school speaking only English.

We must somehow make sure that our neighbors and friends who are handicapped by not being able to speak any language except English understand the great gift which children who speak another language bring to the schools—a gift they can share with all children if they are allowed to.

We must find a way to see that every child is allowed to learn about the many kinds of people who have written the history of America, and about the treasure of many cultures which are now ignored.

We must alert the tax-paying public of the United States to their great future loss if the multiple cultures and languages of America are destroyed—and their great future gain if those languages are developed and those cultures are encouraged to grow.

If, a hundred years ago, educators all over the United States had known what you here tonight know about teaching bilingually, think what a difference it might have made! We in America, more than any other nation in the world, had the opportunity to become rich in a variety of cultures. We could have been the nation which was ready first to communicate with the whole world about the problems we face today: world hunger, world energy problems, world environmental problems, world peace.

People from many nations came here to find freedom—and brought with them the stored knowledge of their many homelands. Today, as a result of that rich heritage, we should be the focal point of international understanding and progress.

Knowing that, and understanding the thousands of ways in which America would be better today if we had taught our children about the riches of history and language and culture which were present in the native Americans who were here first and in every group which came later, we can see now how foolish it was to try to melt people down into something homogeneous so that all Americans would be limited and identical.

I think the challenge we must take from this meeting is the challenge not only of increasing and improving bilingual education for minorities. We must also accept the challenge to provide for our country the multicultural knowledge which the twenty-first century will demand.

We must see that every citizen in the United States understands that when children are asked to forget their own identity and their own traditions they do not miraculously turn into something better—instead, they shrink inside and when that happens our whole nation shrinks too. These small citizens lose hope of education and opportunity and a future—and as each one of them is diminished so the opportunities and knowledge and future of this nation is diminished too. The dollar loss is monstrous. For every child who only graduates from the eighth grade when he could have graduated from high school the lifetime income loss is more than $100,000. Multiply that by the millions who drop out of the schools which are not providing the education they need, and the gross productivity loss to the nation is staggering.

But even more important to the average American must be the loss of education HIS child could have had, but missed—the chance to learn two languages instead of one, the chance to expand into many cultures instead of one, the opportunity to be ready for the many-cultured world of the twenty-first century instead of being forever handicapped by being both monolingual and monocultural.

Recently Norman Cousins wrote about the remarkable abilities of human beings to succeed in spite of earlier failures. Using the example of our final liberation from earth gravity, he said "What was most significant about the lunar voyage was not that men set foot on the moon, but that they set eye on the earth. . . . They enlarged the human horizon."

I think when we talk about bilingual education in the last ten years we have to say that in many ways we have failed. But I also think that in trying to solve the problem we have learned and we know enough now to be able to enlarge our own horizons and the horizons of every American.

If we can leave this meeting in Albuquerque understanding that opportunity we can more easily open the doors to rapid expansion of bilingual and bicultural education. But we will have done more—we will have started on the road to a multicultural America, a place of leadership in the multicultural world in which we must all learn to live harmoniously if we are to survive.

BUDGET REFORM

Mr. BROCK. Mr. President, during the month of November, an action was taken in Congress which did not receive great publicity, and probably received very little public attention. But, nonetheless, it was probably one of the most important actions taken by the Congress of the United States in many, many years. Committees in both the House and the Senate passed out measures which would put control of the Government's purse strings back with the Congress, making the process closer to the people. Additionally, these measures contained built-in controls which would give Congress, and the people, a tighter reign on the amount of money spent, and how it is spent. I refer, of course, to the budget reform measures. I firmly believe that this legislation is as important as any that has faced action by both Houses in this century.

We simply have to return responsibility of Government spending to the Congress, to find out what we are doing, and where we are going. Noted columnist James J. Kilpatrick took note of the budget control measures, and wrote an excellent article, calling for quick action on these measures. I entirely agree, and I ask unanimous consent that his article be printed in the RECORD.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

CONGRESS SEEN MOVING TO RECLAIM FISCAL CONTROL

(By James J. Kilpatrick)

More than 50 years have passed since Congress adopted the Budget and Accounting Act of 1921. Since then, so far as congressional control of the purse is concerned, it has been downhill all the way. Now the real and hopeful possibility is emerging that the trend may be reversed. If the two chambers can agree on a major pending bill, Congress may be back in the saddle again.

The matter is of towering importance to the American people, but the issue lacks political pizazz. Not many observers are much interested in the companion House and Senate bills that are scheduled for consideration in December.

Yet if a workable bill can be passed, and if the two chambers thereafter abide by the spirit and the letter of this reform proposal, a new sense of order will be imposed on the present chaos of federal spending.

Details remain to be hammered out but these are the main features: The President will continue to send up his budget in January but it will cover a fiscal year beginning in October instead of in July. As soon as they are received the White House figures will be examined by a new Congressional Office of the Budget and by newly created budget committees in each chamber.

The idea at this point is for Congress itself, by joint resolution, to agree upon a single comprehensive ceiling on total prospective spending. The two chambers would debate national priorities, and undertake to fix recommended goals within the ceiling for major areas of spending.

Appropriations committees and subcommittees would then go to work, but no spending bill—and this is the key to the new structure—could become operative until all spending bills had been adjusted to a ceiling figure.

Within a few years, if all goes well, Congress might regain the one constitutional power that stands above all others—the power of the purse. It is an admirable goal, but seeing is believing. The proposed reforms demand that politicians turn into statesmen, and no alchemist yet has perfected that conversion.

Even so, a new spirit seems to be working on Capitol Hill. These bills, after all, have now emerged from committee. The problem in coming weeks is to get them through the floor, and to write some sensible controls into law.

THE TRADE REFORM BILL AS AN INSTRUMENT OF FOREIGN ECONOMIC POLICY

Mr. MONDALE. Mr. President, I wish to call to the attention of my colleagues a recent speech delivered by Robert N. Gardner, a professor of law at Columbia University and a former Deputy Assistant Secretary of State in the Kennedy administration, before the National Foreign Trade Convention in New York.

Professor Gardner, an authority on international trade, proposed that the Trade Reform Act of 1973 "be revised from top to bottom" in order to deal with the problem of export restrictions. He stated that the negotiating position in the upcoming trade talks would be strengthened "by some carefully drawn amendments to the trade bill that put the oil-producing nations and others on notice that they cannot wage economic war upon us with impunity."

Last week I introduced several amendments to the trade bill designed to broaden the scope of this legislation to deal with the problems which Professor Gardner so eloquently described.

As the oil embargo shows, we need new international procedures to deal responsibly with the problem of shortages. Since World War II, the international trading system has concentrated on the problem of access to markets. In an era of shortages and rapid inflation, we must update the rules of the international trade system to focus on access to supplies.

Mr. President, I ask unanimous consent that Professor Gardner's speech be printed in the RECORD.

There being no objection, the speech was ordered to be printed in the RECORD, as follows:

THE TRADE REFORM BILL AS AN INSTRUMENT OF FOREIGN ECONOMIC POLICY

(By Prof. Richard N. Gardner)

Considering the political and economic ills that currently afflict our country, the new trade bill as it has emerged from the House Ways and Means Committee can be regarded

as a minor miracle. That the bill has so much good in it is a tribute to the Ways and Means Committee and to those in the Administration like Bill Eberle who have worked so hard over the last year on behalf of strong and liberal trade legislation.

If I am somewhat critical about some aspects of the bill, it is not out of a desire to be perfectionist. My assignment at this meeting is to discuss the bill as an instrument of U.S. foreign economic policy. To say that the bill is a remarkable achievement in the light of our domestic difficulties does not mean it is an ideal instrument for the promotion of our national interests.

So that no one will be misled about the analysis which follows, I should state at the outset that I speak as one who favors the maximum freedom of international trade and investment guaranteed by clear rules of international law and strong international institutions to apply and enforce them. In a world of widespread poverty, growing resource scarcity, and accelerating inflation, the free flow of goods, services and capital and the encouragement of productive efficiency are more necessary than ever. Those who disagree with this philosophy should tune out from this point on.

Let us start with what is good about the new trade bill in its current version. If the good things don't deserve three cheers, they deserve at least two and a half.

The bill gives the President the power to eliminate tariffs of 5% or less, to cut by 60% tariffs from 5% to 25%, and to cut by 75% tariffs which are over 25% (provided no rate over 25% is reduced below the level of 10%). In view of the bill's explicit objective of promoting open and non-discriminatory world trade—and its implicit aim of reducing to a minimum the common external tariff of the European economic community—it would have been better to have retained the zero tariff authority contained in the original Administration bill. The Senate, when it considers the legislation, would be well advised to put back zero tariff authority in some form—the formula of the Trade Expansion Act of 1962 authorizing the elimination of duties on products on which the Community and the United States account for 80% or more of world trade might be a good compromise. Nevertheless, the bill's tariff cutting authority is probably enough to give us adequate negotiating leverage, provided it is not cut back further in subsequent Congressional consideration.

The bill also gives the President the power to bargain away the whole range of U.S. non-tariff barriers (NTBs) on a mutually advantageous basis, subject only to the sensible requirement that Congress be given prior notification of NTB agreements and the right to veto them by a majority vote of either House within 90 days after they are concluded. The broad grant of authority coupled with the right of Congressional veto represents an excellent compromise between the requirements of effective international economic negotiation and the requirements of democratic control of foreign policy. This is the very formula recommended three years ago by the President's Commission on International Trade and Investment Policy, known as the Williams Commission, on which Tony Knoppers and I had the privilege to be members. Unfortunately, this board authority to negotiate on non-tariff barriers is seriously compromised by a new provision which I shall mention in a moment.

The bill provides for adjustment assistance to help workers and firms hurt by imports to move into new lines of production that can survive without the need for protection. One could wish that the adjustment provisions were even more generous, but what is proposed could nevertheless form the basis of a new policy by which developed countries as a group actively promote a more rational international division of labor by dealing with the very real human problems associated with change in their own societies.

The bill provides the President with authority to grant tariff preferences in the form of duty-free treatment to exports of developing countries—a measure that is long overdue. Unfortunately, limits have been placed on the amount of any one commodity that can come in under preference from any one country and key items like textiles are not now eligible for preferred treatment. Nevertheless, the preference provisions do represent an important first step. We should work to enlarge the U.S. and European preference arrangements into a bold policy of unlimited free trade for the exports of developing nations.

The bill gives the President authority to grant most-favored-nation treatment to the Soviet Union, China and other Communist countries. As we all know, the Jackson Amendment has now made the grant of "MWF" to Communist countries conditional on the granting of free emigration. Since the issues raised by the Jackson Amendment are extremely complex and have already been the subject to extensive public debate, I shall say no more about them except to note my own opinion that in its present form, the Jackson Amendment does not appear to be the best way of advancing its admirable human rights objectives.

Finally, the bill provides a strong statutory basis for the office of the Special Representative for Trade Negotiations, assuring his independence and his role as our chief representative in international trade negotiations and as our chief policy-maker on international trade matters. This is a well-deserved tribute and an valuable assist for Bill Eberle and for the other members of his extraordinarily able and dedicated them—Bill Pearce and Harald Malmgren, his two deputies, and John Jackson, his General Counsel.

Having noted those things that are good about the bill, let me now turn to three major shortcomings that I believe require serious reconsideration:

First, the House Ways and Means Committee has introduced the unprecedented requirement of sectoral reciprocity. In the vital area of non-tariff barriers the President must now use his powers to achieve, with respect to "each product sector of manufacturing" and with respect to the agricultural sector, "competitive opportunities" for U.S. exports to developed countries that are "equivalent" to the "competitive opportunities" afforded to these products in the U.S. In pursuit of this objective, he is required "to the extent feasible" to negotiate trade agreements on a sector by sector basis and to demonstrate with respect to each trade agreement submitted to Congress that equivalent access in each sector has been achieved. Although these provisions do not appear in the section of the bill covering the President's tariff-cutting powers, the report of the Ways and Means Committee states (on page 19) that the objective of sectoral reciprocity is also to be applied "to the extent feasible" in the tariff area as well.

It is earnestly to be hoped that these requirements of sectoral reciprocity will be removed from the bill when it reaches the Senate. In the forty years since the trade agreements program was inaugurated, we have conducted our trade negotiations on the basis of overall reciprocity, permitting concessions in one product sector to be reciprocated by concessions in another, subject only to the requirement that there be a balance of advantage in the total package. Trade-offs between product sectors have been and will continue to be necessary for the achievement of substantial progress in the reduction of trade barriers—particularly non-tariff barriers—because in individual product sectors we and our trading partners differ in trading interests, productive efficiency, and the type of trade barriers we employ. It might conceivably be appropriate to require that the President seek reciprocity within the manufacturing sector as a whole in order to prevent excessive concessions here on behalf of our agricultural and service exports—although even this kind of requirement would need careful examination. But requiring that reciprocity must henceforth be achieved in thirty or forty product sectors—which is apparently the way the legislation is being interpreted by the Ways and Means Committee and the Executive Branch—risks placing unsuperable handicaps on our negotiators before the negotiations even begin.

It is significant that the idea of sectoral reciprocity was carefully considered and firmly rejected by the Williams Commission when the idea was put forward by one of its members three years ago. I believe the reasons given by our Commission are as timely now as they were then:

"Reciprocity should be conceived in terms of the whole set of negotiations rather than as an objective to be achieved within self-contained compartments. . . . In some cases, of course, it may be possible to arrive at mutually advantageous solutions within specific industrial sectors, and efforts should be made to find such solutions. On the other hand, in many cases a country will have to give more than it gets in one sector or functional area, and recoup by securing an equivalent advantage in another."

Second, the bill is much too permissive in allowing U.S. industries to resort to tariff and other forms of protection in the face of import competition. True, the section on import relief does emphasize adjustment to import competition, provides more ample assistance for this purpose than ever before to workers and firms, and favors relief through tariffs and tariff quotas over quantitative limitations and orderly market agreements. But other innovations in the bill could substantially increase the number of successful applications for escape clause relief which will go from the Tariff Commission to the President.

For example, the existing requirement that imports be the "major" or principal cause of injury to a domestic industry is changed to a requirement that they be only a "substantial" cause—a cause defined as "important and not less than any other cause." Alongside the existing law's tight definition of "serious injury"—the significant idling of productive facilities, the inability to operate at a reasonable profit, significant unemployment, etc.—we have a new standard relating to a "threat" of serious injury on the basis of which relief can be granted. The "threat" can take the form of a decline in sales, a growing inventory, and a downward trend in production, profits and employment—obviously a much easier test to meet.

Those who are dedicated to the cause of freer trade might be reconciled to these new provisions if relief in the form of higher tariffs or other restrictions were clearly limited to a shot time period. Unfortunately, the legislation provides for a five-year period of protection renewable by an additional two years—with the opportunity to apply for yet another period of relief after a two-year interval. If the concept of the legislation is to grant temporary protection to permit industries to become more competitive or to change into another line of production, one seven-year period ought to be enough.

No less disturbing is the legislation's ambiguity on the key question of whether the more permissive standards for import relief are to constitute the exclusive mode of protecting domestic industries—or whether such industries will continue to have access to non-legislated methods such as the spe-

cial international arrangements on textiles and steel. If we are going to set a new and easier standard by which industries are to get temporary relief from imports for the purpose of making competitive adjustment, should not these standards apply to everyone?

Some loosening of the current escape clause provisions is obviously necessary as the price for passing a trade bill, but I fear the loosening in the Ways and Means Committee has gone too far. The new provisions will mean more recommendations for trade restrictions by the Tariff Commission—and much more political pressure on the President under the escape clause than he has faced in recent years. It would be desirable to tighten up the escape clause when the bill gets to the Senate. And it is absolutely essential to retain the discretion the President has under existing law and in the proposed legislation to deny the application of an industry for new trade restrictions in the light of broader national and international considerations.

Third, the bill is entirely focused on the question of access to markets and is totally silent on access to supplies. In this respect, it has the appearance of a Rip van Winkle who has returned to the international trade arena after a long sleep unaware that the most serious current threat to the economy of our country and that of our allies is the withholding of oil by the Arab countries.

When Roosevelt and Churchill met on a destroyer off Newfoundland in 1941 to draft the Atlantic Charter, they proclaimed the postwar goal of "access, on equal terms, to the trade and raw materials of the world." In the first postwar decades, international trade negotiations focused almost entirely on access to markets and virtually ignored the problem of access to supplies. Now, however, we are moving into an era of resource scarcity and accelerated inflation—an era in which producing countries are increasingly tempted to withhold supplies for economic or political reasons. A few months ago the United States itself unilaterally cut off exports of soybeans and other agricultural products in order to deal with domestic inflation. Yet obviously we cannot expect the European community to phase out its agricultural protection and become dependent on our foodstuffs if we reserve the right to cut them off at any time.

I believe the new trade bill needs to be reviewed from top to bottom with a view to the new situation in which we find ourselves. For example, its statement of purposes should emphasize access to supplies as well as access to markets and its authorization to the President to deny our market to foreign countries which unreasonably do the same to us should be broadened to include the denial of U.S. exports and aid to countries that deny us vitally needed raw materials.

Let me make it clear that I am not proposing that we retaliate against the Arab oil-producing countries at this time. We should continue to work through quiet diplomacy for a fair Middle East settlement and the termination of the oil embargo. But the negotiating position of the Administration would be strengthened by some carefully drawn amendments to the trade bill which put the oil-producing nations and others on notice that they cannot wage economic war upon us with impunity. We and other OECD countries are dependent on the Arab countries for oil, but they are dependent on the U.S. and our OECD partners for food, medicines, industrial machinery and consumer goods. The Soviet bloc is not in a position to fill the gap completely if the OECD countries cut off supplies; in any event, countries like Saudi Arabia would think twice about becoming completely dependent on the Communist countries. Thus economic warfare is a game that all can play. Amendments of the trade bill should provide due notice of this fact of life.

Cordell Hull, the father of the trade agreements program, was a believer in the theory that "if goods can't cross borders, armies will." One of the central objectives of our trade policy since Hull's time has been to create the kind of non-discriminatory, secure access to markets and supplies that would remove the economic motives for the use of armed force.

Since the U.N. Charter, countries are no longer permitted to use force to back up their economic claims. Quite apart from legal prohibition, such actions now entail costs and risks that make them politically undesirable. But if the Atlantic Charter concept of equal access to raw materials cannot be guaranteed by the use of force, we need to consider guaranteeing it in some other way.

I have no easy solution to this problem, but I do suggest that we bend every effort to write some new rules of international law providing for equal access to raw materials into the GATT and into other international agreements and that we develop some multilateral sanctions against countries that violate these rules, whether they are parties to the agreements or not. If we can propose cutting off air services to countries that give refuge to hijackers, if we can contemplate denying port facilities to nations that pollute the oceans with their tankers, we should certainly explore the possibility of multilateral trade and aid embargoes on nations that withhold vital raw materials for political purposes.

Like many new ideas, this will be labelled "unthinkable" by some at the outset, but time often changes conventional opinion. Even if only two or three other countries were to indicate interest in the concept of "collective economic security," it might serve to promote new thinking in some key oil-producing nations.

As I close these comments, I must admit to a feeling of deep anxiety that the Arab oil embargo is going to do severe damage to the whole fabric of international economic cooperation that has been painfully put together since the Second World War. I say this more in sorrow than in anger as one who worked hard in the U.S. Government for the first U.N. Development Decade and as one who has consistently argued for more generous aid and trade policies on behalf of the developing countries.

For years the American people and the citizens of other developed nations have been lectured on the obligations of economic power and on the necessity of sharing our resources with those who are less fortunate. Now it appears that the concept of sharing is regarded by many as a one-way street—something which developed countries are expected to do but which developing countries are not expected to do when the resources are in their possession. Yet this policy of sharing through aid and trade was justified not only as morally right but as politically sound in order to assure the cooperation of developing countries who might otherwise deny their resources or markets to us. If the oil embargo continues indefinitely and the people of the United States and other developed countries begin to suffer, there will be some disagreeable second thoughts. Those whose houses are cold, whose movement is curtailed, whose fuel bills are prohibitive or whose very jobs may be threatened by the deliberate action of foreign governments are not likely to respond to old appeals on behalf of "interdependence" and "solidarity."

Let me be very specific. I wonder whether the American people can be expected to share their wheat and soybeans with the developing countries through the proposed "world food reserve" when some of these countries are refusing to sell us their oil. I wonder what is going to become of the Second Development Decade, of tariff preferences for developing countries, of multilateral aid appropriations, of the proposal to earmark SDRs for development, and of meaningful revenue-sharing from our exploration of the seabed.

It is curious and tragic that the non-oil producing developing countries, many of whom seem indifferent to our problems and some of whom are even cheering on the Arab countries in their oil embargo, do not seem to be asking themselves these questions. I hope and pray they begin to do so before it is too late.

THE OIL WEAPONS

Mr. BROCK. Mr. President, 6 months ago, these United States faced an energy problem. Slowly that problem grew larger and larger, until finally, from an energy crunch, we emerged into an energy crisis. One of the contributors to that crisis which is now upon us was the Arab oil boycott. Certainly, this cutoff of oil shipments has hurt, but it results in only a small percentage of the actual percentage of oil which we find ourselves in need of presently. Considering this fact, and considering the many other energy sources which we have available to us, which should immediately be pursued, I find it ridiculous that we might even consider bowing to an Arab oil boycott.

The Wall Street Journal, in its November 28, 1973, issue, contained an excellent editorial on the threat to the Nation in many other areas if we were to succumb to the Arab threats. I ask unanimous consent that this editorial be printed in the RECORD so that we should not forget the consequences of bowing to blackmail.

There being no objection, the editorial was ordered to be printed in the RECORD, as follows:

THE OIL WEAPON

From what we can gather, Arab leaders at a "summit" conference outside Algiers this week are full of self-congratulation, and perhaps even some wonderment, over how effective the oil weapon has been in shaking the confidence of the world's major industrial powers.

Indeed it has shaken confidence. As Mr. Janssen observes on this page today, the impact of a continuing oil shortage on the NATO nations of Europe could be grim, both in economic and political terms. Japan, which is heavily dependent on Arab oil, responded with alacrity to Saudi Arabia's demand that it change its leaning from support to criticism of Israel's position in the Mideast dispute.

It should not be surprising that all this is a heady experience for leaders who mainly rule large acreages of sand. But some Arab leaders, Tunisia's wise Habib Bourguiba, for example, are making it clear at the conference that this sudden grip on immense power could prove to be a little too good to last. It is politically unnatural for small countries to be successful for very long in twisting the tails of major, industrial powers. Politics abhors romanticism in much the same way that nature abhors a vacuum.

We're not sure how this translates into a political scenario for the months just ahead. But we are convinced that the Arab leaders would be wise to listen to the cautionary advice they are getting from Mr. Bourguiba, who called the oil weapon a "double edged sword," and from Mahmoud Riad, secretary general of the Arab League, who urged them to be "judicious" in its use. Reports from Algiers yesterday that the Arabs will relax their shipment curbs to all European Community nations except Holland suggest that they may indeed heed that advice.

The U.S., for its part, has followed a correct policy in response to the Arab oil embargo. It has done its allies a great favor by not responding to suggestions—from the French, for example—that it join in appeasing the Arab states. Although they may not yet see it that way, it may well be doing the Arabs a great favor as well by warning them at the outset about the dangers of overreaching. Mr. Kissinger's threat of possible countermeasures against the Arab states if they become too persistent in wielding the oil weapon was entirely appropriate, given the gravity of the present situation.

However, Mr. Kissinger has made it clear all along that the U.S. wants to be a positive force in lending its good offices for Arab-Israeli peace talks. A situation of this seriousness demands leadership and constructive effort and it would be frightful to contemplate some of the possible consequences if the U.S. had proved to be too timid to take the kinds of initiatives that only it is capable of taking in the present world system of political and economic dynamics.

But it is a delicate situation at best. King Faisal sits on a lion's share of the world's oil. He has emerged as a more active champion of Arab claims against Israel. There is a wide gap separating Israel and the Arabs from reaching any kind of meaningful peace agreement.

But it is not any means a hopeless situation. By Middle Eastern standards, it is progress that Israeli and Egyptian military officers have been treating with each other, even though amid a great deal of tension. Peace talks arranged largely by the U.S. could begin as early as next month, barring some new explosion. There is every evidence that the Arab nations, particularly Saudi Arabia, are not eager to get into a situation where they would be forced to become clients of the Soviet Union. King Faisal is, after all, a religious leader and it is not easy to think of a country that has done more violence than the Soviet Union to Muslim shrines within its own borders, such as the great mosques at Bokhara.

If Mr. Kissinger is to play a firm, constructive role, he needs political support at home, such as that provided last week by eight leading American economists, Messrs. Samuelson, Arrow, Kuznets and Leontief, all Nobel laureates, and Messrs. Fisher, Solow, Galbraith and Peck. These eight urged the U.S. to resist "oil blackmail." Further urging along the same lines came on "Meet the Press" over the weekend from Walter J. Levy, one of the nation's foremost oil economists. It is particularly important that totally unrelated issues, such as Watergate, not be allowed to weaken the U.S. political stance.

A firm stand by the U.S. is vital at this juncture. And the Arab leaders in Algiers would be well advised to demonstrate some flexibility. We doubt that Western civilization is quite yet ready to be plunged into cold and darkness without uttering a peep in its own defense.

ENERGY CONSERVATION IN MAINE

Mr. MUSKIE. Mr. President, in recent weeks I have had numerous conversations with Maine citizens concerning the steps which they are taking individually to deal with the fuel shortage. I am constantly impressed with the degree of commitment and ingenuity which people are demonstrating in specific energy conservation measures applied to their daily activities.

I would like to share with my colleagues the steps being taken by one businessman, Mr. Arnold Sturtevant of Livermore Falls, Maine. As president of the Livermore Falls Trust Co., Mr. Sturtevant has instituted an energy conservation "bonus" plan for the bank's employees which I think others might wish to copy in their businesses and communities.

Mr. President, I ask unanimous consent that an article in the Livermore Falls Advertiser, describing the conservation plan, be printed in the RECORD.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

L. F. TRUST TO INITIATE ENERGY-SAVING HOURS AND EMPLOYEES BONUS PLAN

If you find Livermore Falls Trust a little darker and a little cooler—in temperature, not friendliness, that is—then you are experiencing the results of that bank's energy conservation program.

The bank has undertaken some rather unusual measures that it expects will result in substantial savings of fuel and electricity in the months ahead.

Turning back the thermostat, switching off lights and paying its employees an "energy bonus"— based on the actual savings that result—are just a few of the ways that this Maine banking institution hopes to do its part in conserving the nation's critically short energy supply.

The most unique aspect of the bank's program is its bonus plan. To arouse a greater awareness of the crisis—and to promote individual participation in helping to solve that crisis—the bank will pay its employees a bonus of $2.00 for every $1.00 of fuel and electrical costs saved. (The measure of savings will be determined by applying the unit costs for fuel and electricity to the actual kilowatt hours and gallons of fuel saved over normal operation. (Although energy conservation will thus end up costing the bank twice as much as the cost of energy, its management considers it a worthwhile contribution to the solving of a true national emergency; and it feels that this incentive to economize at work can't help but result in beneficial carryover to each employee's home life.

Arnold Sturtevant, president of the bank, reports that employees are enthusiastically participating in the incentive program—already having found ways to cut over 18,000 watts from the institution's normal illumination needs; and a 20 per cent cut in commuting mileage will present added opportunities for conservation of gasoline.

In addition, the bank has announced a new energy-saving schedule of operations. New hours will allow it to run its furnaces and lights less while, at the same time, providing just as many hours of service to the public. This savings will be accomplished by closing its main office lobby on Mondays and adding the normal hours that it is open on that day to the remaining days of the week.

Bank management states that it has been demonstrated that significant energy savings can be effected by closing its main office lobby for three consecutive days (Saturday through Monday).

Starting the first week of December, its main lobby will be open to the public from 9 a.m. to 5 p.m. each Tuesday, Wednesday, Thursday and Friday. (It has normally closed at 3 p.m. on Tuesday through Thursday.)

The bank's main office drive-ups and walk-up windows will continue to be open every weekday afternoon until 5 p.m. and Saturday morning from 9 a.m. until noon. However, to help compensate for the lost Monday hours in the main lobby, these facilities will extend their hours to include Monday mornings—operating 9 a.m. to 5 p.m. on that day. The bank felt this added service would be especially useful to those businesses that need bank services after each weekend. These drive-in and walk-up service facilities can be operated with little expenditure of fuel and electricity, as they are separately heated and are compact self-contained units.

Livermore Falls Trust's branches in Jay and Chisholm have been on a Tuesday through Saturday schedule for several years; and their hours will remain unchanged.

The bank's Family Finance Center, considered a part of the main office will now be closed on Monday; but, like the rest of the main office, it will be open from 9 a.m. until 5 p.m. on other weekdays— (expanding from its former hours). In addition, the Family Finance Center will continue its past practice of accepting appointments for Saturday mornings.

Sturtevant says that he is sure that these measures will result in significant energy savings, undertaken in voluntary compliance with the President's request for all Americans to make a sincere effort to conserve scarce resources; and he fully expects that many others—both businesses and individuals—will be increasingly involved in doing their part.

A DEBATE IN ISRAEL

Mr. McCLURE. Mr. President, an encouraging report has been issued from Tel Aviv, to the effect that the leaders of the Israeli Labor Party are prepared to compromise on their party platform. Instead of the previous position, calling for continued Israeli occupation of the Arab lands seized during the 1967 war, the Labor Party leaders are now proposing "defensive borders based on territorial compromise."

This new position does not show a willingness to withdraw from all occupied lands, in keeping with U.N. Resolution 242, but it does show a willingness to compromise. Considering previous stands taken by the party and its leaders, this signifies an important change in attitudes, which could lead to more fruitful negotiations and, ultimately, a lasting, just peace.

The question that we Americans should be asking ourselves is, "If the Israelis themselves can consider new positions, such as withdrawing from occupied Arab lands, why can't we?"

Mr. President, I ask unanimous consent that an article from the Washington Post of December 6, 1973, concerning this change in attitude, be printed in the RECORD.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

ISRAELI RULING PARTY TORN OVER ARAB LANDS

TEL AVIV, Dec. 5.—In a marathon day and night debate the leaders of Israel's dominant Labor Party today subjected themselves to a grueling soul-searching over past mistakes and future policy on peace and territories.

At issue before the party's central committee was the proposed election platform calling for "defensive borders based on territorial compromise," meaning that in return for peace Israel would give up some but not all of its 1967 conquests.

Passage of the party platform for the Dec. 31 parliamentary election seemed assured since it was a delicate compromise drawn up by a crosssection of party leaders to satisfy both doves and hawks.

The debate was dominated by two key elements—the wisdom of Israel's post-1967 policies and Israel's future stance in dealing with the Arabs and particularly the Palestinians. The key figure, inevitably, was Defense Minister Moshe Dayan, both because the army was surprised by the October attack and because he symbolizes the policy of standing firm on the post-1967 borders until the Arabs are ready to talk peace.

Dayan, who warned that the Arabs still want to destroy Israel, was joined by three

other Cabinet ministers in stressing the importance of "strategic depth," which can be achieved only by holding large sections of the conquered lands.

A leading dove, former Party Secretary Yitzhak Ben-Aharon, said Israel could only assure peace by sharing Palestine with a Palestinian Arab state. Dayan replied he would not serve in a government which accepted a separate Palestinian Arab nation because that would be the beginning of the end of Israel.

Deputy Prime Minister Yigal Allon, a moderate and long-time Dayan rival, said every cabinet member should submit his resignation to leave Prime Minister Golda Meir a free choice should the party form the next government.

Allon said the Cabinet had to bear collective responsibility for the October war, but, in an implied criticism of Dayan, added that some were more responsible than others. Dayan replied that he was ready to resign if Mrs. Meir wished that and said he had not asked to serve in the next government.

The debate which continued from morning until well after midnight was stormy and emotional and saw one speaker warn that, what with mutual recrimination, Israel was plunging itself into destructive masochism.

VOLUNTARY AND MANDATORY RATIONING OF GASOLINE AND FUEL OIL

Mr. MUSKIE. Mr. President, as the Congress and the President consider energy rationing proposals it is important that we examine the Nation's experience with both voluntary and mandatory rationing during World War II. At my request, the Library of Congress has completed a study evaluating the U.S. experience with rationing during that period.

I think two of the specific findings of the study deserve special attention as we consider whether to move to mandatory rationing.

First, that voluntary rationing programs did not work during World War II. Even the most ardent supporters of the programs agreed that they failed. They agreed as well that long delay and continuing Government vacillation made the problem of acceptance worse when finally the choice of mandatory rationing had to be made; and

Second, that mandatory rationing played an indispensable role in achieving necessary reductions and redirection of civilian demands—although gasoline production was up during the war, civilian use dropped by one-third, down from 1,706,000 barrels per day in 1941 to 1,219,000 per day in 1944, with the biggest bite in passenger car use.

Also of interest are certain recommendations made by the report for any future rationing programs based on the World War II experience.

First, the system must be nationwide and must apply to everyone;

Second, the public must understand the real severity of the shortage in order to insure compliance;

Third, rationing should be handled by one agency. The World War II scheme was severely handicapped by the existence of several rationing authorities; and

Fourth, some form of nationwide supplier limitation is necessary to effect proper end-use rationing.

I ask unanimous consent that this informative study be printed in the RECORD.

There being no objection, the study was ordered to be printed in the RECORD, as follows:

U.S. EXPERIENCE WITH VOLUNTARY AND MANDATORY RATIONING OF GASOLINE AND FUEL OIL DURING WORLD WAR II

I. A BRIEF BACKGROUND OVERVIEW

The United States engaged in both voluntary and mandatory rationing of gasoline and fuel oil during World War II, from May 1941 to the war's end in mid-August 1945.

It was an extraordinary period in our history, the only time the country was ever called upon so rapidly to convert its economy and whole life style so totally to a world wide war. Not only gasoline and fuel oil but eleven other important consumer products were rationed too: tires, automobiles, typewriters, sugar, bicycles, processed foods, meats, fats, oils and cheese, coffee, and shoes.

Because the energy emergency has now brought suggestions that mandatory consumer end-use gasoline and fuel oil rationing may need to be installed, it may be useful to review our own historical experience for lessons which could have some relevance today. This section briefly reviews some of the more general problems involved in that first U.S. experiment with rationing.

A. The problem of overlapping agencies

More than thirty new war agencies and commodity "czars" were created to cope with the critical materials and manpower tasks the war emergency produced. Among these, at least eight were charged with responsibilities which often overlapped and contradicted equally valid delegated authorities, in the areas of planning and executing various petroleum fuel rationing schemes:

The War Production Board (WPB) had to decide on and allot petroleum product quotas among highest priority military needs and competing essential civilian claims.

The Petroleum Administration for War (PAW) was responsible for assuring adequate supplies for the total war effort, for determining the time, area and quantity of petroleum products available for rationing, and for programming their delivery.

The Office of Defense Transportation (ODT) held responsibility for coordinating and maintaining all domestic transportation, including all rubber-borne passenger cars, buses, taxicabs and trucks.

The Office of the Rubber Director (ORD) was given authority to allot rubber, including for tires, and to claim gasoline and fuel oil as needed to further the rubber production program.

The Office of Price Administration (OPA), in addition to its price and rent control responsibility, was assigned authority with respect to rationing control over the sale of products at the retail level to persons acquiring products for the satisfaction of personal needs.

The War Food Administration (WFA) was a claimant agent for petroleum products essential to keep agricultural production at highest possible levels. Soon after nationwide rationing was installed, WFA became the agency certifying essential agricultural mileage and off-highway agricultural needs.

The Office of Civilian Requirements (OCR) had the same claimant rights as WFA for off-highway petroleum needs, for example, for stationary and industrial engines, construction equipment, boats and civilian aviation.

The Office of Economic Stabilization (OES) was designated as the higher level agency to handle any issues which could not be resolved among these agencies. Some of these issues were never resolved, despite the high level order issued in mid-1943.

It was a turbulent, chaotic, exciting extraordinary time.

B. Some rationing problems peculiar to World War II

Many of the critical petroleum supply problems which finally required mandatory consumer end-use rationing were solely due to demands peculiar to that world-wide war.

Chief of these was the fact that, at the outset, it was not lack of gasoline and fuel oil but lack of tanker transportation to supply the East Coast petroleum deficit area. Almost immediately, a drastic shortage of rubber also emerged, so severe as to threaten paralysis of the whole economy, heavily dependent on rubber-borne transport means.

In addition, wartime overseas demands required an unprecedented increase in volume of gasoline production and a striking redirection of total use, both as between war and civilian needs and as between essential and less essential categories of civilian needs. Fortunately, there was sufficient reserve production capacity from domestic oil fields so these priority demands could actually, almost miraculously, be filled. U.S. total gasoline production in 1945 was almost one-third above 1938, but over half the total output went to U.S. and Allied military and essential foreign civilian needs.

Furthermore, it should be kept in mind that end-use coupon rationing of consumer goods, including gasoline and fuel oil, was exercised in the context of a battery of direct and indirect economic controls designed to keep inflationary pressures in check. In addition to higher taxes on income and goods, and the promotion of war savings bonds, direct controls were imposed on prices, wages, credit and rents, reinforcing to a large degree the prospect for a successful consumer end-use ration scheme.

While these general factors were peculiar to that World War II frame, that early rationing experience still has a good deal of relevance to the present time.

All allocation programs will attract controversy. None are popular. There are still wide differences in regional production and demand for gasoline and heating fuel. Decisions on how to allocate scarce petroleum supplies for refining production schedules between estimated winter heating needs and the next summer's gasoline demands must still be made months in advance of retail sales. This makes any allocation scheme necessarily complex.

Since at least some sources of controversy are avoidable and some errors of administration need not occur it should be useful to review the history of our own precedent, and to identify, at least, any remediable mistakes.

C. Principal sources used

The background information and specific details included in this review have been drawn primarily from the following accounts:

The United States at War: Development and Administration of the War Program by the Federal Government, U.S. Bureau of the Budget, Committee on Records of War Administration, June 1946, Reprinted by Da Capo Press, New York, 1972, hereafter cited as BOB.

A Short History of OPA, by Harvey C. Mansfield and associates, Historical Reports on War Administration, Office of Price Administration, 1946, hereafter cited as OPA.

A History of the Petroleum Administration for War: 1941–1945, John W. Frey and H. Chandler Ide, editors, Office of the Petroleum Administration for War, U.S. Government Printing Office, Washington, D.C. 1946, hereafter cited as PAW.

An Analysis of Selected Rationing Programs in the U.S. During World War II, unpublished PHD thesis by Carolyn Shaw Solo, Harvard University, October 1950, Chapter Five, "Gasoline Rationing", hereafter cited as Solo.

Additional references are listed in the footnotes in the text.

II. U.S. EXPERIENCE WITH VOLUNTARY CONSUMER END-USE RATIONING: MAY 1941—DECEMBER 1942

Many different forms of petroleum allocation and distribution controls were practiced during World War II: voluntary and mandatory supplier limitation orders and voluntary and mandatory end-use consumer controls.

The scope of this report is limited to a comparison of World War II experience with voluntary and mandatory consumer end-use rationing and no attempt is made to evaluate the relative effectiveness of the various voluntary and mandatory supplier allocation schemes which were tried.

As indirect constraints on end-use consumption of gasoline and fuel supplier allocation schemes substitute for direct consumer end-use controls. During World War II, many of these limitation schemes, both voluntary and mandatory, were the main forms, other than petroleum conservation rhetoric, through which "voluntary" consumer end-use limitation was pursued.

Supplier limitation measures, in general, applied to any one who (a) produced or manufactured motor fuel, kerosene, range and heating oil or residual fuel oil; (b) imported such products from other areas for sale or resale and/or (c) distributed such products for retail sale. This included refiners, wholesale marketers, jobbers, intermediate distributors down to the service station or fuel oil dealer who transferred the fuel into the end-use consumer's oil or gasoline tank. "End-use" or "ultimate" consumers were considered to be the final consumer of the product, including a dealer or distributor who needs gasoline and heating oil for his own end-use.

The distinction between voluntary and mandatory measures was technically clear—mandatory controls carried stiff legal penalties for non-compliance and voluntary controls did not. There were widely differing consequences in actual practice, however, depending on the completeness of the compliance. An obvious example was the pleasure driving ban: the pleasure driving ban, which was unenforced and really unenforceable although "mandatory", was less effective in reducing pleasure driving than a voluntary gasoline station Sunday-closing rule in any area where nearly all gasoline stations compiled.

In any case, as the account below describes, if there were any possible variations on the mandatory-voluntary and supplier-consumer themes that could be tried, this country tried them then.

This section describes the measures tried between May 1941 and December 1942, when nationwide mandatory consumer end-use controls were finally introduced.

A. The opening scene

Energy requirements of World War II presented the United States as a whole, and the petroleum industry in particular, with production and distribution problems without precedent. To a far greater extent than in World War I, the outcome of the conflict depended on timely and adequate supplies of oil, delivered to supply and combat areas throughout the world.

Between December, 1941, and August, 1945, Allied requirements totaled seven billion barrels of crude petroleum, of which the United States supplied four-fifths.

The major challenge during this period for the Federal Government was to shift its policies from curtailment to promotion of oil production. From 1924 to 1939, efforts had been geared largely to restrict production and to maintain a semblance of stability in the industry. Now the war required new efficiencies in drilling and in the exploitation of new wells. By grants of subsidies and favorable tax provisions, and by careful allocation of scarce machinery and drilling supplies, Federal and state authorities were able to boost the nation's total oil output.

The achievement was possible only because there was cooperation between government and industry, a cooperation which included both suspension of anti-trust provisions to permit maximum pooling of supplies and distribution facilities and joint financing for new refineries. The Federal Government provided nearly two thirds of the billion dollars expended over four years in developing new petroleum facilities, including assistance to 43 aviation gasoline refineries and related installations.

Within a few months after its outbreak in September 1939, the European war caused fuel oil and gasoline shortages in the Northeastern United States. As German submarines cut down the flow of Allied tanker traffic in the Atlantic, crude oil shipments from California and the Gulf of Mexico region to the Northeast were seriously disrupted. Available rail and truck facilities to provide overland transportation were insufficient to move oil products needed in the large eastern cities. Pipelines connecting the Atlantic Coast with the midcontinent and Gulf oil regions were too small to take on the added load. The Atlantic Coast, which received 95 percent of its oil supply by sea, faced serious fuel oil and gasoline shortages during the fall of 1940 and again in the winter of 1941.

The country's response to such problems was slow and haphazard. Throughout 1939 and 1940, the President urged Congress to enact legislation that would empower the Secretary of the Interior to allocate oil production and distribution. In 1940, the House Committee on Commerce held lengthy hearings on a bill designed to confer broad powers on the Secretary of the Interior, Harold Ickes, to control production and distribution of oil. But Congress, distrusting Ickes, refused to enact the measure. In the meantime, the loan of fifty American tankers to Britain further aggravated the problem of East coast supply.

B. The Petroleum Administration for War (PAW)

Growing shortages led President Roosevelt to use his executive powers. Soon after the European war broke out, Roosevelt had delegated his authority to deal with many of the oil problems to Interior Secretary Ickes, including responsibility for trying to establish voluntary rationing programs for fuel oil and gasoline in the Northeast and for developing arrangements for alternate transport facilities.

In May 1941, the President designated Ickes as Petroleum Coordinator for National Defense and gave him as his main assignment the job of enlisting the full partnership of the oil industry in the war.

At this stage, his powers were to be largely advisory in promoting cooperation within the oil industry. As Coordinator, he was to make an inventory of available oil reserves and to facilitate pooling of scarce resources and equipment. He was also to organize advisory committees composed of industry representatives and to coordinate petroleum policies of various Federal agencies.

While this approach may seem reasonably sensible, at the time it was, in terms of Federal Government relations with the oil industry, unprecedented. Secretary Ickes, in particular, was greatly distrusted and with perhaps good reason since his views on what was wrong with the oil industry and how it should be brought to heel were widely documented. The feud had been running between them a full eight years when this new partnership tentatively began. As for coordinating Federal agencies, even before the dozens of new war agencies proliferated, there were already some thirty government offices with interests and activities in some aspect of oil.

Ickes' plans for closer cooperation within the oil industry were based in part on suspension of the antitrust laws. Obviously, close cooperation in the oil industry would be difficult if the Justice Department discouraged such "collusion," especially the formation of regional industry committees. In June, Attorney General Biddle acquiesced very reluctantly and only under White House pressure. Oil companies were allowed to enter upon voluntary agreements, including pooling of production and distribution of supplies.

The Department of Justice also agreed temporarily to suspend its antitrust suits against oil companies pending on appeal, although Biddle promised to keep the activities of the various petroleum corporations under close surveillance.

Thereafter, consolidation and coordination of federal agency policies and activities moved rapidly and concurrently with the consolidation and coordination within the oil industry itself.

Successive administrative reorganizations replaced the Petroleum Coordinator for National Defense, with the Office of the Petroleum Coordinator for War, and finally the Petroleum Administration for War, formally created December 2, 1942. However, the structure and policies and basic industry-government understandings under which the PAW operated throughout the war were in fact agreed to at this early stage and remained essentially unchanged. The official PAW history described the underlying concepts of organization which governed the war-time petroleum industry-government relationships in these terms:

1. So far as possible, all governmental activities and responsibilities relating to oil for war would be brought together and centralized in one effective agency.

2. The agency would be organized along functional lines paralleling the principal functions of the petroleum industry itself, would be staffed by men possessing practical experience in oil.

3. Industry committee organization would be created to advise and assist Government and the full resources of the industry would thus be enlisted on a cooperative basis; at the same time, orders and regulations would be kept to a minimum, and the greatest possible reliance placed upon voluntary compliance and support.

As a result, during the war the whole process of production allocation and ultimate distribution of supply of all petroleum products was so closely coordinated as to rate the description of the process as one single oil company operating nationwide.

While this close identification was often hotly criticized, far from being clandestine or undercover, it was, as the record clearly shows, deliberately, legally, openly intended, sought for and achieved.

C. Voluntary rationing of petroleum fuels: First phase, July 1941-December 1941

By June of 1941, the East Coast which has historically consumed a large share in total U.S. gasoline supplies—37 percent in 1939—was already feeling the pinch of the interruption of its sea borne supplies. The first effort to achieve voluntary reduction of consumption in an effort to alleviate the summer gasoline and the approaching winter fuel oil shortage was launched.

Throughout the summer of 1941, PAW and the oil industry tried to convince the gasoline-using public on the East Coast of the necessity for voluntary curtailment of their driving. PAW Recommendation 1, issued July 20, 1941, asked for a voluntary reduction in gasoline consumption by 33 percent. The larger Eastern oil companies footed the bill for a $250,000 advertising campaign featuring windshield stickers which announced "I'm Using One-Third Less Gas."

Additional conservation measures promoted by this campaign called for lower car speeds, proper care of tires, and organizing car pools.

Appeals were made to service station owners, too. Recommendation 3, issued August 5, 1941, asked for a curtailment in commercial delivery services. Recommendation 4, effective August 3, 1941, asked for the closing of service stations between 7 p.m. and 7 a.m.

When these failed to produce desired cutbacks in consumption, PAW sought to curtail the volume of use by a cutback in the supplies to the retail distributors. PAW Recommendation 6, of August 18, 1941, recommended to the East Coast oil companies that deliveries of gasoline to service stations and other outlets be restricted to 90 percent of deliveries during the previous month, and a week later lowered the recommendation for September to 85 percent.

Soon afterward, at PAW's request, this recommendation was replaced, on September 30, by a formal War Production Board limitation order, L–8, which as of October 1, restricted deliveries at all levels of distribution to suppliers according to a formula based on previous sales, with various provisions to adjust for inequities.

While consumption did in fact begin to drop with the first curtailment of deliveries to suppliers, the WPB order produced thousands of requests for adjustments as it applied to specific suppliers, jobbers, and service stations. Before the Marketing Division of PAW, with its small staff, could work its way through these adjustments, the continuance of the limitation of gasoline consumption was made temporarily unnecessary when more tankers became available for East Coast deliveries in October and November.

At the end of November 1941, these early limitation orders were all suspended for a while.

A major reason why the public failed to respond to these appeals was that they lacked credibility. The gasoline shortage, real as it was on the East Coast, was known to be regional. Gasoline stocks in other areas were in fact in surplus. To ask drivers in the East to curtail their gasoline consumption because the German submarines were sinking tankers in the Atlantic ocean seemed a non sequiter. The subsequent argument that all citizens should give up gasoline because rubber would be short made the public, for whom the war was still very far away, skeptical at best. Nor did the report of a Senate Special Committee to Investigate Gasoline and Fuel Oil Shortages, the Maloney Committee, increase PAW's credibility. The report concluded that: paradoxical as it sounds, the shortage as we see it, is a shortage of surplus—not a shortage of products or lack of transportation.

Not surprisingly, the public felt the claim of shortage was a "phoney" one.

In any event, this first effort to curtail consumption by voluntary methods did not succeed. Even the officials who were the strongest supports of voluntary means agreed it failed:

Voluntary rationing, although tried but for a short period, had proved something of a failure in its first test, and, even though there were many who believed it could have been made to work successfully, the fact remained that it had failed, and this colored official thinking about rationing and other consumer restrictions throughout the war.

D. Voluntary rationing of petroleum fuels: Second phase, December 1941 to May 1942

Even after the full scale entry into the war in December 1941 when the United States Naval Bases at Pearl Harbor were bombed by the Japanese, no formal action concerning the distribution of petroleum products was taken for about two months. Shortages of oil by industry or by consumers that were reported to PAW were handled on an individual ad hoc basis.

Despite a clearly deteriorating supply, leading East Coast members of the Petroleum Industry War Council on February 11, 1942, recommended only that, in addition to trying to increase overland movement of oil: Steps be taken to curtail the total east consumption of petroleum products to the extent of approximately 15 percent from current levels during the period February 15 to April 1. It is impossible to predict whether or not curtailment will be necessary beyond that date.

The industry group urged the restoration of service station curfews and Sunday closing, an appeal to the public for economy in their use of gasoline and heating oil, and concluded that, if these steps were not sufficient, "positive rationing will be necessary."

Simultaneously, starting in February 1942, an elaborate industry sponsored petroleum products conservation campaign was developed and carried out nationwide at a total direct cost of $6,050,000. Involving 94 oil companies and using all media forms then available, at least 10 separate conservation promotion programs were developed, including tire conservation, scrap rubber, farm-equipment maintenance, anti-black market, gasoline conservation and fuel oil conservation. The latter included the currently familiar recommendations:

Weather-stripping of windows and installation of storm doors and windows.

Cleaning and inspection of oil burners for maximum efficiency.

Closing off of unused rooms in homes and stores.

Holding thermostat control at 68 degrees in daytime.

Reducing heat at night by lowering thermostat to 50 degrees.

Cooperation with the oil supplier by consideration for his transportation problems, and by filling home oil tanks, during the summer months.

As further steps the PAW concluded two things had to be done: (1) Industry committees needed to be given authority to collect data and to use their knowledge and experience in planning how to arrange the distribution of products for maximum efficiency and to carry approved plans into effect; and (2) consumption needed to be limited by restricting deliveries and preventing the movement of products out of shortage areas. These were the original objectives of PAW Recommendation No. 33, issued February 6, 1942, and WPB limitation order L–70, which, when issued March 14, 1942, set deliveries of gasoline to distributors at about 20 percent less than normal gallonage. Less than a month later, on April 8, L–70 was amended to curtail deliveries to gasoline retail outlets by one-third.

Concurrently, the Office of Defense transportation tried to institute similar nonmandatory efforts with respect to the commercial transport vehicles for which that agency was responsible. In May of 1942, ODT had begun a program to secure more efficient commercial transport with the objective of reducing rubber consumption by commercial vehicles some forty percent. It issued orders (which lacked enforcement sanctions) restricting deliveries and requiring an increase in loads, and in July of 1942 issued General Order No. 17, which required (or requested) commercial vehicles to effect a twenty-five percent cut in mileage over the corresponding months in 1941. These had virtually no effect.

All during these first curtailments there were complaints from distributors in areas where burgeoning war plants expanded demands out of line with the historical demand pattern on which the limitations were based and from large groups of gasoline users who requested preferential status.

The distributors were directed to give preference to "essential users". Doctors, Government cars, truckers from war plants, workers traveling long distances to essential war production plants with no public transportation available obviously had to have enough gasoline to keep running. The individual service station operator found it almost impossible to do this selective rationing without laying himself open to the charge of favoritism, yet it was left up to him to decide who got the gasoline.

With supplies getting more limited every day, a third reduction in gasoline was ordered by WPB on May 13, 1942, this time down to 50 percent of normal, and some kind of consumer end-use rationing could no longer be postponed.

E. Stop-gap punch cards and east coast mandatory gasoline consumer end use rationing, but no nation-wide controls: May 15–December 1, 1942

On May 15, 1972, the Office of Price Administration (OPA) issued its first rationing order, limiting for the first time the actual consumption of gasoline by consumers.

The Office of Price Administration (and predecessor agencies) had been created and reorganized by a series of executive orders dating from April 11, 1941, with special responsibilities for price and rent control in addition to the task of assuring adequate supplies of essential consumer goods to the civilian sector. Its rationing authority derived from powers delegated by the Chairman of the War Production Board under Directive No. 1, issued January 24, 1942. This gave OPA full authority with respect to rationing control over retail sales to "ultimate consumers". (This term is described as meaning "a person acquiring products for the satisfaction of personal needs as distinguished from one acquiring products for industrial or other business purposes."

Like the area covered by WPB's L–70, the rationed area included all of Petroleum Administrative District 1, except 93 counties along the western edge of New York, Pennsylvania, Virginia, and West Virginia, where local gasoline manufacture was said to be sufficient to satisfy normal demands.

Under this plan of rationing, users were divided into five classes, who received their rations upon presentation of cards, like meal tickets, which the dealer was supposed to punch when he delivered the gasoline. This card system, containing no possible check and depending, as it did, entirely upon the conscientiousness of dealers and users, was merely a stopgap. It was replaced by the OPA consumer end-use coupon system on July 22, 1942.

The attempt to establish and hold a boundary line between rationed and unrationed areas along the East Coast proved untenable. Pittsburgh resisted rationing because Allegheny refineries could supply adequate amounts, if not siphoned off to deficit areas. Bristol, Tennessee, and Bristol, Virginia, were cut in two. Motorists from rationed Syracuse, New York, just drove next door to unrationed Rochester.

As for the prohibition against moving products out of District 1, this, too, ran into difficulties because certain Allegheny refiners had developed outlets in agricultural eastern Ohio for low octane gasoline which was not considered suitable for the steep grades of western Pennsylvania. Consequently, low octane gasoline was permitted to move into eastern Ohio. Florida constantly maintained that rationing was not necessary there and the fact that the boundary line was the Appalachicola River only complicated matters. The boundary location problem never was solved to the satisfaction of everyone. Adoption of a nationwide rationing system finally reduced the problems it has caused.

By the fall of 1942, the rubber shortage was so grave that the President appointed a committee, headed by Bernard Baruch, to investigate and make recommendations. The report of that committee, issued September 10, 1942, predicted disastrous consequences unless the use of existing rubber tires was limited, and recommended Nation-wide gasoline rationing as the most effective method of doing this.

The Baruch committee recommendations led to Nation-wide gasoline rationing, although more than 100 Congressmen, reflecting anguished protests from the West, staged a demonstration in November 1941, when Nation-wide gasoline rationing was formally announced.

On December 1, 1942, mandatory gasoline rationing through the consumer end-use coupon scheme began.

F. Early efforts to limit consumption of heating fuel oil: February 1942 to October 1942

Mandatory consumer coupon rationing of heating fuels did not begin until October 22, 1942, but the need for reduced consumption on the East Coast and in the Pacific Northwest was evident in the first months of the year. PAW Recommendation 33, on February 6, 1942, established a system of minimum deliveries to all types of consumers and distributors.

Later, March 14, WPB Order L–56 prohibited new installations of oil-burning equipment; called for fullest possible use of standby equipment and use of other fuels; and encouraged the conversion of heating equipment from oil to coal. Less than a month thereafter, on April 6, with fuel oil consumption still exceeding the supply in these areas, PAW asked the oil companies to cut deliveries of fuel oil to consumers in the East and Pacific Northwest to 50 percent of the deliveries during the same month of 1941.

However, despite the well organized campaign to promote voluntary conservation, neither advertising rhetoric nor the dealer delivery limitation to consumers worked any better with heating fuels than they did with gasoline. In the words of the official PAW history:

It was too difficult a problem for the dealers. Consumer coupon rationing was a necessity and the WPB finally authorized OPA to introduce it.

III. NATIONWIDE MANDATORY GASOLINE AND FUEL OIL CONSUMER END USE RATIONING: DECEMBER 1942 TO AUGUST 1945

Eighteen months after the first alarming East Coast shortages, and one full year of war, but only after trying almost every possible variant of indirect controls to limit end use consumption, the United States at last reluctantly took on nation-wide mandatory consumer rationing through an end-use consumer coupon system for both fuel oil and gasoline. While technically fuel oil rationing was launched in October 1942, it took at least three months to shake down at all and for all practical purposes the coupon system for both products can be said to have been launched at the same time.

No one liked it. There were shortcomings in the basic management which, in retrospect, one would have thought remediable. There were black markets too. But for all its faults, it worked. The overall achievement, in gross quantitative terms is discussed later in this report. But first a look at the system as finally installed and operating nationwide.

The mandatory consumer end-use rationing system which was in force during the last eighteen months of the war had the following interacting features, some desirable, others not:

An end-use consumer coupon ration scheme, based on the principle of differential essential use, with rations issued through 5,600 local price and ration boards,

Multiple, overlapping ration authorizing agencies,

A nationwide supplier limitation control system, self imposed by the petroleum industry and PAW, and operating concurrently with the consumer end-use coupon control scheme,

A serious problem of program credibility, and

A black market, small in relation to the program's total size, but flourishing.

These are discussed, in turn, below.

A. The consumer end-use coupon ration scheme

The World War II gasoline coupon system provided for six different categories of rations, for all gasoline-using forms of transport plus some off-highway uses.

Four of these categories were designed to take care of private passenger transport need. All private cars (or motorcycles) were allowed basic rations fixed at a level sufficient to permit 5000 miles of travel a year, or a reduction in private gasoline consumption of about 50 percent. Supplementary rations to take care of any additional occupational or other special needs were issued on a case by case basis.

The other two categories provided essentially unlimited supplies for commercial and agricultural needs, the rationing system being used mainly as a means of recording amounts used, whatever they might turn out to be.

Local ration boards—5,600 of them, supplemented by commodity or functional price and ration panels and largely staffed by volunteers—had the final responsibility for actually issuing the various types of ration coupons or coupon books allowed in each ration class. A nationwide system of ration banking, enlisting 14,000 commercial banks, was set up to handle the very large total volume of surrendered consumer ration coupons.

The ration banking system was needed then because, in addition to the gasoline and fuel oil coupons, there were millions of coupons and rationed sales certificates from five of the other commodity ration programs which were managed by OPA, for which at least some kind of system to account for issued and used coupons was essential simply for coupon inventory control.

It was the intent of the OPA coupon ration program planners that the reflow of surrendered gasoline and fuel oil coupons would be not only a way to closely regulate consumption but would also be the only and sufficient control to govern changes in civilian consumer petroleum products supply and demand.

Termed the "coupon reflow" concept, the rationale was described by former Deputy Director Paul O'Leary in these terms:

"The over-all blanket delegation of authority to O.P.A. to exercise the priorities power on sales of consumers' goods at the retail level (Directive No. 1, W.P.B., January 24, 1942) was O.P.A.'s original charter of rationing authority. But it very quickly became clear that the rationing authority must extend back of the retail level, at least to the point in the distributive channel where the market was narrowest. At such "choke point" or "bottleneck," controls could be made most effective; in fact, unless some such narrow "bottleneck" could be found, it was very debatable whether any really tight rationing program could be enforced.

Where the number of distributive units was fewest would clearly be the best level at which to impose close auditing controls, and the strategic point at which to withdraw ration currency from the market as it flowed back upstream from retailer to his supplier, etc. Only by requiring that there be no flow of goods downstream toward the retailer unless he sent ration currency upstream to his supplier, could a rationing system be made anything but a loose "honor system." All O.P.A. rationing programs except the first, temporary East Coast gasoline program of May-June, 1942, were built upon the principle of a rigidly closed system in which goods could flow forward in the market only against coupons flowing back from the point of retail sale, the cutoff and auditing point being where the market was narrowest, that is, where sellers were fewest. Ordinarily, this would be at some processing or fabricating level. Thus, in the case of tires it was the tire manufacturer, in sugar it was the refinery, while in coffee it was the importer. The significant point is that it was always behind the retailer level. Consequently, O.P.A. had to insist that Directive No. 1 always be supplemented by additional delegations of power for each commodity rationed, these supplementary directives extending O.P.A.'s authority to exercise the priorities power as far back in the market as was necessary to enable it to "close the system."

The concept may have been reasonably sound administratively as a post sales audit technique but it was questionable on economic forward planning grounds.

While the flowback system presumed that distribution would (and should) be governed by the pattern of spending of customers using their coupons in the petroleum industry post sales indicators of demand shifts would come far too late to permit adequate advance planning. The exchangeable nature of petroleum heating fuel oil and gasoline refining requirement demands seasonal decisions on allocations to refineries many months ahead of estimated end use consumer sales. It seems at least questionable that the coupon reflow system could ever work as its designers thought it would and should.

In any event, it did not function in this intended way during World War II. As described in Section C below, this concept never really became operative, and therefore the details of the reflow system are not elaborated in this review.

1. Private passenger transport needs

Four types of rations—Class "A", Basic; Class "B" and "C", Supplementary; and Special rations—applied primarily to private passenger cars, including those needed for occupational use.

"A" rations provided a minimum basic allowance, permitting 150 miles of occupational driving a month plus 90 miles of essential personal driving (e.g., to the doctor, church, for groceries), calculated at a flat 15 miles per gallon, regardless of the fuel consumption rate of the car. Each of 48 coupons in the ration book was valued at four gallons in the beginning of the program, later lowered as gasoline supplies became shorter. Each "A" coupon was valid for a strictly limited period of time, initially two months, to help regularize take-off of gasoline and prevent hoarding of coupons. Motorcycles received similar mileage based allowances, "D" rations, calculated at 40 miles to the gallon.

"A" rations were awarded to all owners of licensed cars who asked for them. The decision to make an across-the-board allotment was mainly one of manageability: with some 27 million cars believed eligible for "A" rations, individual screening of each case would have delayed nationwide controls almost indefinitely. In January 1943, a month after the system was introduced, 25,000,000 cars had been issued "A" rations.

"B" and "C" rations provided additional occupational mileage for private vehicles, on a showing that no alternative means of transportation was available and that carpooling was being adopted as far as possible. "B" rations permitted additional gasoline sufficient to increase travel to 470 miles a month. "C" rations were issued to those who had occupational requirements of over 470 miles a month, and in addition fit the category of a "preferred user": Government officials using personal cars on official business, mail deliverers, public school teachers and officials, doctors and nurses, morticians, ministers, farmers, labor organizations, workers and travelling salesmen in occupations essential to the war effort. "B" and "C" rations were intended to be tailored to the individual application and need.

Special rations covered such cases of transport needs as taking voters to the polls, transport for candidates on campaign, scientific expeditions justified in times of national emergency, soldiers on furlough exceeding three days, and other special demands including motor boat uses not covered by other rations. These were intended to be one-time allowances issued for periods of not to exceed six months.

While the list of "preferred users" might appear to be so broad as to be almost infinitely expandable, comparatively few "C" rations were issued. In January 1943, 6,400,000 car owners (out of the 25,000,000 "A" ration holders) had been awarded "B" ration supplementals and only 3,600,000—about 15 percent—were awarded "C" rations.

2. Commercial and agriculture needs

The next category, Service rations ("S–1" and "S–2", later changed to "T" rations) was designed for commercial users, covering about 5,000,000 vehicles in 1943. These included the large number—about 3,500,000—of commercial buses and trucks transporting passengers and goods; about 250,000 official civilian government vehicles; public rental vehicles (80,000) including taxis and rent-a-cars; and over one million trucks owned by farmers. In general, all of these required Certificates of War Necessity, issued by the Office of Defense Transportation, before they qualified for gasoline along with other requirements such as tires, spare parts, replacements. Once these certifications of essential occupational use were received, gasoline coupons were issued by the local Ration Boards to these candidates in whatever amounts were requested.

Non-Highway rations (Classes "E" and "R"), which went primarily to owners of gasoline-using agricultural machinery, were also issued by local Ration Boards in any amount requested. These rations also covered stationary and industrial engines, construction equipment, boats and civil aviation needs.

The service categories provided, in effect, privileged unlimited ration use, in combined volume well in excess of that authorized under the "C" supplemental rations for preferred users.

Privileged, even unlimited, access to supplies is a concept not unusual in any rationing system based on differential essential use. While it may cause some serious inequities if the volume of rations authorized for preferred users uses up virtually all available supplies, this problem can at least be foreseen if the ration issuing agency knows ahead of time both its probable quota of supplies for the next ration period and the outstanding volume of probable consumer claims.

During World War II, this was not to be the case.

B. Multiple gasoline ration authorizing agencies

Perhaps the single greatest handicap in the gasoline rationing program during World War II was the fact that several agencies besides the OPA exercised authority over certifying essential end-use consumer gasoline needs.

There were, of course, also many jurisdictional disputes over policy and program control, and there were many rival claimants for scarce supplies. These are common to any program, though, and need not be belabored here. Not rival claims but the authorization for access to ration coupons in amounts greatly exceeding available supply was the key problem.

As mentioned earlier, the Local Ration Boards were assigned authority and responsibility for physically issuing all six types of consumer coupon gasoline rations. In practice, their control over deciding on and limiting the amounts to be issued was restricted to the four rations classes applying to private passenger vehicle use: "A", "B", "C" and Special, which amounted to less than half of the total civilian gasoline consumed.

The Office of Defense Transport had authority over issuance of "Certificates of War Necessity", needed to give any commercial truck or bus owner, including agricultural truck owners, preferential treatment in obtaining tires, spare parts, vehicle replacement and gasoline. Beginning November 15, 1942, under ODT General Order 21, ODT undertook to issue nearly 5,000,000 such "Certificates of War Necessity", accepting the claimant's estimate of mileage need as equivalent to justification and, at the offset, accepting virtually all commercial vehicles as being by definition essential to the war effort.

The administrative procedure adopted by ODT, which lacked a large field organization, was unfortunate. Descriptions and criticism of its operation make lively reading. A lengthy form of some 32 pages, requiring three year quarterly records of actual past mileage and gasoline consumption, was mailed out by one office located in Detroit, allegedly selected because the firm had a mailing list for all the owners of the 5,000,000 trucks and buses which would be involved. All forms were to be mailed back to this firm, to be reviewed there. Certificates of War Necessity authorizing access to scarce supplies, including gasoline, were then issued by ODT. These Certificates had longer periods of validity than the Service class coupons subsequently issued by the Local Ration Boards against the total rations authorized by the Certificates.

The complaints were deafening. In March of 1943, approximately 320,000 complaints had been received from 3,500,000 truck owners. Particularly outraged were the one million farmers owning trucks, unable and unwilling to separate commercial use from personal requirements and already accustomed to top priority treatment and award of gasoline on demand, even in the gas-short East Coast district 1.

Backed by the Department of Agriculture County War Boards, ODT backed down on farmer trucks. District offices of ODT which handled appeals on Certificates of War Necessity were instructed to accept the County War Board's recommendations for farmers' needs except in case of obvious error. The net result was to leave authorization of volume of gasoline ration needs for farm vehicles in the hands of the Department of Agriculture.

With Service rations issued in large amounts valid for twice the period of time allowed for basic "A" ration coupon holders, even ration boards familiar with the volume of available supplies had no way of knowing how many legitimately issued Service coupons were still outstanding at any point in time. Nor, in fact, did the OPA itself.

During the Maloney Committee investigations of gasoline and fuel oil shortages, the following exchange took place between the Chairman and the Director of the Automotive Supply Rationing Division of OPA:

The Chairman: But there could be twice as many coupons out as there are barrels of oil in the tanks?

Mr. Phillips: It is conceivable that is correct.

The Chairman: Does that give you any worry about a black market?

Mr. Phillips: If they were outstanding, I would be very definitely worried about that.

The Chairman: But they may be outstanding, so far as you know?

Mr. Phillips: The point is, we do not have records at this moment which would allow us to say one way or the other that that is correct.

Subsequently, the ODT reviewed its criteria for essential commercial users, found many of the initial applicants to be less essential than they had originally been certified to be and disqualified a large number of its original essential occupation categories.

The damage was, however, already done. Large numbers of not yet used Certificates, as well as Service coupons already legitimately issued, were outstanding at the time the initial Certificate of War Necessity criteria were changed.

Compounding the problem, was the fact that all coupons were issued for varying periods of time. Even in areas where the coupon issuance was not excessive or where there were no counterfeits or other black market, the coupons were good over a relatively long and varying period of time and could be cashed on the first day, or any other time in the period. Conequently, even if the total number of legitimate ration authorizations outstanding had been known, there was no way to adjust each day's changing supply to the day's actual demand.

The following table illustrates the variety of time periods or validity for the various coupon ration classes:

Type of ration coupons and time period of validity:

"A" Basic, Two months.

"B" Supplemental, From three to 12 months, depending on occupation and total mileage needs.

"C" Supplemental, Three months.

Special rations, Up to six months.

"D" Motorcycles, Two months.

Service: Commercial and Agricultural, Four months.

Non Highway Rations: mainly Agricultural, Six months.

Far from being the "closed system" contemplated by the OPA economists, from the beginning to the end of the gasoline consumer coupon ration program, there were always many more "legitimately" issued coupons outstanding than there were gallons of gasoline to be supplied. The initial major error could never be entirely reversed and this high volume of over-issued coupons—nearly all "legitimate" according to regulations governing the multiple authorizing authorities at the time—was a major source for the large black market in gasoline which quickly grew.

Given these great administrative gaps and fissures in the system, it is surprising that the rationing scheme could work at all. For a clue as to how it did, it may be useful to examine the next feature of the system: Continued supplier limitation controls.

C. Supplier limitation controls

While the overall administration of the mandatory consumer coupon rationing system involved many agencies, the two principal participants—and strong contenders for more power over redistribution of supply—were the PAW and OPA. A mid-1943 high level executive decision divided the task roughly between them, assigning PAW responsibility for controlling availability of supplies in each of the five districts. OPA was handed the responsibility for administering coupon rationing.

This did not stop the argument. As earlier described, the OPA contended that the pattern of demand reflected in surrendered gasoline coupon rations from consumer back to the original supplier—"coupon flowback"—should be sufficient to determine the continuing or changing pattern of petroleum supply and flow. PAW argued that it simply wouldn't work, because to have any chance of meeting estimated fuel oil and gasoline demands, allocations to refineries must be decided months ahead of end use sales.

Then, as now, the heated battles over supplier limitation methods vs. consumer rationing obscured a most important fact:

Some form of nation-wide supplier limitation was practiced throughout the war and was the reason consumer coupon rationing was possible at all. Although not sufficient in itself to curtail and redirect pri-

vate civilian gasoline consumption to any considerable degree, supplier limitation was an indispensable component of that war-time coupon ration scheme.

Some kind of supplier allocation control, self-imposed and administered by the petroleum industry itself, has always been a part of the peacetime domestic petroleum distribution system, particularly during periods when supplies were plentiful but demand was low.

The need for this is reasonably clear: The nature of the petroleum production and distribution process, coupled with the great volume of demand which each year shifts seasonally between large amounts of gasoline and fuel oil, makes buffer storage stocks on any significant scale impractical. Hence the industry has regulated itself through various means, including regional industry committees and commissions, cutting back production at the well head, ordering shifts from gasoline to fuel oil as needed, essentially "storing" its gasoline and fuel oil as crude oil underground or in the distribution and refining "pipelines" along the way. In the case of East Coast requirements, future needs were "stored" in projected import orders scheduled to arrive in time for processing and delivery from refinery to consumer, with little or no time lost in inventory tanks.

Intelligent forward planning required that decisions on how much oil should be refined as heating fuel and how much as gasoline needed to be made at least six months ahead of ultimate consumer sales.

After nationwide rationing was installed in December 1942, the War Production Board revoked all former official supplier limitations and quotas, whether voluntary or mandatory, which had earlier been laid down, on the grounds that the OPA planned "flow-back" of the consumer ration coupons would now govern petroleum flow. On the basis of shifts in demand revealed by such "reflow" patterns, the OPA would issue new directives changing amounts to be allowed for each class of ration coupons and for each coupon in each class.

Whatever else the rest of the government thought had been accomplished by the rescinding of the WPB controls, PAW and the petroleum industry ignored the revocation and continued practicing some form of supplier limitation throughout the war.

With few exceptions, the only place the ration coupon governed supply was at the consumer level. Any consumer with a coupon might call on any outlet to honor the coupon, and if the outlet had any of the product it was technically bound to supply the amounts authorized.

But from that point on, industry supplier limitation quotas governed petroleum flow. Under PAW Directive 59, issued September 25, 1942 and PAO–1, issued December 12, 1942, every original supplier in each of the five petroleum districts received his proportionate share of all available supplies in each of many zones within each of the five districts, based on his historical sales in that zone. Distribution of total supplies among the five districts was not based on that district's historical sales, however, but was adjusted to meet war-brought changes in demand.

Promising so far as possible a system of proportional allocations to suppliers and distributors in which the levels of reduction asked for still equitably preserved pre-war competitive status, PAW and the industry secured voluntary cooperation among the principal supplies in accepting and distributing reduced supplies.

The elaborate set of industry committees which had been set up within each district was continued, with supplier participation. Quarterly forecasts of supply and demand with seasonal adjustment were elicited from each original supplier. District 1 alone had more than 70 original suppliers to be placated, cajoled, enlisted and supplied. Inevitably, there had to be changes from the prewar historical pattern of deliveries, but these were also agreed upon and managed through the system of many regional and nationwide petroleum industry supply and distribution committees.

The essential interdependence of systems of supplier limitation and consumer coupon rationing in situations of severely reduced gasoline and fuel oil supplies was acknowledged by PAW and, at least by implication, by OPA.

By the end of 1942, PAW and the petroleum industry were urging consumer coupon rationing as protection for gasoline station owners and fuel oil dealers too, for whom the task of deciding equitably among regular consumers which were more essential than the others became impossible.

OPA, on its part, had never argued that *no* supplier limitation system would be needed, only that consumer coupon reflows through dealer, and distributor to the original supplier points—the "choke points" in the system—would provide a sufficient and early enough index on which to base its own changes in supplier allocation orders and force tight rationing controls. During World War II, it was not OPA but PAW and the industry who, through their continued system of supplier limitations, controlled the key "choke points."

As confused by partisan debate as the historical record is, a careful reading makes it very clear that while no equitable consumer rationing system can depend on supplier limitation efforts only, neither can it survive on consumer coupon rationing alone. Both are needed for successful control of any very scarce essential national consumer needs.

D. The credibility gap

It would be hard to overestimate the problem of achieving credibility which the World War II gasoline and fuel oil consumer rationing programs faced.

The skepticism with which the public viewed the appeals for gasoline rationing, based on shortages of entirely different natures—a shortage of tankers sunk by German submarines which interrupted East Coast supplies, not enough rubber for tires—has already been remarked.

In addition to these, however, the program faced both the public's negative reaction to overissuance of coupons against announced supplies, which has just been described, and two other impractical and unrealistic components of the consumer gasoline and fuel oil curtailment program attempts.

These were the fuel oil criteria exercise and the pleasure driving ban.

1. Fuel Oil Rationing Criteria

With so long a period of clear warning and with some experience under their belts, one might have thought that deciding on fuel oil use criteria would be a fairly simple task for OPA, particularly since the estimated fuel oil shortfalls was, by then, already calculated to be at least 25% during the 1942–43 winter heating period.

A straight line reduction along this basis, applicable to all previous consumers of record, with exceptions including new consumers, to be awarded on a case-by-case basis seemed by some to be a practicable approach.

As the Chairman of a Special Senate Committee to investigate the national defense program, the then Senator Harry Truman reported:

Lack of confidence between business and Government wherever it arises is a serious handicap in our war effort. Lack of confidence by the people generally in the intelligence, reasonableness, or integrity of their Government can mean disaster.

In all except rare instances home owners knew or were able to ascertain how much fuel oil they used last year. Since it must be assumed that they did not desire to waste their own money by purchasing fuel oil they did not need, the Office of Price Administration should have assumed that they purchased it because they needed it. Consequently the committee is of the opinion that if the Office of Price Administration had concluded that a straight-line cut could be made without rendering the home uninhabitable, it should have proceeded in the first instance to make a flat percentage cut in each area with provision for application by individual home owners for more fuel oil where they could prove a necessity by reason of special circumstances and with provision for review by local boards of those situations where by reason of special circumstances less fuel oil would be sufficient.

Instead of doing that the Office of Price Administration, through its experts, has examined the temperature statistics for the last 43 years in each of the thousands of counties involved to ascertain an average temperature for each county; has then determined the number of square feet that its experts think should be allowed for each individual, which number differs with the number in the family, and then has determined the number of gallons of fuel oil which its experts have determined should be consumed in heating that many square feet to the temperature which the experts expect to have prevail in that particular county. All of these figures have been reduced to complicated tables which are consulted by volunteer clerical workers to determine the amount of fuel oil which each householder is to receive.

As he pointed out, these formulas ignored actual house size, differential insulation, wind exposure or window size.

In defense of OPA, logically these kinds of calculations would appear to be essential for any kind of really rational rationing plan. To award fuel oil deliveries solely, or primarily, on an across-the-board reduction from last year's use would be to penalize last year's efficient energy conserving user or the owner of an old and drafty house. In addition, if the prospect for a warmer winter can be pinned down, failure to allow for this might involve a disproportionate allocation of winter heating fuel at the expense of the following summer's essential and rising gasoline requirements.

Conceptually, the shortening of the approach would seem to be one of timing.

These kinds of calculations could very usefully have been made, not as criteria for use by Local Ration Boards in estimating an end-use consumer's 1942–43 personal household heating ration issue needs, but as a forward planning input to calculate the following year's probable and essential minimum civilian demand for heating oil. For this purpose, an estimate by U.S. geographical area based on actual floor space, fluctuations in winter temperature and number of persons in the families involved, would need to be provided well in advance, in time for crucial decisions to be made between how much oil should be allowed for refining gasoline after essential civilian heating and other winter fuel oil needs are covered.

In practice, the formulas proved less time-consuming or damaging to equitable distribution than they might have been because the Local Ration Boards' largely voluntary recruits developed their own rule-of-thumb calculations for initial allocations: So many gallons to a square foot of floor or "what did you use last year?" The following year, being a milder one, adjustments to the previous year ad hoc allotments were comparatively easy.

Nonetheless, the publicity which was, not surprisingly, profuse about the complicated fuel rationing criteria damaged the credibility of the whole mandatory consumer coupon ration allocation scheme.

2. The Gasoline Pleasure Driving Ban

A great deal has been written about the gasoline pleasure driving ban during World War II and why it failed. The OPA account is especially detailed on this subject.

The crux of all the narrative accounts is that the reason for the first imposition was that reduction in gasoline coupon values failed to bring gasoline consumption down in the East Coast District 1 to the allotted figures of supply. To correct this, a "pleasure driving ban" was announced January 7, 1943, then was revoked March 22, 1943, reinstated May 1943, relaxed July 14, 1943, and revoked entirely September 1, 1943.

None of the arguments appear to focus on the basic logical inconsistency, and therefore the large credibility gap, which contributed to its non-observance:

The original estimate in basic coupon "A" private passenger allowances for gasoline was made on the basis of an estimated essential use covering about 5,000 miles per private car per year. This cut the personal use of the average driver from 9600 to about 5400 miles a year.

Considering the fact that all the differential essential use criteria employed in the coupon ration system gave preferential allowances to both car pooling and public mass transportation uses, it was wholly inconsistent to try additionally to cut back on the use of the meager basic weekly gasoline allowance of the man who had extended its effectiveness by joining car pools and using mass transit.

Any public view of program credibility assumed that the overall 50% reduction in mileage of gasoline allowances for private civilian use was also based on an assumption that, however severely civilian use was reduced, supplies would at least be programed so as to be able to cover this drastically reduced level of basic civilian demand. Within this severe limitation, any one should be allowed to reprogram his personal uses of his ration, however drastically reduced.

Hence, the fundamental conceptual basis of the whole gasoline ration plan as conceived during World War II was undercut by the "pleasure driving ban."

During World War II, the American public, even though the majority complied with its inconveniences and stringencies, disliked the gasoline rationing system. However, they disliked even more the feeling they had been "had".

Any time gasoline and fuel oil shortages—however real—are thought to be contrived, or criteria for rationing allowances are considered to be illogical, public compliance with any kind of rationing regulation is likely to be poor.

E. Some comments on the World War II black market

No one disputes the fact that during World War II a flourishing black market in gasoline coupons took place. Some of the historical details are very well summarized in the previously cited "Highlights of Gasoline Rationing in World War II". According to that report, about 5% of rationed gasoline was misused as a result of "Counterfeit and stolen coupons."

Given the multiple ration issuing authorities, described in Section III–B above, which gave rise to a very large volume of legitimately authorized coupons outstanding in excess of supplies at any point in time, what is astonishing is that no more than 5% of the gasoline found its way into black market channels. It should also be remembered that during that period perhaps the only method of gasoline and fuel oil allocation control which was *not* tried was to allow prices for fuel to rise to a market equilibrium. Throughout the war, prices rose less than 1% after nationwide coupon rationing was installed, despite the very short civilian availabilities, another reason to be surprised that the black market got only 5%.

As to adequacy of enforcement personnel: During World War II, OPA's thinly spread enforcement personnel covered not only eleven different end use consumer rationing programs but also the nation wide rent and price control regulations, and their infringements, too.

Today, the energy crisis, great as it is, is a singular, peacetime challenge. To the degree that non-compliance with any of the prospective consumer end use restrictions may need extraordinary enforcement measures, the nation's regular enforcement agencies are already in place: Police, IRS and FBI. There may be no need for any separate enforcement cadre. If gasoline and fuel oil consumer end use controls are made mandatory, the ordinary regular policing agencies could well be adequate to cope with any practical rationing program. They could be expanded to the extent necessary.

IV. CONCLUSIONS

Consumer end use rationing during World War II had a stormy course throughout its life. Coupon values and their periods of validity were in almost constant flux, varied frequently in an attempt to match regional and seasonal shortages or just to keep on top of burgeoning and shifting war industry demand.

Some of the problems which plagued its history, in hindsight seem avoidable; many are inherent in any mandatory consumer end use ration scheme.

Nonetheless, despite coupon overissuance, the frictions of administrative overlap, the gap in program credibility, when the war ended eighteen months after the system was installed, one fact was clear. The system was working well enough to actually achieve its intended goals:

Petroleum supply had been redirected from surplus areas to the deficit East Coast in volume sufficient to meet rising military demand and basic civilian needs.

The pattern of overall civilian demand had been greatly changed to achieve redirection of supplies to the most essential civilian use.

A. The overall accomplishment

The redirection of supply to the East Coast was not so much a consequence of consumer end use rationing as it was of improved petroleum product transport systems and effectively applied supplier allocation controls. However, the consumer ration program reinforced these supplier limitation controls and was itself reinforced by them.

The redirection of civilian demand took place only after the nationwide end use consumer ration system was applied. While mandatory consumer end use rationing of fuel oil and gasoline was of course not the only factor in achieving this reduction and redirection of civilian demand, most observers of the time agree that it played an important—even indispensable—role.

While the total supply of fuel oil rose from 662,900,000 barrels in 1941, to 830,000,000 barrels in 1944, most of this went to war needs. Civilian supply was down 18% below the 1941 level and many households absorbed cuts of even more, to permit essential users such as hospitals to have additional supplies and to allow for the increased numbers of new homes, apartments and trailers using fuel oil.

Although total gasoline supplies also increased, gasoline for civilian use dropped sharply by almost one-third, down from 1,706,000 barrels per day in 1941 to 1,219,000 barrels per day in 1944, with the biggest bite in passenger car use.

Figure 1 shows the dramatic increase in total gasoline production during the four wartime years, also illustrates the significant reshaping of the pattern of civilian gasoline demand. When the offtake for military needs is subtracted from the chart, it is easier to see how sharp the drop was in personal passenger car use, enabling the increased allotments for agriculture and essential commercial use.

The record speaks well, too, for the automobile conservation effect of the stringent gasoline restrictions: At the end of 1944 there were still some 24,000,000 civilian passenger cars on the road, 10,000,000 of which were still being driven carefully on the same tires they had in 1941, creeping along at 35 miles an hour.

For all the errors and shortcomings of the system, awkwardly and painfully, most of them were either corrected or contained. For the War's last critical year, a gasoline and fuel oil end use consumer rationing system was in being that served the country's needs.

B. Some comments on the experience

Among the many options now being studied, even among those who agree that some system to limit use of both gasoline and fuel oil is unavoidable, the major issue still seems to be whether equitable distribution can be achieved without recourse to mandatory consumer end-use controls.

The lesson of the U.S. experience during World War II was that—for that emergency, at least—it could not be done. Voluntary and indirect controls on consumer's end use demands were tried. Even the most ardent partisans of voluntary means agreed they failed. They agree as well that long delay and continuing vacillation made the problem of acceptance worse when finally the choice of mandatory consumer end use rationing had to be made.

The question naturally arises as to whether, since the situation was so different, can anything be learned? Actually, there would appear to be more similarities in the two situations than might first meet the eye. There are several aspects of the current energy emergency—despite its peacetime matrix—that are almost the same:

There is a shortage of refineries.

The East Coast still depends on imports to augment its petroleum needs.

The East Coast still consumes most of the country's total petroleum supply.

Existing surpluses in some districts still give rise to the cry of "phoney" shortages, even after two winters in which many areas have felt the fuel oil pinch, and a summer when gasoline ran short and prices per gallon of gasoline in some cities soared up to a dollar.

A carefully balanced arrangement between the oil-rich Southern and Western sources of supply is managed through the industry's own internal distribution system which adjusts and allocates surpluses to deficit areas of great demand.

The nature of the storage problem has not changed. Storage capacity is still small in relation to the volume of demand.

And the current energy emergency's duration is seen by many as likely to extend into the future just about the same amount of time: Up to four years, and perhaps more.

It is also true, of course, that there are obvious differences today. There are four times as many passenger cars and much less domestic margin for increased production in relation to the extraordinary levels of demand. But because there is no worldwide war, many of the administrative problems need not be quite as chaotic as before.

Should a mandatory consumer rationing program appear necessary once again, the following general considerations drawn from our own experience may usefully be kept in mind:

1. The system was only effective when extended nationwide, suggesting that even if regional differentials are allowed, the system as a whole must apply to everyone.

2. Compliance was seriously eroded by the gap in credibility. To have a reasonable

chance of good compliance, the public must be persuaded that gasoline and oil shortages are not contrived, but really do exist.

3. The World War II ration scheme was severely handicapped by the existence of several ration allowance authorizing authorities. The ration issuing authority (OPA) never knew how many coupons were outstanding at any point in time. To fuel a black market with a large volume of "legitimately" overissued ration coupons seems an unnecessary complication to be imposed on any scheme.

4. The different categories of gasoline rations were issued for varying periods of time. The result was that even for the categories for which OPA controlled both authorization of amount and actual ration issuance, it could never be determined how many coupons were still outstanding in any region at any time. While this problem can never be completely overcome, it can be reduced in scale if all categories are issued as valid for a strictly limited period of time and for the same period of time. In addition to helping to regularize inventory control, it would permit periodic reviews of probable changes in supply and in demand, so the volume and the value of the ration currency can be more rationally adjusted from time to time.

5. Some form of nationwide supplier limitation was practised throughout the war and was the reason end-use consumer coupon rationing was possible to apply at all. Since petroleum product allocation decisions had to be made long before the point of sale, the supplier limitation scheme allowed the degree of forward program planning without which end-use consumer demand cannot equitably be served. Conversely, supplier limitation required end-use consumer rationing before consumer demand could be controlled.

Even with all its shortcomings and the extraordinary wartime problems peculiar to that time, the World War II mandatory end-use consumer ration program worked primarily because there was extremely close government-industry cooperation based on the understanding that it should.

Ideally, responsibility for planning and mobilizing petroleum supply and controlling all end-use demand should be vested in one agency which also has access to continuing feedback information on changes in demand and estimated future changes in supply. While at no time during World War II was this management ideal achieved, given all the handicaps, we came astonishingly close.

APPENDIX

EXHIBIT 15

WAR PRODUCTION BOARD,
Washington, D.C., July 1, 1943.

Hon. HAROLD L. ICKES,
Hon. PRENTISS M. BROWN,
Hon. JOSEPH B. EASTMAN.

GENTLEMEN: The purpose of this letter is to summarize our mutual understanding as to interagency relationships with respect to the problem of petroleum supply and distribution. It will be understood that existing arrangements are modified only to the extent specified in this letter. In all other respects, existing delegations of authority and the correspondence between Mr. Ickes and myself dated December 11, 1942, and January 7, 1943, will remain in effect. All provisions of existing Executive orders remain unaffected.

1. *Supply.*—The maintenance of an adequate supply of petroleum products in the amounts, and at the locations, necessary to meet rationed and other allocated demands will continue to be the primary responsibility of the Petroleum Administration for War. This responsibility shall extend not only to the production of petroleum but shall also include the distribution of petroleum within the industry, including retail outlets, up to the point of transfer and delivery to consumers. In setting the quotas for the various rationed areas, PAW will follow the pattern of the rationed demand as shown by returned coupons. Pursuant to Executive Order 9276, PAW's authority with respect to supply shall be exercised subject to the direction of the Chairman of the War Production Board. In addition, the authority described in this letter shall be exercised subject to the authority of the Office of Defense Transportation over transportation under existing Executive orders.

2. *Distribution procedures other than rationing.*—Pursuant to my letter to Mr. Ickes of January 7, all orders relating to the distribution of petroleum products other than rationing orders will be issued in the nature of, and administered by, the Petroleum Administrator, subject to the clearances, approvals, and other procedures specified in that letter.

3. *Requirements and allocations.*—The Petroleum Administrator or his nominee will serve as chairman of a Petroleum Requirements Committee, functioning within PAW. As chairman he will divide the available supply of petroleum products among the various claimant agencies, after obtaining the advice of the committee. The committee shall consist of representatives of each of the various claimant agencies having substantial requirements for petroleum, and in addition shall include one representative of OPA and one or more representatives of WPB.

The ODT representative on the Petroleum Requirements Committee will present all requirements for petroleum products for the Nation's transportation system, including passenger cars. The WPB representatives will present industrial and civilian requirements for other petroleum products.

All allocations shall be made as long in advance of the period covered as is practicable and shall be promptly transmitted in writing to each claimant agency and to the chairman of the WPB Requirements Committee.

In the event of a dissent, any agency may appeal to the Chairman of the WPB, through the WPB Requirements Committee. Pending such appeal, if requested by the dissenting agency, no action to put the decision into effect will be taken.

4. *Petroleum rationing.*—OPA, acting under existing delegations, shall have the primary responsibility for developing and executing petroleum rationing policies, plans, procedures, and operations. In particular, OPA will be responsible for devising and administering a system under which the rationed demand is kept within available supply.

Pursuant to Executive Order 9276, the Petroleum Administrator will "determine, after advising with the War Production Board, the areas and times within which such rationing should be effective and the amount of petroleum available for such purpose."

With respect to petroleum products needed for transportation, ODT will determine, within the quotas so established, in what relative volume such products should be distributed by classes of transport facilities, for example, passenger cars, trucks, busses, etc. In addition, present arrangements under which ODT determines the amount of gasoline to be rationed each operator of commercial vehicles and certifies such determinations to OPA will be continued. Such determinations shall be binding on OPA only if and when the total amounts thus certified by ODT are not in excess of the total gallonage allotted for this purpose. WPB will continue to determine the relative essentiality and priority of the various competing industrial and civilian uses of all petroleum products, including gasoline. OPA will promptly notify WPB if it believes any of such determinations to be impracticable from an operating or administrative standpoint.

In determining and revising the policies of rationing, OPA will operate with the advice of a Petroleum Rationing Policy Committee, consisting of representatives of OPA, ODT, WPB, WFA, and PAW. The Price Administrator, or his nominee, will be chairman of this committee, and all decisions on matters presented to the committee will be made by him after obtaining the advice of the committee. In the event of any dissent from his decision, the dissenting agency may appeal to the Chairman of the WPB. If requested by the appealing agency, no change in policy will be put into effect pursuant to the decision for 2 days, unless earlier action is permitted by the Chairman of the WPB.

5. *Public information.*—Because of the public confusion caused by the issuance of conflicting and duplicating information, the following decision by the Office of War Information is to be followed in handling information problems relating to petroleum supply and distribution.

(*a*) Information regarding petroleum supply will be issued in the name of the Petroleum Administration for War.

(*b*) Information regarding rationing policies, plans, and procedures will be issued in the name of the Office of Price Administration.

(*c*) Information regarding transportation aspects of the petroleum situation will be issued in the name of the Office of Defense Transportation to the extent that ODT bears the principal administrative responsibility for the matter with which the information is concerned.

(*d*) The Office of War Information will clear all government information relating to petroleum with the Petroleum Administrator.

(*e*) The Office of War Information will also make such cross clearances relating to petroleum information with other agencies involved as may be necessary to reflect their respective responsibilities and to effect a consistent, accurate presentation of petroleum facts and figures, so as to make public all information that can be issued within the limits of military security.

(*f*) All releases relating to petroleum will be cleared by and issued through the Office of War Information.

This decision by the Office of War Information is in accord with a directive letter issued by the Director of the Office of War Information on December 15, 1942. The intent of the foregoing statement is to see to it that the issuance of petroleum information is generally carried out in a way which will reflect the various administrative responsibilities involved.

I am requesting each of the agencies to indicate its acceptance of this outline of relationships by signing and returning to me the enclosed five copies of this letter. Duplicate originals will then be distributed to each of the agencies with the expectation that copies will be circulated among the operating staffs of all of the agencies.

Very truly yours,

DONALD M. NELSON.

Approved.

PETROLEUM ADMINISTRATION FOR WAR,
By HAROLD L. ICKES, *Administrator.*
OFFICE OF PRICE ADMINISTRATION,
By PRENTISS M. BROWN, *Administrator.*
OFFICE OF DEFENSE TRANSPORTATION,
By JOSEPH G. EASTMAN, *Director.*
Dated July 1, 1943.

PAYING RESPECTS—PEARL HARBOR DAY

Mr. BIDEN. Mr. President, this Friday, December 7, 1973, marks the 32d anniversary of a tragic event in American history, the attack on Pearl Harbor. On that fateful day, more than 2,100 men were killed and the United States was forced to enter a war that we had hoped

to avoid. Members of my family, as well as most other American families, responded in force to the cause of liberty.

Although I was not born until the following year, World War II was not without impact on my family—one of my uncles was killed.

Accordingly, Mr. President, I wish to pay my respects to all those who sacrificed their lives, the many who were wounded, and for all those who have served and now serve in the Armed Forces.

THE GENOCIDE CONVENTION AND FREE SPEECH

Mr. PROXMIRE. Mr. President, some people who oppose the Genocide Convention do so because they believe that American ratification of this treaty will destroy free speech in the United States. They believe that article III of the convention will empower the Government to prevent citizens from exercising their constitutional right to speak as they please.

This argument is wrong on two counts. First, it conveniently overlooks the first amendment to the Constitution which specifically guarantees all Americans the right of free speech. Article VI says that the Constitution is the supreme law of the land. Acts of Congress and treaties are also the supreme law of the land when they conform to the Constitution. The U.S. Supreme Court and other Federal courts have consistently maintained that acts of Congress and treaties must conform to the Constitution, and where they do not they are null and void. Thus, the Genocide Convention cannot in any way abridge the freedom of speech guaranteed under the Constitution.

Second, the crime defined in article III(c) of the convention is "direct and public incitement to commit genocide." To prohibit public incitement to commit genocide would not be an abridgement of free speech. It has long been recognized that the first amendment does not give a person the right to say anything he wants. A person cannot say a libel. A person cannot give false evidence under oath. A person cannot incite others to commit any crime, whether murder, arson, riot, or, if this treaty is ratified and the implementing legislation enacted, genocide.

Mr. President, I call upon the Senate to ratify the Genocide Convention as soon as possible.

VETERANS' BENEFITS

Mr. McCLURE. Mr. President, it is my feeling that the men and women who faithfully gave their services to our country deserve a high priority. We should do all we can to meet the varying needs of our veterans.

As the needs of our country change and as the costs of preparing ourselves to meet these needs change, a reevaluation of educational and readjustment benefits that are provided for our veterans must occur.

The introduction yesterday, December 6, of legislation to improve upon present veterans' benefits will stimulate such a necessary reassessment. Following open hearings at which full disclosure of all facts and viewpoints can be aired, I feel we will be able to report for final passage an equitable bill designed to best meet the current needs of our veterans.

A TRIBUTE TO NICHOLAS JOHNSON

Mr. MUSKIE. Mr. President, this week marks the retirement of Nicholas Johnson as Commissioner of the Federal Communications Commission. His service to the public in Washington deserves tribute.

As an FCC Commissioner for the past 7 years, Nick Johnson has been a stalwart supporter of the consumer's interest in broadcasting. He has brought fresh meaning to the standard by which that industry is regulated: the "public interest." His formal opinions as FCC Commissioner, and his other writing both scholarly and informal, have been marked by imagination and independence. He has been a major force in support of public responsibility in broadcasting.

Predating his FCC service is Nick Johnson's record of achievement in the legal profession and in Government service. And I am certain that his accomplishments will grow in the years ahead.

Mr. President, in his service in Washington Nick Johnson has proved dedication to the motto of his native State of Iowa: "Our liberties we prize and our rights we will maintain." He has my best wishes for a continued career of distinction.

S. 2784 AND OTHER RECENT DEVELOPMENTS AFFECTING VETERANS EDUCATION PROGRAMS

Mr. CRANSTON. Mr. President, yesterday, I was pleased to join with the distinguished chairman of the Senate Veterans' Affairs Committee, Senator HARTKE, members of the committee, and Senator HOLLINGS, in cosponsoring the proposed "Vietnam-Era Veterans' Readjustment Assistance Act of 1973."

For many months now, I have been deeply concerned by reports I have received about the particular problems facing Vietnam-era veterans. The inflated economy, scarcity of jobs, and lack of adequate GI bill benefits until very recently have made it difficult for some veterans, especially those who must work to support a family, to finish their education within a fixed period of time.

Although Public Law 92–540, the Vietnam-Era Veterans' Readjustment Assistance Act of 1972, has resulted in substantial improvements and increases in benefits to GI bill trainees, it is clear that there remains much room for improvement in providing readjustment assistance to our Nation's Vietnam-era veterans. I believe that S. 2784, the proposed "Vietnam-Era Veterans' Readjustment Assistance Act of 1973," will considerably improve existing programs to insure Vietnam-era veterans of educational opportunities and readjustment assistance on a level more equitable with those benefits available to veterans of World War II and the Korean conflict.

Mr. President, the Senate bill, which we view as a starting point from which the committee will consider changes and alternatives following hearings to be held soon after the Congress reconvenes after the Christmas recess, expands, somewhat, the bill currently being considered and expected to be passed by the House, and I plan to recommend, in the weeks ahead, a number of amendments to the Senate bill.

The major provisions of the bill introduced yesterday include a 25 percent increase in the rate of GI bill assistance. This increase represents only an 8 percent increase over the rates of GI bill assistance that would have been made available had the full increase authorized by S. 2161, in the 92d Congress, gone into effect September 1. The rate for the single veteran, without dependents, studying full-time would have been $250 per month. Our calculations at that time indicated that this rate—an increase at that time from the then existing $175 rate—was required to provide comparability with the level of assistance provided under the Korean conflict GI bill, and to be generally equitable with reference to the World War II level of support. However, we were only able to convince the other body to accept an increase to the present rate of $220 per month for the single veteran, without dependents, studying full-time.

Mr. President, the increase in rates of educational assistance benefits we are proposing would mean that the full-time institutional rate for a veteran with no dependents would be increased from $220 to $270 per month. The bill also provides for an extension of the period of time—from 8 years to 10 years—during which educational assistance benefits are available to veterans. Additionally, S. 2784 would improve the employment opportunities available to veterans and, in some cases, their dependents, by improving and expanding the provisions governing the operation of the Veterans Employment Service and by providing again, as we did in the Senate version of S. 2161 a Federal Government action plan for the employment of disabled and Vietnam era veterans, a provision I authored in S. 2091 introduced in the 92d Congress 2½ years ago.

Mr. President, a number of provisions that I authored in Public Law 91–219, the Veterans Education and Training Amendments Act of 1970, and in Public Law 92–540, such as the tutorial assistance program, special programs for educationally disadvantaged veterans and servicemen, incldng PREP—predischarge education program—and the veteran-student services program, would be strengthened by S. 2784. I must, in fairness, note that I have some reservations as to whether we presently know enough to increase by 250 percent—as the bill proposes—the number of work-study hours which one veteran-student could work per school year under the veteran-student services program, and I plan to study this matter further in the weeks ahead. In general, I prefer spreading work-study jobs among many needy veteran students.

I am particularly hopeful that the educational loan provision of S. 2784 will be enacted into law in the months ahead. This program to provide for educational loans to veterans eligible for benefits under chapter 34 of title 38, was a provision I authored with Senator HARTKE in S. 2161 in the 92d Congress, but which was dropped in the House-Senate negotiations on the bill as a result of very strong objections voiced by the administration.

Mr. President, there is a great need for an educational loan program especially in view of the unresponsive and unimaginative manner in which the Veterans' Administration administers the educational assistance program. I am constantly receiving reports from veterans, not only from those having difficulty making ends meet because they have not received their educational assistance checks on time, but also from many student-veterans who would not receive checks at all without considerable efforts, including persistent phone calls, telegrams, letters, and the intervention of congressional offices.

Mr. President, in an effort to alleviate some of these problems, I authored the advance payment provision in Public Law 92–540. This provision was designed to ensure that the GI bill student-veteran would have his first check before he started his classes or training and not have to face the difficulties of waiting several months for checks to begin arriving. But there are numerous distressing reports that the VA's implementation of this provision has been disastrous. Some schools have some veterans receiving their checks, while other students, at the same school, are receiving neither their advance payments, nor regular educational assistance payments. Other schools have received large numbers of checks that belong to students at another school.

I am closely following this situation and have urged the VA to take corrective action. I am also requesting the General Accounting Office to make a thorough study of the VA's implementation of this new program—as well as the implementation of the tutorial program and the work-study program. Additionally, my staff is assisting with particular cases as they are brought to my attention.

Mr. President, the veterans cost-of-instruction—VCI—program was another provision, designed to meet the educational needs of our veterans, which I authored—this time in the Education Amendments of 1972, Public Law 92–318. This program was designed to provide incentives and supporting funds for colleges and universities to recruit actively the returning veterans and to establish the kinds of special programs and services necessary to assist many veterans in readjusting to an academic setting. Institutions which increased their enrollment of veterans by 10 percent over the previous year and who met other requirements of the legislation for special veterans programs were to be entitled to payments of up to $450 for each of certain categories of veterans enrolled in an undergraduate program on a full-time basis.

This program, however, was the special victim of the administration's refusal to release funds and issue program guidelines, a congressionally-rejected rescission order, and, most recently, an administration request for zero-funding for fiscal year 1974. I am gratified that, despite these administration actions, this program is finally underway in colleges and universities across the Nation—utilizing the full $25 million we were successful in appropriating and having expended—where it is providing a central focus for efforts to meet the needs of our student-veterans.

Mr. President, one of the problems that was brought to my attention in the initial stages of allocating funds for the VCI program was the fact that many schools were eliminated from eligibility for VCI funds as a result of the prerequisite of showing a 10-percent increase of GI bill trainees. Larger schools, which had already made very substantial progress in recruiting and enrolling large numbers of veterans, found it particularly difficult to meet the 10-percent increase requirement.

Accordingly, early this summer, I authored with Senator JAVITS of New York, an additional amendment to the VCI provisions to add an alternative prerequisite based on numbers of enrollees. Under this amendment, if a school did not meet the 10 percent GI bill trainee increase requirement, it could still become eligible if at least 10 percent of its current undergraduate student body were composed of GI bill trainees. This amendment passed the Senate as part of S. 896, but is still pending in the House Committee on Education and Labor.

Mr. President, I have also continued to urge full funding of the VCI program, and I submitted testimony to this effect to the Senate Appropriations Committee during its consideration of the fiscal year 1974 Labor-HEW appropriations bill. While the Senate committee and the Senate voted to request $50 million for the VCI program, this figure was cut back to the House figure of $25 million in the House-Senate conference report, now awaiting the President's signature.

I will continue to seek adequate funding for the VCI program in order to make the periodic installment payments required by law at the $147 million fiscal entitlement level, in addition to preparing further technical amendments to make eligibility requirements more equitable—in the event no action is taken on the earlier amendment in S. 896—and generally to make the program more cost-effective.

Mr. President, these are a few of the advances that have been made or are in the process of being made toward improving veterans' educational assistance programs. I am confident that additional important steps will be taken in the months ahead as we consider S. 2784 and other matters, and hopeful that educational assistance programs will become better able to meet the educational needs of Vietnam-era veterans.

CONCLUSION OF MORNING BUSINESS

Mr. ROBERT C. BYRD. Mr. President, is there further morning business?

The PRESIDING OFFICER. Is there further morning business? If not, morning business is concluded.

NATIONAL ENERGY RESEARCH AND DEVELOPMENT POLICY ACT OF 1973

The PRESIDING OFFICER (Mr. CLARK). Under the previous order, the Senate will now resume the consideration of S. 1283, which the clerk will state.

The assistant legislative clerk read as follows:

A bill (S. 1283) to establish a national program for research, development, and demonstration in fuels and energy and for the coordination and financial supplementation of Federal energy research and development; to establish development corporations to demonstrate technologies for shale oil development, coal gasification development, advanced power cycle development, geothermal steam development, and coal liquefaction development; to authorize and direct the Secretary of the Interior to make mineral resources of the public lands available for said development corporations; and for other purposes.

The PRESIDING OFFICER. Under the previous order, the unfinished business, S. 1868, will be temporarily laid aside until the disposition of S. 1283 or the close of business today, whichever is earlier. Under the previous order, debate will begin on the Buckley amendment, with the vote to occur at not later than 3 p.m.

The amendment will be stated.

The assistant legislative clerk read as follows:

The Senator from New York (Mr. BUCKLEY), for himself and others, proposes amendment No. 767.

The amendment is as follows:

At the end of the bill insert the following:

TITLE III—AMENDMENTS TO NATURAL GAS ACT

SEC. 301. This title may be cited as the "Natural Gas Act Amendments of 1973".

SEC. 302. Section 1(b) of the Natural Gas Act is amended by inserting before the period at the end thereof the following: "or to the sale of natural gas delivered for the first time in interstate commerce or sold in interstate commerce upon the expiration of an existing contract on or after the effective date of the Natural Gas Act Amendments of 1973, or produced from wells commenced on or after such date.".

SEC. 303. Section 2 of the Natural Gas Act is amended by adding at the end thereof the following:

"(10) 'affiliate' of another person means any person directly or indirectly controlling, controlled by, or under common control with, such other person".

SEC. 304. Section 5 of the Natural Gas Act is amended by inserting at the end thereof the following:

"(c) In any case where a natural gas company purchases natural gas from an affiliate the Commission may disallow any portion of a rate or charge by such company which is based on the amount paid for such purchase in excess of current prices paid for comparable gas to nonaffiliates.

"(d) The Commission shall not authorize any increased rate or charge for natural gas

on the basis of the renegotiation of any contract for the sale of natural gas, being carried out before the effective date of the Natural Gas Act Amendments of 1973, prior to the date on which performance is completed under such contract in accordance with its terms: *Provided*, That the Commission may approve such renegotiation where adjustment in contract terms is required to assure optimum production from producing reservoirs.".

Mr. ROBERT C. BYRD. Mr. President, I ask unanimous consent that time on the Buckley amendment be under the control of the distinguished Senator from New York (Mr. BUCKLEY), or in his absence, the distinguished Republican leader or his designee, and on this side of the aisle, the Senator from Washington (Mr. JACKSON).

The PRESIDING OFFICER. Without objection, it is so ordered.

ORDER OF BUSINESS

Mr. ROBERT C. BYRD. Mr. President, I yield 15 minutes on behalf of the Senator from Washington (Mr. JACKSON) to the distinguished Senator from Arkansas (Mr. MCCLELLAN), and I ask unanimous consent that the Senator from Arkansas may speak out of order.

The PRESIDING OFFICER. Without objection, it is so ordered.

DEFENSE OUTLAYS AND GOVERNMENT COSTS

Mr. MCCLELLAN. Mr. President, within a few days, the Senate Committee on Appropriations will report to the Senate, H.R. 11575—one of the largest defense appropriations bills dollar-wise in the history of our Nation. It is not, however, the largest in terms of actual purchasing power.

On April 17 this year, shortly after the committee began work on the bill, I reported to this body that it was the intention of the Defense Appropriations Subcommittee, of which I am chairman, to make a cut of at least $3 billion in the President's defense budget request for fiscal 1974. This was a part of the committee's concentrated effort to reduce appropriations and to impose a ceiling on Federal expenditures.

In spite of inflation, in spite of the accelerating cost of the volunteer army, and in spite of the rapidly increasing costs of sophisticated weaponry, this pledge will be kept.

Of course, this cut will not satisfy everyone. There are many well-intentioned and patriotic Americans—some of them in this chamber—who are convinced that the defense budget can—and should—be cut much deeper in order to provide resources for current domestic programs and for other programs and governmental services that are being proposed.

It is an article of faith with some that so-called bloated defense budgets are the major cause of the high cost of the Federal Government. Those who believe this are grievously mistaken.

Military spending, it is contended, consumes a disproportionate share of national wealth and of the gross national product, while outlays for health, education, housing, and other domestic civic programs have been and are being greatly neglected and shortchanged in the Federal appropriations process in order to support exorbitant defense spending. But, Mr. President, that contention is completely refuted by the record.

An examination of Federal expenditures since fiscal 1964 clearly demonstrates that any such claim is premised on a grave misconception of the facts.

By any yardstick, spending on defense has been and is now substantially declining percentage-wise as related to the gross national product, as a share of the Federal budget, and most dramatically, as a percentage of all Federal spending. Defense outlays have not at all kept pace with the overall increase in Government spending—which has risen spectacularly within the past decade.

Mr. President, the cost of the Federal Government has increased from $118.6 billion in fiscal 1964 to $268.7 billion—the administration's budget—for fiscal 1974. This is an increase of $150 billion—or 127 percent.

Defense spending rose from $49.6 billion in fiscal 1964 to $78 billion in estimated outlays for fiscal 1974—an increase of only 57 percent.

Ten years ago, 42.8 percent of the total Federal expenditures was for the military. In 1968, at the height of the war in Vietnam, military costs rose to 43.6 percent of the total. Since then, the percentage of defense costs has markedly declined in relationship to total Federal expenditures. For fiscal 1974, it is estimated that only 29.4 percent of all Federal Government spending will be attributable to the military functions and military assistance programs of the Department of Defense.

In terms of the gross national product, defense programs accounted for 8.3 percent of the total in 1964, but it will only account for 6 percent in fiscal 1974.

When current defense expenditures are compared with those made two decades ago and the economic conditions that prevailed at that time, they take on even greater significance.

Twenty years ago, defense spending was nearly double the total of all other Federal expenses combined. Today, the other Federal departments and agencies spend a total of more than twice as much as we are spending for national defense.

In 1953, defense spending was $50.4 billion, while all the other agencies and departments of Government spent only $25.8 billion. In 1973, defense spending was $76.4 billion, while all the other agencies and departments spent a total $173.4 billion.

Twenty years ago, defense spending was nearly double that of all State and local governments combined. Today, State and local government spending is more than double what we are now spending for national defense. This is a complete reversal of trend in that brief period of time. In 1953, defense spending was $50.4 billion; all State and local government spending was $27 billion. In 1973, defense spending was $76.4 billion while State and local governments spent $183.1 billion.

Twenty years ago, total defense manpower was nearly equal to all other public employment—Federal, State, and local—combined. Today, such public employment exceeds that of defense manpower by nearly 4 to 1. In 1953, defense manpower totaled 4.9 million men and women—all other, 5.5 million. In 1973, defense manpower was 3.2 million—all other, 12.8 million.

Twenty years ago, about 49 cents out of every tax dollar—Federal, State, and local—went for defense. Today, this figure is estimated at 19 cents—a reduction of 30 cents out of each dollar, or 60 percent.

Mr. President, we hear much talk these days of the necessity for a massive reordering of national priorities. The plain truth is—as the facts I have related here clearly show—that such a reordering of priorities has already taken place. A great percentage of the funds which were formerly earmarked for national defense are now being spent on human resource programs. This truth cannot be challenged.

Since 1964, Federal outlays for human resource programs—education and manpower; health, including medicare and medicaid; income security, including social security; public assistance and unemployment insurance; and veterans' benefits—have increased from 28.9 to 46.7 percent of the total Federal budget. In dollar terms, this is an increase from $34.3 billion to $125.5 billion. This $125.5 billion is nearly half of all Federal expenditures.

While the percentage of our wealth now being spent on national defense is steadily receding, spending on human resource programs is steadily increasing—

From 1964 to 1974, Federal aid to education jumped 440 percent—from $1.1 billion to $6 billion;

From 1964 to 1974, public assistance rose 248 percent—from $3.1 billion to $10.7 billion;

From 1964 to 1974, social security increased 236 percent—from 16.2 billion to $54.3 billion; and

From 1964 to 1974, health care and medical services, including medicare and medicaid, climbed dramatically by 4,509 percent—from $393 million to $18.1 billion.

Just last week, the Senate voted to raise social security payments by another 7 percent, effective upon signing of the bill and by an additional 4 percent in June 1974. Benefits were also liberalized and medicare expanded for an estimated total of $6.9 billion annually.

And we have just adopted a conference report on H.R. 8877 this week that will appropriate $32.9 billion for the Labor and Health, Education, and Welfare Departments. This bill, alone, provides funds for more than 360 human resource programs. It contains more than 400 line item appropriations for human needs.

So, Mr. President, contrary to the misconceptions of many, the truth is that our Government is spending far, far less

today to maintain our national security than it is spending for human needs in nondefense programs.

I wish to emphasize that I am not presenting this information just for the purpose of defending appropriations for the Department of Defense. But rather, I do so in order to place all Federal spending in proper perspective as we consider the defense appropriations bill.

During the course of the extensive hearings held by the Subcommittee on Defense Appropriations on the Pentagon's budget request, I repeatedly admonished Department officials that substantial reductions would be made. I admonished them to keep their requests at the very minimum consistent with our Nation's defense requirements and its overall fiscal responsibilities. And, I may say, Mr. President, that I feel the Defense Department has given our committee very good cooperation.

Mr. President, we hear much talk today of a détente with the Soviet Union. Of course, we are all in favor of any actions that lessen world tensions or which reduce the threat of war. So, we fervently hope that any détente we have with the Soviet Union will increase and strengthen—never diminish.

But, as of now, we are not reassured—we cannot be sure—this will happen. The recent near confrontation with the Soviet Union in the Middle East serves to remind us again that relations between the United States and the Soviet Union, although much improved during the past few years, still remain tenuous and uncertain.

Peace—lasting peace—in the light of world conditions today is still too fragile and insecure to warrant or permit the reduction or decline of our military strength below the level that an effective deterrent and a defense capability require and demand.

By this, I do not mean to say that war is imminent or that it is even probable. But I am saying that peace and national security cannot yet be taken for granted. Mr. President, the cost of military preparedness is high. However, it is a cost that we can neither escape nor fail to pay. For the price of liberty is still eternal vigilance.

Mr. President, my hope as we consider this Defense appropriations bill is that we will remember that we should not neglect the human resources needs of this Nation and that we could in our desire to be economical and conservative reduce the appropriations for national security, for national defense, and for military strength below a point that would leave us vulnerable to possible exposure and great danger.

Mr. President, I ask unanimous consent to have printed in the RECORD three charts. One is entitled "Budget Outlays by Function." Another is entitled "Outlays and Gross National Product." The other is entitled "History of Outlays for Military Functions of the Department of Defense and Human Resources."

There being no objection, the charts were ordered to be printed in the RECORD, as follows:

TABLE 4.—BUDGET OUTLAYS BY FUNCTION

[Dollars in millions]

	Fiscal year 1964		Fiscal year 1974 (proposed)		
	Amount	Percent of total budget	Amount	Percent of total budget	Comment
Department of Defense	$49,577	0.42	$78,000	0.29	Up $28,423 or 57 percent.
Federal aid to education	1,110	.009	5,998	.02	Up $4,888 or 440 percent.
Public assistance	3,085	.026	10,728	.04	Up $7,643 or 248 percent.
Social security—Federal old-age survivors and disability trust fund	16,203	.14	53,366	.20	Up $38,163 or 236 percent.
Health services, medicare, medicaid, and others	393	.003	18,114	.07	Up $17,721 or 4,509 percent.
Interest (net)	9,810	.08	26,072	.10	Up $16,262 or 166 percent.
Other	38,406	.032	75,393	.28	Up $36,987 or 96 percent.
Total	118,584	100.0	268,71	100.0	Up $150,087 or 127 percent.

	Fiscal year 1964		Fiscal year 1974		Increase	
	Amount	Percent of total budget	Amount	Percent of total budget	Amount	Percent
10-YEAR COMPARISON OF DEPARTMENT OF DEFENSE OUTLAYS TO TOTAL OUTLAYS						
Defense	$49,577	0.42	$78,000	0.29	+$28,423	0.19
Federal Government other than Defense	69,007	.58	190,671	.71	+121,664	.81
Total	118,584	100.	268,671	100.	+150,087	100.

TABLE 5.—OUTLAYS AND GROSS NATIONAL PRODUCT—UNIFIED BUDGET BASIS, FISCAL YEARS 1959-74

	Gross national product (billions)	Total Federal Government outlays		Total outlays all Government agencies [1] (billions)	DOD-military functions and military assistance outlays			
		Amount (millions)	Percent of GNP		Amount (millions)	Percent of GNP	Percent of total Government	Percent of all Government agencies [1]
Fiscal year:								
1959	$469.1	$92,104	19.6	$94,349	$43,703	9.3	47.4	46.3
1960	495.2	92,223	18.6	94,520	43,110	8.7	46.7	45.6
1961	506.5	97,795	19.3	100,244	44,643	8.8	45.6	44.5
1962	542.1	106,813	19.7	109,326	48,253	8.9	45.2	44.1
1963	573.4	111,311	19.4	113,955	49,549	8.6	44.5	43.5
1964	612.2	118,584	19.4	121,461	50,786	8.3	42.8	41.8
1965	654.2	118,430	18.1	121,539	47,098	7.2	39.8	38.8
1966	721.2	134,652	18.7	138,016	55,181	7.7	41.0	40.0
1967	769.8	158,254	20.6	162,190	68,315	8.9	43.2	42.1
1968	827.3	178,833	21.6	183,332	78,027	9.4	43.6	42.6
1969	897.7	184,548	20.6	189,665	78,666	8.8	42.6	41.5
1970	956.0	196,588	20.6	202,968	77,880	8.1	39.6	38.4
1971	1,008.0	211,425	21.0	218,801	75,545	7.5	35.7	34.5
1972	1,096.0	231,876	21.2	239,733	75,957	6.9	32.8	31.7
1973 estimate	1,208.0	249,796	20.7	258,177	74,800	6.2	29.9	29.0
1974 estimate	1,313.0	268,665	20.5	277,796	79,000	6.0	29.4	28.4

[1] Under current budget concepts certain intragovernmental credits are not distributed by agency, with the result that total outlays for all Government agencies as shown in the budget document exceed total Government outlays. Data in this column reflect the exclusion of the undistributed intragovernmental credits.

Note: For explanation of conceptual differences between "administrative budget" and "unified budget," see special analysis A, page 464 of the budget of the U.S. Government, 1969.

Source: Department of Defense, OASD (Comptroller), Directorate for Program and Financial Control.

HISTORY OF OUTLAYS FOR MILITARY FUNCTIONS OF THE DEPARTMENT OF DEFENSE AND HUMAN RESOURCES, FISCAL YEARS 1964 THROUGH 1974

[Dollar amounts in billions]

Fiscal year	Total outlays	Outlays for military functions of DoD: Percentage of total outlays	Outlays for military functions of DoD: Total	[1] Outlays for human resources: Total	[1] Outlays for human resources: Percentage of total outlays
1964	$118.6	41.8	$49.6	$34.3	28.9
1965	118.4	38.8	45.9	35.4	29.9
1966	134.7	40.2	54.2	41.7	31.0
1967	158.3	42.6	67.5	50.7	32.0
1968	178.8	43.3	77.4	57.3	32.0
1969	184.5	42.2	77.9	63.4	34.4
1970	196.6	39.3	77.2	72.7	37.0
1971	211.4	35.2	74.5	88.6	41.9
1972	231.9	32.4	75.2	102.5	44.2
1973 (estimate)	249.8	29.7	74.2	116.2	46.5
1974 (estimate)	268.7	29.1	78.2	125.5	46.7

[1] Includes outlays for education and manpower, health, income security, and veterans' services benefits.

Source: Tabulation prepared by William Woodroff. Footnote in budget for fiscal year 1974, p. 2.

NATIONAL ENERGY RESEARCH AND DEVELOPMENT POLICY ACT OF 1973

The Senate continued with the consideration of the bill (S. 1283) to establish a national program for research, development, and demonstration in fuels and energy and for the coordination and financial supplementation of Federal energy research and development; to establish development corporations to demonstrate technologies for shale oil development, coal gasification development, advanced power cycle development, geothermal steam development, and coal liquefaction development; to authorize and direct the Secretary of the Interior to make mineral resources of the public lands available for said development corporations; and for other purposes.

Mr. ROBERT C. BYRD. Mr. President, I suggest the absence of a quorum and ask unanimous consent that the time be equally charged against both sides on the amendment.

The PRESIDING OFFICER. Without objection, it is so ordered. The clerk will call the roll.

The second assistant legislative clerk proceeded to call the roll.

Mr. JACKSON. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. JACKSON. Mr. President, I ask unanimous consent that during the consideration of the pending measure Mr. Greg Erickson and Mr. Tom Williams of the staff of the Senate Committee on Interior and Insular Affairs be granted the privilege of the floor.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. JACKSON. Mr. President, I ask unanimous consent that Nick Miller and Lynn Sutcliffe, of the Committee on Commerce, be accorded the privileges of the floor.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. JACKSON. Mr. President, I ask unanimous consent that the Senator from Hawaii (Mr. FONG) be made a cosponsor of S. 1283.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. JACKSON. Mr. President, I suggest the absence of a quorum and ask unanimous consent that the time be equally divided.

The PRESIDING OFFICER. Without objection, it is so ordered. The clerk will call the roll.

The second assistant legislative clerk proceeded to call the roll.

Mr. DOLE. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered. Who yields time?

Mr. DOLE. I send an unprinted amendment to the desk, and ask for its immediate consideration.

The PRESIDING OFFICER. Is there a unanimous-consent request to take up this amendment at this time?

Mr. JACKSON. Mr. President, I ask unanimous consent that we temporarily lay aside the pending amendment, and that the amendment of the Senator from Kansas be in order at this time.

The PRESIDING OFFICER. Without objection, it is so ordered. The amendment will be stated.

The assistant legislative clerk read as follows:

At the end of the bill add the following:

PRICE CONTROLS

SEC. 219. Section 203 of the Economic Stabilization Act of 1970 is amended by adding at the end thereof the following new subsection:

"(k) After the date of enactment of the National Energy Research and Development Policy Act of 1973, the authority conferred by this section may not be exercised with respect to price levels of tubular steel products of the types used in the production of crude oil or natural gas."

The PRESIDING OFFICER. Who yields time?

Mr. JACKSON. I yield 3 minutes to the Senator from Kansas.

OIL DRILLING SUPPLIES SHORTAGES

Mr. DOLE. Mr. President, in the face of our current energy crisis the vitally important domestic petroleum industry is being hampered in its efforts to discover and produce more crude oil supplies. So-called "oil country tubular goods" are in short supply throughout the country. These products, the steel casing, tubing and pipe used in oil well drilling operations, are absolutely essential to the exploration activities of those who are in the business of developing new petroleum reserves—particularly the independent producers who drill the bulk of America's new wells. Without these products, wells cannot be drilled, and without new wells our domestic petroleum supplies will continue to be inadequate in the face of the Arab oil boycott and rising demand.

As I pointed out in debate on the Senate floor last week, one reason for this tubular goods shortage is the fact that these products are being exported to the same Arab countries which are refusing to ship their oil to us. Such a situation is contrary to our Nation's best interests, and I was pleased that the Senate on November 30 adopted my amendment to stop such exports of our products to countries which refuse to sell us their oil.

But the problem is larger than the simple matter of exports of these tubular steel products going to Arab nations. Altogether exports to Arab states constitute only about 20 percent of the total, with the rest of the free world making up the remaining 80 percent. The total adds up to nearly $300 million or 30 percent of U.S. production for the first 9 months of this year. Now, obviously, we cannot impose an export control policy for these shipments to non-Arab nations without creating severe strains in our trade relationships and possibly bringing on strong reprisals for such policies. After all, the companies making these exports are only practicing the basic laws of the marketplace. Because these tubular steel goods are under price controls here at home, foreign markets are more attractive, and foreign buyers are able to outbid their competitors in the American market.

In addition the price controls have the effect of reducing the market incentives for steel companies to increase production of these tubular goods sufficiently, especially when cost passthrough on flat rolled steel is permitted by the Cost of Living Council. The companies have no good reason to increase production as much as necessary of a product whose price they cannot adjust for rising costs when they can sell another with their cost increases added on.

Thus, the pressures combine to reduce the availability of these tubular steel goods that are so critical to the effort to increase domestic energy supplies. This development comes at a time when exploratory activities have begun to show sizable increases in response to improved crude oil price structures, so the effects are being felt very directly. I know in Kansas the number of drilling rigs in operation were up 46 percent over the same month in 1972. But to maintain this rate of activity and to expand it further, the drillers must have the steel products they need.

Therefore, I am introducing an amendment to free these oil country tubular steel products from price controls, so increases in production costs can be recovered through the pricing structure. The effect of this amendment will be to reduce the attractiveness of these American products on the world market, thereby reducing the export drain on our production. It will also make it more attractive for American steel producers to expand their output of these products, since they will not be subject to artificial pricing restraints.

In this way American drillers—especially the independents who are being so severely hit by the current shortages—can continue to expand their exploration efforts to increase our domestic petroleum supplies.

Mr. President, I have discussed this amendment with the distinguished Sen-

ator from Washington and also with the distinguished ranking Republican Member, the Senator from Arizona I understand the problem it presents in the particular bill before us. I shall not press the amendment, but I do think it might be helpful if the distinguished Senator from Washington might comment on it. I believe we are all in sympathy with the purpose of the amendment, and hopefully we can have some response from the Cost of Living Council that would alleviate this situation.

Mr. JACKSON. Mr. President, I commend the Senator from Kansas for bringing this amendment to the attention of the Senate at this time. The problem that exists here is a very serious one, not only as it pertains to tubular steel products that are used in the production of oil and natural gas, but to other essential materials that are needed in the development and exploration of petroleum possibilities in this country.

I would point out that in the emergency energy bill which we passed in the Senate last month, and which I believe will be acted upon by the House Commerce Committee, authority is given to deal with this specific problem. In addition, in the authority for the new agency which will be headed by Mr. William Simon, there is an express provision which gives him authority to handle matters relating to the Cost of Living Council as they affect the situation in this particular area of energy.

The situation, therefore, is that there is ample authority to make adjustments in price in order to compensate for the shortages.

I believe that Mr. Simon will take the steps that are necessary to deal with this special problem. I therefore would suggest that, in the light of the authority contained in the emergency bill and that to be contained in the Federal Energy Administration Act which will be reported from the Government Operations Committee next week, it will not be necessary to address this item in this bill. I know the Senator is aware that there are other problems of material allocation priority which must be solved. That which the Senator from Kansas raises is covered by existing law. If we adopt this amendment, we must create legislative history that would cause a problem.

Therefore, I would hope, in the light of this colloquy, that the Senator from Kansas might be willing to withdraw the amendment.

Mr. DOLE. Mr. President, will the Senator yield?

Mr. JACKSON. I yield.

Mr. DOLE. I share the views expressed by the Senator from Washington. I think it has been disturbing to many domestic oil producers that a certain amount of tubular steel and other products, machines, and implements used in production of oil and gas are being shipped to Arab nations. This is particularly disquieting to those in Kansas and other oil- and gas-producing States.

I do understand that the authority is there, and more authority is coming, and I do agree that rather than single out one area, perhaps it might be best to wait.

So on that basis I withdraw the amendment.

The PRESIDING OFFICER. The amendment is withdrawn.

Mr. JACKSON. Mr. President, I thank the Senator from Kansas for his cooperation in this matter.

I ask unanimous consent that Henry Littek, of the staff of the Commerce Committee, be granted the privilege of the floor during the consideration of the pending measure.

The PRESIDING OFFICER. Without objection, it is so ordered.

Who yields time?

Mr. JACKSON. Mr. President, I yield such time as he may require to the distinguished senior Senator from Nevada.

Mr. BIBLE. Mr. President, I rise in support of the pending bill and would like to say a few words about the legislation. Before I do so, I note that the new Vice President of the United States is now presiding over the Senate. As I did last evening I want to welcome him to the Senate. It is a pleasure to see him here. I am sure he will be a fair and impartial presiding officer, and he has my very best wishes.

Mr. President, I am a strong supporter of the pending bill, and I am highly honored to be associated as a cosponsor with the very distinguished chairman of our committee. Senator JACKSON is in every respect Mr. Energy himself, both personally and in his actions in moving to meet the Nation's problems.

This National Energy Research and Development Policy Act of 1973 is landmark legislation and I urge its passage by the Senate.

As the Senate knows, as a result of Senator JACKSON's vision and under his leadership the Committee on Interior and Insular Affairs has engaged in a comprehensive study of the Nation's fuels and energy resources problems. S. 1283 is an outgrowth of that study. It recognizes first and foremost a fact that hardly requires any elaboration. The Nation is in the throes of an unprecedented energy crisis brought about in large part by our dependence on foreign sources for oil and our regrettable failure to develop and exploit new domestic energy sources. There can be no questioning the urgent need for a clearly defined national strategy designed to bring about domestic self-sufficiency in environmentally acceptable energy resources within the next 10 years. Nor is there any question that the Nation must get on with the longer range energy research efforts that are needed to broaden our energy options in the future. I daresay that we all agree that there must be a major national effort—including whatever financial commitment may be required—to surmount the Nation's present energy problems and to insure that they do not recur in the years ahead. We owe no less to the generations of Americans yet to come. This bill marks the way. It is already long overdue.

A major weakness in the national response to the energy crisis has been the failure to formulate and mount a coordinated aggressive research and development strategy to demonstrate and harness our huge reserves of domestic coal, shale oil, and geothermal resources. And we have focused entirely too little of our research and development capabilities on the potentially enormous benefits that may be available from solar power and other unconventional energy sources.

Over the years the Federal Government has engaged in and supported an array of new energy research projects, but its necessary contribution has lacked effective central direction. Present responsibilities and budgets for energy research are dispersed throughout too many of the departments and agencies of the Government making it difficult to coordinate activities and to define and implement research priorities. The result has been only halting progress toward the Nation's clean energy goals.

Mr. President, it is time to stop merely bemoaning the energy crisis. It is time to reshape and strengthen the Federal Government's leadership in bringing about the research, development, and demonstration projects that are needed if we are to bring new energy sources on the line by the mid-1980's. A major restructuring of the Government's energy research activities is needed to reach that goal.

The present bill calls for just that kind of reorganized energy research effort. It would establish a high-level, independent "energy research management project" to review the full range of Federal and private industrial energy research activities. The project would be headed by a full-time chairman appointed by the President and an interagency coordinating group or "board of directors," if you will, composed of high officials drawn from departments and agencies currently involved in energy R. & D. The project's task would be to formulate a comprehensive energy research and development strategy for the Federal Government, including the definition of new energy R. & D. programs and activities. It would be authorized an annual budget of $800 million for fiscal years 1975 and 1976 for use in supplementing existing Federal programs and to support new R. & D. initiatives by Federal agencies, national laboratories, universities, nonprofit organizations, or private industry—based on their special competence for particular projects. The management project would also identify opportunities for Government-industry cooperation in the conduct of projects to demonstrate the technological and economic feasibility of bringing new energy sources into production.

Very importantly, S. 1283 specifies a definitive and prompt schedule for the work of the energy management project. Within 6 months from date of enactment, the project would be required to transmit to the Congress its recommendations concerning the strategy and priorities needed to achieve solutions to immediate and short-term energy supply problems, namely problems susceptible of solution by early in the 1980's. The project would also be required to recommend specific forms of programs and assistance to be undertaken by the Government to accelerate the commercial demonstration of technologies for producing: Low-sulfur fuel for boiler use, natural gas substitutes, including coal gasifica-

tion, liquid petroleum products from coal, advanced power cycles for the generation of electricity from coal, geothermal energy, the production of syncrude from oil shale, improved methods for the extraction of our oil and coal resources, and to demonstrate the economics and commercial viability of solar energy conversion for residential and commercial applications.

Within 1 year, the project would be required to transmit recommendations for an aggressive strategy and system of priorities to solve middle-term—from the early 1980's to the year 2000—energy supply problems. Included would be programs to overcome problems in transporting and storing electric energy, commercial demonstration of advanced power cycles for the generation of power, commercial demonstrations of hot dry rock geothermal technologies and advanced solar energy technologies, to determine the economics and viability of hydrogen as a primary energy source, to commercially demonstrate the use of fuel cells for central station electric power generation, and to determine the economic feasibility for producing synthetic energy from agricultural products and waste.

Within 18 months, the project would recommend a strategy to improve the economics and cost-effectiveness of projects already recommended or underway and to bring about the commercial demonstration of nuclear fusion and hydrogen as energy sources.

Mr. President, it is one of the special attractions of this legislation that it does set forth a clearly defined timetable for the responses we need from the executive branch to enable the Congress to intelligently provide the wherewithal for an aggressive, properly targeted energy research effort. Too often we find ourselves in the position of not knowing with any certainty which agency is doing what on energy research; which agencies are duplicating the work of other agencies; how far along various research programs are; what is needed to assure timely progress; and without really knowing whether the funds provided are being spent to our best advantage. To many, the present energy research scene is a scene of confusion. If we are to bring order into the picture, we need an organization dedicated solely to identifying energy research priorities and in a position to give the national effort continuing and effective direction. The energy research management project now before the Senate is just such an organization, and the time frames spelled out in this legislation are well designed to move the necessary R. & D. and demonstration projects forward in an orderly way. This kind of reorganization for progress is long overdue.

S. 1283 also specifies a variety of forms of Federal assistance and participation to be considered by the management project in determining the best means of advancing particular research efforts. Consideration is to be given the use of joint Federal-industry corporations so that the special expertise of industry can be brought to bear on special problems, including the development and operation of pilot and demonstration plants and projects where that is appropriate. Contractual arrangements with non-Federal participation would be another device. Construction and operation of federally owned energy research and demonstration facilities—in connection with our military bases, for example—would be considered. And consideration would also be given to price guarantees and Federal loans that might be necessary to help cope with research and development risks industry is unable to assume alone.

I want to note especially that Federal financial assistance is particularly important in the field of geothermal energy. One of the principal problems in developing geothermal resources is the investment risks involved in moving forward with its development. Incentives such as the loan guarantees provided by this bill are needed to prime the free enterprise pump.

I believe the Senator from Arizona last evening commented about the geysers geothermal development at Geyserville, Calif. The Geysers powerplants are located in the Napa Valley, Calif., a great wine-producing country, incidently and are well worth a visit. The Geysers operation has tapped geothermal steam wells at various depths and have harnessed the natural heat of the Earth for the generation of electricity. I believe it now supplies approximately half of the electrical energy needs of the city of San Francisco. The Senator from Arizona will correct me if I am wrong.

Mr. FANNIN. The Senator is correct. Presently, they are developing approximately 400 megawatts of electricity at the Geysers field. It is estimated that the amount of electricity utilized for all sources in the city of San Francisco is 750 megawatts.

I am pleased that the Senator from Nevada has brought up this subject, because in northern California they are very optimistic there that by the end of 1976, they will be generating in excess of 1,000 megawatts, which will be equal to what the atomic energy plants and nuclear powerplants are producing now. The larger nuclear powerplants produce in the neighborhood of 1,100 megawatts. So this is of great substance.

While I have the opportunity, Mr. President, I wish to pay tribute to the distinguished Senator from Nevada for his work over a long period of time in this field of energy. He is one of the leaders, together with Senator CHURCH, who is the floor manager of the bill at the present time, who have devoted a tremendous amount of time and effort to bringing forth the advantages of going forward with these programs. Senator CHURCH was successful this year with a bill he sponsored—the Senator from Nevada is a supporter of the bill—which is being incorporated in S. 1283 as a section of the bill. So this is forward progress.

I am very pleased to have this opportunity to commend the Senators for their efforts in this respect. Certainly, the Senators have been responsible for the forward progress of the proposed legislation.

Mr. BIBLE. I appreciate the Senator's sentiments, and I thank him for expressing them. He comes from an area—as do I and the Senator from Idaho, the Senator from Oregon, and the Senator from Washington—that has great geothermal potential.

Mr. CHURCH. Mr. President, will the Senator yield?

Mr. BIBLE. I yield.

Mr. CHURCH. Mr. President, I simply want to express my appreciation to the distinguished Senator from Arizona for his generous comments. It should be pointed out that he has given great leadership to the effort to cause the Government to move forward in research and development in the geothermal field.

But I think Senator FANNIN would agree with me that the pioneer in this effort has been the senior Senator from Nevada. I compliment Senator BIBLE for what I regard as a real breakthrough—the fact that the administration, for the first time, has come forward with a budget for geothermal development that is commensurate, or begins to be commensurate, with the needs.

Only yesterday, in reviewing the new figures, the Senator from Nevada (Mr. BIBLE) pointed out to me that the administration now plans to spend four times as much next year for research and development in the Western States, for making use of this great geothermal resource, than was programed for this year. The 5-year program now projected by the administration is 9 times larger than that contemplated at the beginning of this year.

So I think we owe a debt of gratitude to the Senator from Nevada for his pioneering work. I am happy to say that it has been a pleasure to be associated with him, as well as with the Senator from Arizona, in this effort.

Mr. BIBLE. Mr. President, I appreciate what the Senator from Idaho and the Senator from Arizona have said. I just hope that I live long enough to see that program come true.

The distinguished Senator from West Virginia, the majority whip, might very well say the same thing with respect to the project at Cresap, W. Va., as progress is made on what are highly promising projects for converting coal to gas and petroleum.

This is another area which has enormous potential. I can vouch for that first-hand, because I have personally experienced the constant drive by the distinguished majority whip for more dollars for coal research and development.

We have come a long way, and we have a long way yet to go. But by our joint efforts, I am sure we are going to succeed. By working together, we will press such matters forward as vigorously as we can.

Mr. ROBERT C. BYRD. Mr. President, will the Senator yield?

Mr. BIBLE. I yield.

Mr. ROBERT C. BYRD. I thank the very distinguished senior Senator from Nevada (Mr. BIBLE) for his kind reference to my efforts in connection with the field of coal research. Having sat on the subcommittee on Department of the Interior Appropriations for several years now, I have always found the distin-

guished chairman of that subcommittee, (Mr. BIBLE), to be most understanding, considerate, and cooperative.

Whatever I have been able to do, what efforts I have made, I think they have been important on focusing attention on the potential before this country that may accrue from increased funding for coal research in the areas of coal gasification, coal liquefaction, and improved technology.

Whatever I have been able to accomplish has been made possible largely through the cooperation and understanding of the distinguished chairman of the subcommittee (Mr. BIBLE). Certainly without his strong support, the moneys I have been able to include in the bills by the Senate on so many occasions would not have been agreed to in conference with the other body. So I cannot express my appreciation adequately to the distinguished Senator from Nevada.

I believe that in the years to come the pennies that are being spent now for coal research will be returned to this country in dollars many, many fold and the country always will be indebted to the distinguished Senator from Nevada for his contributions, not only in the area of coal research, but also research in oil and gas, geothermal and other fields of energy. This is the main problem facing our country today and it is a problem that will be confronting our country for a long time. But for the efforts of the distinguished Senator from Nevada we would be further behind today than we are.

On behalf of the people of West Virginia, I express our gratitude to the able and distinguished Senator from Nevada (Mr. BIBLE).

Mr. BIBLE. I thank the Senator. I did not raise this matter so that bouquets could be passed around, but they have a pleasing ring. Since I am going to retire soon, I may have these encomiums framed and hand out copies to my grandchildren.

I think the dreams of those of us who have labored in the vineyard for so long with all the difficulties and setbacks we have encountered over the last 10 or 15 years will be rewarded by the final results. I am confident our efforts are going to be successful and, therefore, highly gratifying.

In other words, the bill properly makes an array of tools available to get the job done.

Mr. President, I am particularly pleased that the present legislation for advancing research and development and the commercial interest that already exists concerning the Nation's geothermal resources.

This Geothermal Energy Act of 1973 contained in title II of this bill is, in a sense, a sequel to the Geothermal Steam Act of 1970, which it was my privilege to author and shepherd through the Congress.

As Senators will recall, the 1970 act authorized the opening of the Federal lands throughout the West for geothermal exploration and development under a leasing program to be instituted by the Secretary of the Interior. Except, of course, lands withdrawn or set aside for parks, recreation, wildlife refuges and ranges, Indian lands, and other protected areas. The 1970 act removed previous legal barriers to the acquisition of geothermal rights on the public lands, subject to the provisions of that act and to leasing regulations to be promulgated by the Secretary of the Interior. Unfortunately—and this has been a source of great frustration to me—the geothermal leasing regulations have yet to be promulgated. Notwithstanding all the lipservice the administration has paid to the need to get on with the development of new clean energy sources for the production of electric power, it will soon be 3 years since the Congress authorized action—and the first geothermal energy lease has yet to be announced. To date, the administration's record on this is a sorry one, to say the least.

I want to say again that I think this Nation's geothermal energy resources represent a potentially vast clean energy potential for the generation of electric power in many of our Western States. Evidence of the resource abounds in Arizona, California, Idaho, New Mexico, Nevada, Oregon, and elsewhere. The challenge posed by the burgeoning energy crisis is to get on with the task of harnessing this natural energy. The authorized leasing program must be launched, the Federal Government must mount a concerted and coordinated research and development program to demonstrate the feasibility of harnessing geothermal power, and private industry must be encouraged to invest its own resources in geothermal exploration and development. In short, if the Nation is to receive the benefits of geothermal power within the next decade, Government and industry are going to have to join forces in a cooperative effort. The Government's lead role in research and development needs new direction and emphasis, and meaningful incentives must be provided to encourage private action and investment. That is the purpose of title II.

The proposed Geothermal Energy Act of 1973 represents a joint effort by my good friend from Arizona, Senator FANNIN, and myself, and I want to commend Senator FANNIN for his initiative and leadership not only in connection with this bill but in respect to geothermal resource matters generally. He has demonstrated his dedication to the task of making geothermal power a reality and in doing so he shares the great optimism I indulge for the future.

Title II of the bill is designed to encourage and facilitate private investment in geothermal exploration and development ventures. It establishes a loan guarantee program under which the Secretary of the Interior would be authorized to provide loan guarantees covering up to 75 percent of the aggregate cost of a project, subject to limitations described in the bill.

Title II also proposes to strengthen and coordinate the geothermal research and development programs of the Department of the Interior, the Atomic Energy Commission, and the National Aeronautics and Space Administration. The Department of the Interior would be assigned the primary responsibility for geothermal exploration, mapping and surveys, and other activities needed to define the Nation's geothermal resources inventory. NASA would be called upon to bring the benefits of satellite technology to bear on the exploration problem. The AEC would be assigned the primary basic and applied geothermal research and development task, with special emphasis on the need for cooperative undertakings with private industry to develop and test the technologies required to tap and harness geothermal energy. Special authority is included for pilot and demonstration projects designed to demonstrate the economic and technical feasibility of geothermal power production.

I think it is high time that the kind of emphatic program envisaged by this legislation is brought to bear on the Nation's geothermal energy resources.

Mr. FANNIN. Mr. President, I thank the distinguished Senator for the statements he has made this morning and I pay tribute to him for the great work he has done in this field.

I would like to elaborate a little further on the subject, but I want to be sure that the Senator from Nevada is given proper credit for the tremendous work he has done. I feel that in his announcement that he is going to retire, we have not lost a great leader because I feel no doubt we will be able to call upon him for advice and counsel and he will be here another year, and we hope much of this legislation will be behind us when that time comes. I hope he will be able to point with pride to this legislation and say he was the instrumentality for getting it approved. In a few years we will be able to look back on the success of his efforts.

Mr. BIBLE. I appreciate those sentiments.

Before I conclude my statement, Mr. President, I want to say a few words about another enormously promising and unlimited energy resource than has for too long escaped adequate national research and development. I refer to the boundless energy of the Sun.

The massive literature on the energy crisis—including innumerable Government reports and the volumes of testimony generated in congressional hearings—makes frequent mention of the possibility that solar energy may one day be effectively harnessed to heat and cool our homes and other buildings and to serve as a potentially vast source of electric power.

Nonetheless, I am sure that to the average citizen today—and to most Members of the Congress for that matter—references to solar power still conjure up thoughts of astronauts, skylabs, and orbiting satellites. Popular discussion of solar energy has dealt principally with the solar power technology of our space program, and few Americans have focused seriously on the prospects of harvesting the inexhaustible energy of the Sun to help meet the energy demands of everyday living here on Earth.

The situation would be otherwise if more of our people—and particularly if as many Members of the Congress as possible—could and would take the time

to familiarize themselves with a remarkable demonstration of solar energy now underway just 2 hours away from Washington at the University of Delaware in Newark, Del. I had occasion to visit the university recently and want to share what was an educational and pleasant experience.

Mr. President, I am talking about "Solar One," a solar energy project of the Institute of Energy Conversion of the University of Delaware. Solar One is an attractive, fully furnished single-family house. It contains all the conveniences of modern living and compares favorably with the model homes we all know as part of new housing developments in every part of the country. It has a living room, dining room, fully equipped kitchen, two bedrooms and space for two more in an area that now houses experimental equipment, a full bathroom, and attached garage, and a full basement. It is a house ready to become a home.

The difference between Solar One and other model homes is that Solar One is, as I understand it, the first house equipped to directly convert sunlight into both heat, cooling, and electricity for domestic use. The experimental solar harvesting system built into the house is capable of providing up to 80 percent of its electrical needs. It also harvests the heat of the Sun to warm the house in the winter and includes an effective technique for cooling the house in the summer. Solar One was opened to the public last July. I understand that during the hottest days of August—when temperatures soared into the high 90's for days at a time—Solar One maintained a comfortable 73 degrees. And it did so without drawing electricity from the local power utility during its peak demand period when everyone else in the area was drawing down power to keep cool. In other words, Solar One did not contribute to the possibility of a power shortage or brown out during those hot days.

As a matter of fact, I understand the house even produces some electricity to spare that can be returned to the power company to help shave its peak demands. A tie-in with the local utility is maintained to assure a source of standby power.

How does it work? The house has an architecturally interesting peaked 45 degree roof, which is sited for maximum exposure to the Sun. I understand, however, that variations in siting are acceptable and that all houses in communities of this type structure would not have to maintain precisely the same orientation to the Sun. The roof encloses 24 panels, three of which consist of cadmium sulfide solar cells. The others are a variety of experimental heat-collecting materials. When the sunlight strikes the solar panels, direct current is generated by the solar cells and then converted into AC current. Wiring conducts the electricity from the roof to household appliances such as lights, stove, refrigerator, washer, and dryer, and so forth. The current not consumed continues on for storage in a series of 12-volt storage batteries.

A reciprocal arrangement exists between Solar One and the Delmarva Power & Light Co. which in conjunction with the university and the National Science Foundation helped fund the project. When the house produces surplus power, the design is to transmit that excess to the power company. By the same token, in times of protracted bad weather when Solar One needs power, the company would return the favor and supply that power. The potential of this kind of arrangement is enormous. Projected nationally, such a system might bring major relief to our already overburdened electrical utilities, not to mention the favorable effect on electric bills.

To warm the house, solar heat received through the collectors on the roof is carried via ductwork to a 6'x6'x6' storage area in the basement containing a special kind of chemical salt enclosed in tubes. The hot air passes over the salt, which melts at 120 degrees Fahrenheit. The salt absorbs the heat and stores it. During the evening and nighttime hours when the house cools down, the air within the house is circulated through the salt chamber—extracts the stored heat—and circulates it throughout the house. The process starts over again when the Sun begins to shine. When there is not sufficient sunshine to provide comfortable temperatures, a heat pump is used to amplify the heat and permits adequate heating even on cloudy days.

During the summer, an air-conditioner is operated during the night hours when more power is available from the power company. The cool air is passed over another body of chemical salts which absorbs and holds the coolness. When the temperature outside rises during the day, air is circulated through the salt—extracts the coolness—and is then circulated throughout the house. As I said a minute ago, the system was able to maintain a house temperature of 73 degrees throughout the hot spell we experienced last August.

Mr. President, Solar One is a remarkable demonstration of practical applications of solar energy. The system has been designed by a dedicated 100-man research team of Delaware University's Institute of Energy Conversion under the leadership of Dr. Karl W. Böer, a recognized expert in cadmium sulfide solar cell research. I had the pleasure of meeting Dr. Böer, and members of his team during my visit. I was highly impressed by both their obvious scientific know-how and their careful, commonsense approach to the practical problems of costs, mass production, marketing and the industrial involvement and cooperation that have to be solved before Solar One can move beyond the experimental stage. According to Dr. Böer, his major goal at this time is to interest the power utilities in his solar house system. He feels that when the point is reached where the utilities could undertake the installation and servicing of such a system—in much the same way as the Bell System now installs and services telephone equipment—the way will have been paved for a major harvesting of our solar energy.

I want to commend the institute and Dr. Böer for their achievement to date and for their vision of the future. They are making a very valuable contribution and I hope their work continues to go well.

I also highly recommend that all who can take the time to visit Solar One. It is only a short drive from Washington and will be a rewarding experience—particularly to Members of the Senate and House who are so deeply concerned with developing new initiatives to combat the energy crisis.

The bill now before the Senate has a place within it for a concerted—and I hope an "all-out"—desire to harness the energy of the Sun. I will expect that those who are charged with the responsibility will mount such an effort as soon as possible.

Mr. President, America's technological breakthroughs in her space program of the 1960's and in the field of the atom and nuclear energy came about because the Nation was willing to accept those challenges and applied the resources needed to do the job. The burgeoning energy crisis is without question one of the most formidable challenges facing the Nation today. The task we face is to bring to bear on these new clean energy prospects the full force of the kind of major financial and organizational commitments called for by this legislation.

Finally, Mr. President, I will conclude on a personal note. It looks like my involvement in geothermal and solar energy may follow me into retirement. After visiting the solar house in Delaware, my wife was so impressed that she has been pressing me to design a solar house as our retirement home in Reno. In addition, the area close to where I grew up has been demonstrated to have great potential for geothermal energy development, and my wife's further aim is to have another home there heated and cooled by geothermal energy. So we will look forward in our retirement years, to continuing our own new energy program and reducing our energy bills. And I do not quarrel with the possibility that these things may well come to pass.

Mr. President, I yield the floor.

Mr. FANNIN. Mr. President, to further emphasize what we are up against, as far as our energy shortage is concerned, and just where the troubles exist, I would like to discuss what happened to one of the utilities in Arizona that I am familiar with. This perhaps illustrates what is happening all over the Nation. I am very pleased to have this opportunity to speak this morning in the presence of our very distinguished new Vice President who is now presiding in the Senate. I wish to express my praise to him. I am very proud that he is with us and I know he will be of great assistance to us in carrying out the business of this body. In the other body we have pages of illustrations of his great work there. I commend him highly for his activities. Some of his very close associates come from my State of Arizona and they are very high in their praise of his great work.

Mr. President, with reference to what has taken place and to demonstrate what is illustrative of what is happening

throughout the Nation, I refer to Tucson, Ariz., where we have a local, power-generating plant for the area, which is in the southern part of my State. I refer to a chart which shows what is happening so far as our shortage of natural gas is concerned and why it is so necessary for us to go on with the consideration of the matter being discussed this morning.

They have great potential in geothermal energy in my State. I have been very active in trying to help develop this potential.

I refer again to the Geyser Plant in northern California. It is to be the largest development program in the world in a very short time. It exceeds the older fields in other countries, specifically in Italy, which was the largest until the Geyser development. This field which has been underway for a few years demonstrates graphically the tremendous need for energy. As far as exploration and development of conventional fuels is concerned, we are running out of these fuels. But we still have many years supply left. Thus these fuels will be available to us as we go forward with the necessary procedures to develop them. I am talking about drilling at greater depths, secondary and tertiary recovery; I am talking about new programs that are now being utilized, placing explosive materials in certain areas of a well and producing both additional oil reserves and gas. This is so necessary because this utility in January 1972, for the production of electricity, was 91 percent gas and 9 percent oil. Then, we go to 1973 and we had the beginning of the shortage. It was becoming serious because we have the price limitation of the Federal Power Commission on interstate gas. So the utilities had to cut back and go to oil. So in January 1973 it was 18 percent gas and 82 percent oil.

As the months went along the trend continued. In 1974, it is estimated, and this is the basis on which they have been notified, the supply will be available—3 percent natural gas and they will be dependent 97 percent on oil, but they are also notified that they will be cut back 35 percent on oil. Thus, we must move forward to produce more energy.

How can they possibly go forward with a program where they have a cutback of this magnitude?

Mr. President, I suggest the absence of a quorum.

The VICE PRESIDENT. On whose time?

Mr. FANNIN. On my time.

The VICE PRESIDENT. Without objection, it is so ordered. The clerk will call the roll.

The legislative clerk proceeded to call the roll.

Mr. CHURCH. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded for the purpose of allowing the distinguished Senator from North Carolina (Mr. HELMS) to call up an amendment.

The VICE PRESIDENT. Without objection, the order for the quorum call will be rescinded.

Mr. HELMS. Mr. President, I thank the distinguished Senator from Idaho for his courtesy, and I ask unanimous consent that the Buckley amendment be set aside so that I can call up an unprinted amendment which is at the desk.

The VICE PRESIDENT. Is there objection? The Chair hears none, and it is so ordered.

The clerk will report the amendment.

The legislative clerk read the amendment, as follows:

At the end of the bill add a new title as follows:

REPEAL OF THE PROHIBITION ON THE REMOVAL OF MOTOR VEHICLE EMISSION CONTROL DEVICES

42 USC 1857f-2(a)(3) is hereby repealed and 42 USC 1857f-4 is amended by deleting the reference to 42 USC 1857f-2(a)(3).

Mr. HELMS. Mr. President, I am offering this amendment which would repeal the current prohibition against the removal of pollution control devices from automobiles by either an automobile dealer or some other individual prior to the initial sale of a new automobile.

Many Americans may not realize it, but there is no law or penalty against the removal of these emission control devices either by the individual carowner or by a mechanic or service station attendant at the request of the carowner.

This amendment would allow a purchaser of a new car to request the removal of these gas-guzzling devices by the dealer or by the manufacturer prior to the purchase of a new car.

I think we all realize that our supply of gasoline and other fuels is extremely limited. Given this limited supply, we must make every effort to use the fuel that we have in the most efficient manner. There is no question that automobiles are more efficient without the emission control devices which have been required by Federal law in recent years. It would be fine to consider these pollution control devices in the abstract, but unfortunately, circumstances are such that we must weigh our priorities and adjust our lives according to the conditions which exist in the real world.

Those who wish to continue to operate their cars with the pollution control devices attached will still have that opportunity if this amendment is adopted. While those who cannot afford the luxury of pollution control devices will be given the opportunity to go to their dealer and have these devices removed or to insist that the devices are removed before they buy the car.

This Nation is being faced with a serious economic hardship because of the fuel shortage. Every practical step must be taken to insure that our productivity as a nation and our viability are given the chance to survive this crisis. I am proposing just such a step in this amendment.

Mr. ROBERT C. BYRD. Mr. President, can we have order in the Senate while the Senator is speaking?

The VICE PRESIDENT. The Senate will please be in order.

Mr. HELMS. In conclusion, I cannot justify penalizing those who need to use their automobiles and who need to get the most efficient use out of that automobile by continuing to insist that every new car sold in America contain emission control devices.

Mr. CHURCH. Mr. President, I raise the point of order that the amendment is not germane and therefore contrary to the unanimous-consent agreement.

The VICE PRESIDENT. The amendment is not germane. The Chair sustains the point of order.

Mr. HELMS. Mr. President, I thank both the Chair and the Parliamentarian, and I thank my distinguished colleague from Idaho. I frankly wanted to raise this question, and this amendment will be back.

USE OF FRANKING PRIVILEGE BY MEMBERS OF CONGRESS—MESSAGE FROM THE HOUSE

Mr. ROBERT C. BYRD. Mr. President, will the Senator yield me 1 minute?

Mr. CHURCH. Mr. President, I yield 1 minute to the Senator from West Virginia.

Mr. ROBERT C. BYRD. Mr. President, I ask the Chair to lay before the Senate a message from the House of Representatives on H.R. 3180.

The VICE PRESIDENT laid before the Senate a message from the House of Representatives announcing its disagreement to the amendments of the Senate to the bill (H.R. 3180) to amend title 39, United States Code, to clarify the proper use of the franking privilege by Members of Congress, and for other purposes, and requesting a conference with the Senate on the disagreeing votes of the two Houses thereon.

Mr. ROBERT C. BYRD. I move that the Senate insist upon its amendments and agree to the request of the House for a conference on the disagreeing votes of the two Houses thereon, and that the Chair be authorized to appoint the conferees on the part of the Senate.

The motion was agreed to; and the Vice President appointed Mr. MCGEE, Mr. RANDOLPH, Mr. HOLLINGS, Mr. FONG, and Mr. STEVENS conferees on the part of the Senate.

Mr. CHURCH. Mr. President, I suggest the absence of a quorum.

The VICE PRESIDENT. On whose time?

Mr. CHURCH. Mr. President, I ask unanimous consent that the time be equally divided between the two sides.

The VICE PRESIDENT. Without objection, it is so ordered. The clerk will call the roll.

The legislative clerk proceeded to call the roll.

Mr. BUCKLEY. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER (Mr. CLARK). Without objection, it is so ordered.

Mr. ROBERT C. BYRD. Mr. President, will the Senator yield for a unanimous-consent request?

Mr. BUCKLEY. Mr. President, I yield to the distingiushed Senator from West Virginia.

REMOVAL OF CONFEREE ON HEALTH MAINTENANCE ORGANIZATION CONFERENCE

Mr. ROBERT C. BYRD. Mr. President, due to an error, the name of the Senator from Oregon (Mr. PACKWOOD) has been listed as a conferee on S. 14, the

health maintenance organization conference. I have been requested to ask unanimous consent, and I do ask unanimous consent, that the name of the Senator from Oregon (Mr. PACKWOOD) be removed as a conferee on S. 14.

This action, I am told, has been cleared by both the Senator from Massachusetts (Mr. KENNEDY) and the Senator from New York (Mr. JAVITS).

The PRESIDING OFFICER. Without objection, it is so ordered.

MESSAGE FROM THE HOUSE

A message from the House of Representatives by Mr. Berry, one of its reading clerks, announced that the House had agreed to the report of the committee of conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H.R. 11459) making appropriations for military construction for the Department of Defense for the fiscal year ending June 30, 1974, and for other purposes; that the House had receded from its disagreement to the amendments of the Senate numbered 1 and 2 to the bill and concurred therein, each with an amendment in which it requests the concurrence of the Senate.

The message also announced that the House had agreed to the amendments of the Senate to the bill (H.R. 11710) to insure that the compensation and other emoluments attached to the Office of Attorney General are those which were in effect on January 1, 1969, to amend title 39, United States Code, to clarify the proper use of the franking privilege by Members of Congress, and for other purposes.

The message further informed the Senate that, pursuant to the provisions of Public Law 92-342, the Legislative Branch Appropriation Act of 1973, the Speaker had appointed the gentleman from Arizona, Mr. RHODES, vice Mr. GERALD R. FORD, to serve with the Speaker and with the members of the Commission on Art and Antiquities of the U.S. Senate in supervising the restoration of the old Senate and Supreme Court Chambers in the Capitol.

MESSAGES FROM THE PRESIDENT

Messages in writing from the President of the United States were communicated to the Senate by Mr. Heiting, one of his secretaries.

EXECUTIVE MESSAGES REFERRED

As in executive session, the Presiding Officer (Mr. BIDEN) laid before the Senate messages from the President of the United States submitting sundry nominations and withdrawing the nomination of Helmut Sonnenfeldt, of Maryland, to be Under Secretary of the Treasury, which nominating messages were referred to the appropriate committees.

(The nominations received today are printed at the end of the Senate proceedings.)

NATIONAL ENERGY RESEARCH AND DEVELOPMENT POLICY ACT OF 1973

The Senate continued with the consideration of the bill (S. 1283) to establish a national program for research, development, and demonstration in fuels and energy for the coordination and financial supplementation of Federal energy research and development; to establish development corporations to demonstrate technologies for shale oil development, coal gasification development, advanced power cycle development, geothermal steam development, and coal liquefaction development; to authorize and direct the Secretary of the Interior to make mineral resources of the public lands available for said development corporations; and for other purposes.

Mr. MANSFIELD. Mr. President, I want to commend the chairman, Mr. JACKSON; the ranking minority member, Mr. FANNIN; and the members of their committee for their hard work and care in preparing S. 1283. I am particularly pleased to see research which offers alternatives to the earlier proposals that gave undue emphasis to nuclear development.

As the chairman knows, my State of Montana and the adjoining States of Wyoming, North Dakota, and South Dakota contain more than 95 percent of the known low sulphur coal deposits of this country. Extreme pressures have been brought on the Federal and State governments to begin at once massive strip mining of these coal deposits. My concern during all this time has been the tearing up of eastern Montana without regard to the environment or the lives of its people. There could be a 20- to 40-year boom and then an economic bust after destruction of the land, depletion of water resources and wanton production of the coal deposits without regard to the final consequences.

I would like to ask the chairman whether it is the intent of the committee that the research and/or demonstration projects will determine the feasibility of converting coal processes such as gasification, liquefaction and electrical generation to other uses? Thus, as the coal is used, other industrial projects could be developed to lessen the adverse economic impact on the termination of coal-related developments.

Mr. JACKSON. I wish to thank the majority leader for his comments and support of S. 1283. Specifically, to answer the question, it is our intent that the long-range use and conversion possibilities will be considered and where possible be included in the research and demonstration projects.

There are two other provisions of the bill which relate to the distinguished majority leader's specific concerns about coal mining. First, section 104, which sets forth the duties of the management project, specifically requires that full consideration and adequate support be given to "improving the efficiency, conservation, and environmental effects of the conventional sources of energy." This requirement is included because the committee agrees wholeheartedly with the Senator that in the development of our coal deposits or other resources for our current energy needs we must not ignore the social consequences or the impact of today's action on the future. With particular reference to coal mining, section 106(a) calls for the demonstration of new and improved methods for the extraction of coal resources. I would envision the development of these new methods in such a way that the future production of this valuable energy source will be more efficient and more economical, but much less destructive than has been the coal mining of the past. Additionally, such research should also include improved reclamation techniques.

Mr. MANSFIELD. The research priorities in the bill are broken down to short term, middle term and long term—and of the eleven listed short term priorities, four are specifically aimed at coal—and three more are indirectly related to coal. The coal deposits of my State and the adjoining States are low in sulphur and btu and require different methods or processes for gassification and liquefaction. Does the Senator from Washington contemplate that a substantial portion of the four priorities will be used for research on these low sulphur low btu deposits?

Mr. JACKSON. I can assure the majority leader that it is the intention of the committee that a substantial portion of the short-term research will be directed to the conversion processes for coal of the type unique to the Upper Missouri Region States.

Mr. MANSFIELD. Will research be conducted by organizations from outside the production region or will there be an effort made to establish an institutional research capability within the region to ensure the technical capability being available within the coal deposit area?

Mr. JACKSON. I hope that this bill will provide the stimulant not only to develop a breakthrough in technology but also to create a research capability in those coal producing areas with the technological know-how to produce needed energy.

Mr. METCALF. Mr. President, I also wish to join my colleague in congratulating the Chairman. As a member of the committee, it has been a distinct pleasure to work with the distinguished Senator from Washington. As the chairman knows, I have for some time been interested in the MHD—Magnetohydrodynamics—process. We have discussed it in committee, but I would like to further clarify that it is the intent of this bill that we should build a demonstration MHD project; further, that there are great advantages to constructing it within a coal-producing region. I would like to see this plant built in Montana; however, if it is not in Montana, it should be built in the area of the low sulphur coal deposits. My intense interest in the MHD process stems in part from the fact that it uses only a small quantity of water, which is also a resource

that is in short supply in our region, and MHD contributes a minimum of air pollutants.

Mr. JACKSON. I wish to thank the junior Senator from Montana (Mr. METCALF), who has been an effective and influential member of our committee. I would like to say that it is the intent of the bill that an MHD demonstration plant be built. The building of such a plant on a known coal deposit such as in Montana would seem most logical.

Mr. MANSFIELD. On pages 63 and 64 of S. 1283, provision is made for the designation of members of the management project. Item 8 provides for the President to appoint additional representatives from executive agencies which have a significant and continuing role in energy research and development. In these areas where research will be conducted on coal and oil shale, and where these deposits are geologically situated so that they cross State boundaries, the necessity for regional overview of the research is of prime importance. I recommend that, where appropriate, title V regional economic development commissions be added to participate in coal and oil shale research projects in these regions.

Mr. JACKSON. I agree with the majority leader. Those regional commissions in which the States are both geologically and geographically contiguous should be given consideration for selected membership on the management project to review, formulate, and approve research and demonstration projects in their respective regions.

Mr. MANSFIELD. Is it assumed that, under this act, demonstration and development projects, whether located on Federal, State, Indian, or private lands, will be built in full compliance with land use, utility siting, conservation and reclamation laws and regulations of the State within the boundaries of which the project is located?

Mr. JACKSON. The distinguished majority leader is correct. The purpose of this act is the development of a capability for energy self-sufficiency through the use of "socially and environmentally acceptable means." Both State and Federal laws of the type described by the Senator define that which has been legislatively determined to be socially and environmentally acceptable. There is no provision of this bill to supersede or set aside any of the laws to which he has referred.

Mr. BUCKLEY. Mr. President, I ask unanimous consent that two members of my staff, Mr. William Schneider, Jr., and Michael Uhlmann, be given the privilege of the floor during the debate on the pending measure.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. BUCKLEY. Mr. President, I call up my amendment No. 767.

The PRESIDING OFFICER. Under the unanimous-consent agreement, the amendment is already pending. How much time does the Senator yield himself?

Mr. BUCKLEY. Mr. President, I yield myself such time as I shall use.

The PRESIDING OFFICER. The Senator from New York is recognized.

The amendment is as follows:

At the end of the bill insert the following:

TITLE III—AMENDMENTS TO NATURAL GAS ACT

SEC. 301. This title may be cited as the "Natural Gas Act Amendments of 1973".

SEC. 302. Section 1(b) of the Natural Gas Act is amended by inserting before the period at the end thereof the following: "or to the sale of natural gas delivered for the first time in interstate commerce or sold in interstate commerce upon the expiration of an existing contract on or after the effective date of the Natural Gas Act Amendments of 1973, or produced from wells commenced on or after such date.".

SEC. 303. Section 2 of hte Natural Gas Act is amended by adding at the end thereof the following:

"(10) 'affiliate' of another person means any person directly or indirectly controlling, controlled by, or under common control with, such other person".

SEC. 304. Section 5 of the Natural Gas Act is amended by inserting at the end thereof the following:

"(c) In any case where a natural gas company purchases natural gas from an affiliate the Commission may disallow any portion of a rate or charge by such company which is based on the amount paid for such purchase in excess of current prices paid for comparable gas to nonaffiliates.

"(d) The Commission shall not authorize any increased rate or charge for natural gas on the basis of the renegotiation of any contract for the sale of natural gas, being carried out before the effective date of the Natural Gas Act Amendments of 1973, prior to the date on which performance is completed under such contract in accordance with its terms: *Provided*, That the Commission may approve such renegotiation where adjustment in contract terms is required to assure optimum production from producing reservoirs.".

Mr. BUCKLEY. Mr. President, the purpose of my amendment is simple. It is to take immediate action to solve the problem of energy supplies. Thus far we have adopted a number of measures in connection with the energy crisis that have concentrated on the conservation of our scarce fuel resources.

The bill under pending consideration, and to which this amendment is offered, is one designed to stimulate research and development that will have an effect on energy supplies in the short term, in the intermediate term, and in the long term.

My amendment does not propose an across-the-board deregulation of natural gas. Rather, it takes into consideration the grave concern expressed by many in that Chamber and in the House of Representatives that if we lift the FPC controls on presently flowing gas and presently valid contracts, we will cause windfall profits to be realized by the gas-producing companies.

My amendment specially excludes all gas free flowing under contract.

In other words, it would liberate only new gas supplies that are not presently being put into interstate commerce.

Second, there has been a broadly expressed concern over the fact that some pipelines have affiliations with gas-producing companies, and that therefore there may be a presumption that gas sold by an affiliate in an interstate pipeline does not represent an arm's-length transaction of the type that would assure the ultimate consumer that the price reflected in his gas bill truly represents a competitive market price for that commodity.

Mr. LONG. Mr. President, will the Senator yield at that point?

Mr. BUCKLEY. I yield.

Mr. LONG. Mr. President, that argument has been made down through the years, but it really is ridiculous when one looks at the facts of life that exist today. One could look, for example, at the city of Monroe, La., of which this Senator is painfully aware. That is one of the largest cities in Louisiana, perhaps not big by Washington, D.C., standards, but big by Louisiana standards. It is perhaps the largest city in the Fifth Congressional District of Louisiana.

It is a city which is sitting practically on top of a gasfield, once the largest gasfield in the State. The little mayor, who is a very nice fellow, and his city council cannot get gas to generate electricity for their citizens. He can even show that he can afford to pay $2 a thousand for gas, and it would still be to their advantage to do so rather than buy coal. His problem is trying to find someone who can deliver the gas to him.

He can find sellers who would be delighted to sell the gas for a lot less than $2. They would be tickled pink to get a dollar for the gas. But they have the difficulty that they do not have local pipelines from where they have the gas to his city, and if the gas goes into the existing pipelines, it will be intermingled with interstate gas, which is subject to regulation by the Federal Power Commission, and whoever buys that gas will be subject to the regulation as well.

When that happens, the Federal Power Commission will tell the people they can only get about 25 cents a thousand for the gas. The result is that they will not sell it.

Mr. BUCKLEY. I cannot blame them.

Mr. LONG. Why would anyone want to sell something for 25 cents a unit when he has buyers willing and able to pay a dollar? So the people in Louisiana now are undertaking to establish a purely intrastate network of pipelines to duplicate the existing system of interstate pipelines that flow through the State, which would mean a great deal of steel webbing in the State to move gas around to duplicate that which would otherwise be available with the existing pipelines.

Think how much better off we would be if we took that steel and put it into drilling more wells, and pushed the gas through the existing pipelines. But the people in Monroe have to struggle with this problem of a shortage of gas because they cannot move the gas from where the gas exists to their location.

How is anyone up in New York going to be able to buy that gas at 25 cents a thousand when you cannot buy it in Louisiana for 25 cents a thousand? We have plenty of buyers in Louisiana that will buy all you can deliver at 50 cents a thousand, and perhaps a higher price

than that. Can the Senator explain to me how someone from New York coming to Louisiana as a complete stranger is going to be able to buy gas at a price of half or perhaps even a quarter of what the local citizens are willing to pay for it?

Mr. BUCKLEY. The Senator's point should be obvious to everyone, and demonstrates just how ridiculous, wasteful, and counterproductive these attempts to control the workings of the marketplace have been.

The people in New York are willing to pay substantially more than they are paying today for natural gas just to have available to them the most effective, efficient, and cleanest fuel that we have in this country. As a matter of fact, a statistic came to my attention just yesterday of a gas company in Boston which is now importing liquefied natural gas from Montreal, at a price between $1.20 and $1.80 per thousand delivered at the city gate, while gas in the pipeline from the Southwest is reaching the city gate at a price of about 60 cents per thousand.

Obviously, the people in Boston would rather pay another 40 or 50 cents to get the gas to the city gate by a far more efficient and effective means from the Southwest than pay still a higher price to a foreign country.

People in New York, in 150 industrial firms, are beginning to slow down production, putting people out of work in New York State, because they are running into shortages of natural gas. They are on interruptible rates, and the utility companies have been forced to interrupt the flow of natural gas. This is going to impose an increasing hardship on people of New York. Obviously the people would be willing to pay another few cents per thousand cubic feet in order to guarantee themselves a source of supply.

Every analyst who has gone into the matter from the academic and industrial world now admits the existence of an identifiable cause and effect. They admit that the most effective single step the Congress of the United States can take would be to liberate producers from the restraints of the Federal Power Commission controls over interstate gas sales.

There are a lot of people who say, "If you jumped the price of new gas from 25 cents, to, let us say, 65 cents, which is the price at which I understand gas is being sold in Oklahoma, it would cripple the consumer."

The fact is that that is nonsense. A careful study prepared by the American Petroleum Institute demonstrates that the roll-in factor, blending the new, higher cost gas with the older cost, would result, the first year, in only about a 6.8 percent increase to the housewife in New York City, and I think in the second year the increase would be about 4 percent. Over a period of about 5 years, I think the total cost increase would only be about $20 a year.

The difference to that housewife is not that she is spending $20 more for gas, but rather that she has gas. The alternative is that many homes in New York can no longer connect to an interstate pipeline, and even those already connected will have to use less.

So commonsense and a belief in what a free economy can do in channeling investment in order to meet demand dictate that we adopt my amendment.

Mr. LONG. Mr. President, if the Senator will yield further, one of the most sensible statements made by any witness testifying on this matter was by one who explained that if you want to create a shortage of something, all you have to do is sell it for a lot less than it is worth, and you will have a shortage in a hurry. When you have something for sale, and you are selling it for a lot less than it is worth on a competitive basis, it is not unusual to have someone say, "At that price I will take all you have. How much do you have? I will just take it all." Because it is worth a lot more than that.

That is what has happened, to a large degree, with gas. It is not being used in the most efficient fashion, because it is selling far below what it is worth, and of course the ridiculous thing is that people are still converting from coal over to gas when we ought to be doing it the other way around, because we have virtually unlimited reserves of coal in the country.

This thing of selling the gas for far below what it is worth has so increased the demand for it that the supply, which a few years ago was estimated to be a 23-year supply, is now down to where it is only a 10-year supply. In due course, we will have to pay enormous amounts of money to pay the cost of operating a pipeline that is not fully loaded.

Of course, as the Senator well knows, the overhead on a pipeline, for the investment, the pumping stations, and the management, is the same whether the pipeline is fully loaded or whether it is only half loaded. It still costs the same amount, the investment is the same; so one has to pay a great deal more for transportation if they are transporting a smaller unit.

It is as though we took an automobile and headed from where the Senator stands now in the Capitol to go to New York City. Most people really do not think it is using any more gas because we put two passengers in the automobile instead of one. We will use a little more gas, but the difference in consumption is so low we would have to carefully check it to be sure there was a difference. But the Senator and I know that if we have two passengers in an automobile instead of one, we will use a little more gas and perhaps a little more wear and tear on the automobile, but almost imperceptible. But the cost of carrying the extra passenger is hardly more than 1 percent of the cost of moving the driver and the automobile from here to New York.

The same principle applies when we operate a pipeline not fully loaded. If it is only half filled to capacity, the cost per unit of moving the gas is twice what it would be if we had the pipeline fully loaded.

The Senator knows that the cost of distribution within the city gates in New York, Washington, Philadelphia, or any other major city, greatly exceeds the cost of buying the gas from the field as well as the cost of moving it a thousand miles to get it here, or just the cost of pushing it through the smaller pipes into the households of consumers. So that when we take those factors into consideration, everything argues for making more gas available.

The reason more gas is not available is that people do not want to sell it at a price far below what it costs on a competitive basis. All the gas producers want is an opportunity to compete for a customer with the producers of oil and the producers of coal at the same unit price the other people are producing their energy for.

For the life of me, I cannot understand why one is permitted to do that with hydropower, made by falling water, and he is permitted to do that with atomic energy, he is permitted to do that with oil, he is permitted to do that with coal, but he is not permitted to do it with gas.

That is an utterly ridiculous conclusion to reach. If one is trying to find an immediate increase in gas, that is an area where he could find it. But to try to do it the way others would do it, to nationalize the industry or to seize all the gas, would run into one frustration after another.

First, we will be told that the people who will get the pipe are having difficulty, and then that they are having difficulty with the right-of-way across one's land to lay the pipe to the nearest pipeline. Then we will be told that the well is drying up so that they cannot afford to rework it. Then we shall come to the conclusion, if worse comes to worse, if in the end one finally succeeds in using all the power of the Federal Government to seize someone's gas which he is not willing to sell to interstate commerce, we will then be confronted with what the truckers are doing right now on our highways.

Mr. BUCKLEY. The Senator is entirely right. The Senator pointed to the effect on people who already have gas. Obviously, someone who has a commodity based on the Btu value in comparison with other fuel, is dramatically underpriced. Based on intrastate sales, interstate gas is dramatically underpriced and he is not willing to sell it or to have it regulated at the artificial price schedules.

The Senator from Louisiana brings up the fact that some people ignore that. Here and there there is gas said to be connected to the interstate pipelines that is not connected, so that the extra gas in Monroe, La., could be connected to an existing pipeline, if we removed the impediments.

This raises a point with some people who say there is no urgency to move for decontrol because it will take a matter of years before the industry can respond in terms of permitting more supplies into interstate pipelines. They are saying that if we raise prices—sure, we will create an additional incentive and more people will put together the money to drill the wells. But they may make a discovery only on the fourth or fifth well, and after that they will have to develop it and connect it up. So we do not have to move today, tomorrow, or next week, they say, because it will have this effect a couple of years from now.

Of course, that is nonsense.

In the first place, we will immediately appeal to those who have gas and who are unwilling to commit it at today's prices.

Secondly, there is exploration going on today in States like Louisiana, Texas, and Oklahoma, which is being explored in order to take advantage of intrastate markets. The moment we free up the interstate market, then the producer has the option of getting that gas, tomorrow, next week, or whenever he makes that discovery, into the interstate market.

Thirdly, there are a number of discoveries that have been made which are subeconomic at present prices, where there is fracturing work to be done, or some other technique has to be utilized to free up the formation, or perhaps the discoveries are too deep to enable commercial development of a field.

There is still another implication that people tend to ignore or to be unaware of, and that is for every thousand cubic feet of new gas we send into interstate commerce, we then free up an equivalent amount of energy in fuel oil and in clean coal to be used for other purposes.

In other words, that new gas goes into the entire pool of our energy supplies and thereby, instantly, to that extent, reduces our total shortages.

There is another pernicious effect that has resulted from past regulation that I believe Congress should be aware of. It is the artificial ceiling on natural gas in interstate pipelines that has done more than anything else to paralyze the development of our coal fields.

When a utility could find that it could buy x amount of Btu's at regulated subnormal prices for gas, naturally they converted from coal to natural gas. This has had the effect of closing down marginal coal mines and has had the effect of artificially lowering the price of coal. It has had that effect on the railroads because a number of railroads that had been dependent on the shipment of coal found themselves losing their principal source of support and have had to go into debt, which has contributed to the shambles we will be facing next week with the railroad legislation bill coming up.

Mr. LONG. As the Senator has so well pointed out, the reason the Penn Central is in bankruptcy is that the pipelines have displaced the gas that displaces the coal that would be moving from the Pennsylvania coal fields into the consuming areas, such as New York, so ably represented by Senator BUCKLEY.

If we had not priced the gas artificially low but had let it compete in unit price with coal, then presumably the Penn Central Railroad would still be moving very large amounts of coal into the industries that have converted to gas because the gas is cheaper.

Mr. BUCKLEY. Mr. President, the Senator from Louisiana has pointed out something that should be self-evident to anyone who will examine the facts. I have, I believe, 27 cosponsors of the amendment now and I have not begun to canvass the entire membership of the Senate. But I believe that the facts are so compelling that any objective study of the record would result in a majority of the Senate putting its name on this amendment.

Mr. LONG. Mr. President, will the Senator yield?

Mr. BUCKLEY. I yield.

Mr. LONG. Do I correctly understand that the Senator would not provide any increased price to those who are presently selling gas under the existing contract? He is only saying, with regard to gas that can be obtained and added to the available supply, that gas should sell at the going market price?

Mr. BUCKLEY. That is right. I am saying that the gas that is committed under contract will continue to be committed for the life of that contract. Therefore, there will be no windfalls.

I go a step further. As the Senator from Louisiana is aware, a number of people feel that if we end up with a two-tier price system of gas committed to interstate pipelines, a producer will withhold new gas unless the pipeline agrees to renegotiate an existing contract. Thereby, in effect, he will increase the old as well as the new.

The amendment I have offered provides that there will be no renegotiations of an existing contract except under conditions where the FPC determines that an adjustment of terms is required in order to continue production from existing reservoirs at optimum rates.

As the Senator from Louisiana is aware, as a field goes into a declining curve, it is often necessary to undertake remedial measures. These remedial measures cost money. They will or will not be taken, depending on whether the producer can be assured of recovering the cost of the new equipment.

Mr. LONG. I thank the Senator for yielding to me in this matter. He is right on the general issue. I do not know whether he has had sufficient time to educate the Senate in this matter. I am convinced that once any person studies this matter long enough to separate the arguments that do not make sense from the arguments that do make sense, he will agree with the Senator from New York.

Mr. BUCKLEY. Mr. President, I am tremendously grateful to the Senator from Louisiana for his contribution for this discussion.

It should be pointed out that the Senator from Louisiana represents a producing State. The Senator from New York represents a consuming State. Too often in the past, there has been a kind of blind division of sentiment in Congress on the assumption that that which helps producers hurts consumers, but I think that the impediment toward moving forward is a psychological one, rather than a factual one.

I delivered a speech on the floor of the Senate on January 18 in which I tried to marshal the fact that led to the compelling conclusion that the interests of producing and consuming States are identical. Based on information I had just heard as a member of the Committee on Interior and Insular Affairs—from testimony as to where we might find alternative sources of natural gas in order to meet increasing demand—I reached the very simple conclusion that the cheapest alternative for the consumer would be to liberate the gas industry within the United States so that it could go about the business of marshalling the money to find that deeper gas, that more costly gas, which could nevertheless be delivered to New York City at prices far less, up to 50-percent less, than the prices at which alternatives could be delivered.

What is not recognized is the extent to which exploration declined after the FPC asserted jurisdiction, and where gas was nevertheless found, that gas, instead of being 90-percent committed to interstate markets, became committed 90 percent to intrastate markets. Studies of the Permian Basin demonstrate that this turnover took place in a period of just 3 years.

Somebody in New York City who wants the benefits of natural gas has only a few alternatives:

Natural gas produced within the 48 States, and we have already discussed what the price cost to the consumer might be there—a 6½-percent increase the first year, somewhat lesser the second year, and so on.

Or, we might await the several years it will take to build a pipeline from Alaska across Canada and to the 48 States. But even then, the gas will have had so much transportation cost tacked onto it that it will get to New York City at something like double the price of deregulated gas from Louisiana.

Or, we might rely on the Algerians to let us have liquified natural gas for which we have contracted and pay $1.25 or $1.50 at the city gate.

Or, we can invest the $7 billion or $8 billion, or whatever it is, in Siberia, relying on the good will of the Soviet Union to bring in their LNG at $1.80 per thousand cubic feet.

Or, we could await the liquefaction of coal at the Four Corners, a project that is going forward. That will be producing gas at the equivalent of about $1.50 per thousand cubic feet, and it still will have to be transported from the Southwest to New York.

Or, we can import naphtha and make synthetic natural gas, and again the price will be 2 or 3 times as much.

I am worried about the consumer in New York. I am worried about the factories that are shutting down in New York. I am worried about the extra cost to the householder that will come about by adding more of the overhead cost to a declining supply of gas, because I want to see the gas producers, wherever they may be in this country, free to find gas for my constituents. That is why there is no conflict between the producing and consuming States.

Mr. LONG. The height of idiocy, I think, has been demonstrated by what happened in Boston recently. As I understand it, those people wanted to get gas from Algeria and were willing to pay about $1.80 a thousand, which is about half of what it would cost them to buy gas in the Southwest and have it delivered through a pipeline to the city. The reason they are paying that price is that someone was trying to make them think

that they could buy the gas in the Southwest for 25 cents a thousand, which of course they cannot. Who but an idiot is going to sell you something for 25 cents when his neighbor will pay a dollar for it? They then proceeded to sign the contract to buy the gas from Algeria at about $1.80 a thousand, which is about twice what it would cost to buy it in Louisiana or Texas.

After they did all this, a fight broke out between the Israelis and the Arabs, and the people of this country generally tend to sympathize with the Israelis. Now the Arabs are punishing the people in Boston by refusing to deliver the gas at the $1.80 price, which is twice the price the people in this country would be willing to sell the gas for, if they could buy it.

Eventually, it is going to occur to someone that they would be better off to have a reliable source of supply in this country, and have it delivered at a cheaper price, than to try to buy gas, to try to make somebody sell it, to make an unwilling seller produce something, for a far less price than his neighbors within his own State are willing to pay for it.

Mr. BUCKLEY. Does the Senator recall what happened when the Government tried to make beef producers sell at a price lower than they were willing to sell for? We had no beef.

Mr. LONG. Yes. We recall how those kinds of economics worked out recently when the Government tried to make the producers of chickens sell the chickens for less than the cost of the feed. Those producers disposed of all the little biddies; they ground them up into fertilizer and animal food because they were not able to sell the chickens at a price to equal the cost of the feed and grain that went into those chickens.

So that type economics merely defeats its own purpose and it causes politicians to scurry around the countryside, trying to blame someone else for their own folly.

It would seem to me that this decision was made in error by the court. It demonstrates something I have thought for a long time about those who are across the plaza from us. Judges are not good legislators. They were not picked for that purpose. They have little experience in the area. They feel compelled to be consistent and having made a mistake they do not like to reverse themselves.

That is something that we as legislators are supposed to be willing to do. We are supposed to be willing to admit we made a mistake and to vote for corrective measures.

Assuming the court in deciding an issue made a mistake, someone should correct it, and that should be the legislative branch. Recently I discussed this matter with one of the justices of the Supreme Court. He was not there when the decision was made, but he expressed regret that we find ourselves in this situation and he wishes the case was before the Court so he could record himself in favor of the position the Senator from New York has taken.

Mr. BUCKLEY. I thank the Senator.

The PRESIDING OFFICER. Who yields time?

Mr. BUCKLEY. Mr. President, I ask unanimous consent that I may yield 2 minutes to the Senator from Minnesota (Mr. HUMPHREY) in order to call up an amendment, and that I may yield to him without surrendering my right to the floor.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. HUMPHREY. Mr. President, I send to the desk an amendment and ask that it be stated.

The PRESIDING OFFICER. The amendment will be stated.

The assistant legislative clerk read as follows:

On page 65, line 8, after the word "Act," insert the following: "provide Congress in this proposed strategy with a range of funding options for its consideration within each of the potential energy sources and technologies included as priorities in Section 106 (a) (b) and (c).".

Mr. HUMPHREY. Mr. President, I have discussed this amendment with the manager of the bill. I am concerned that the "comprehensive energy research and development strategy" called for in section 104(b) of this bill provide a range of options to the Congress in terms of levels of effort to support research on the various sources of energy.

I am concerned that the "management project" will provide Congress with fixed funding level proposals for each energy source and a rationale for these levels rather than a range of options within each element of the program from which Congress may choose.

The recent set of energy research and development funding recommendations to the President by the AEC heightens this concern.

The solar energy proposals, for example, are in my opinion totally inadequate, given the potential of this energy source and the recommended minimum viable program levels proposed by the Government's own top solar energy experts.

If Congress is to act responsibly in this area, it must make the final determination of level of support for the various energy sources. Of course, the technical advice of the "management project" and that of experts from outside of Government would weigh heavily in any decision by Congress.

The amendment which I am offering would simply require that the "comprehensive energy research and development strategy" provide funding options among the various energy sources and technologies included in the comprehensive strategy.

This amendment simply adds the words:

provide Congress in this proposed strategy with a range of funding options for its consideration within each of the potential energy sources and technologies included as priorities in Section 106 (a), (b), and (c).

To section 104(b).

Mr. CHURCH. Mr. President, the able Senator from Minnesota makes a good argument for the amendment. I am prepared to accept it.

The PRESIDING OFFICER. The question is on agreeing to the amendment of the Senator from Minnesota.

The amendment was agreed to.

Mr. HUMPHREY. I thank the Senator from New York for his customary courtesy.

Mr. BUCKLEY. I am always delighted to yield to the Senator from Minnesota.

Mr. JACKSON. Mr. President, I ask unanimous consent that Patricia Starratt, of the staff of the Committee on Interior and Insular Affairs, be granted the privilege of the floor in connection with the pending matter.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. DOMENICI. Mr. President, will the Senator yield?

Mr. BUCKLEY. I yield.

Mr. DOMENICI. Mr. President, I wish to state to my distinguished friend from New York that I intend later in the afternoon to ask for additional time to make a detailed statement, but I thought it appropriate as part of the discussion about the comparison of prices for domestic natural gas versus imported natural gas, in connection with the dialog the Senator was having with the distinguished senior Senator from Louisiana, to include a rather incredulous set of facts regarding Massachusetts versus gas from a little county in New Mexico.

For instance, I understand very well that the Senator's amendment will not have any effect on old, existing contracts; but I have just cited these facts to show the incredulous situation we have of natural gas being delivered from Roosevelt County, N. Mex., to the little city of Lowell, Mass., at—would Senators believe it?—6 cents per thousand cubic feet.

That same community is now receiving natural gas imported from Canada at $2.50 per thousand cubic feet, laid down at Lowell. Everyone can do arithmetic. It is almost incredulous that anyone would expect great enthusiasm in the county of Roosevelt, State of New Mexico, to continue exploration activities when that kind of disparity exists. We have gone through the kind of ridiculous regulation from which the amendment offered by the distinguished Senator from New York would, at least, keep us from in the future—that new kind of activity and new kind of natural gas.

I will say to the Senator from New York that later in the day I shall discuss this question in greater detail in supporting his amendment. But public officials in the State of New Mexico and the officials who are concerned about conservation have concluded that we must do this.

Officials who are in charge of employment in a State like New Mexico are concerned about why we are not taking immediate steps to alleviate the crisis, rather than doing so much for the long range. A little State like New Mexico can contribute millions and millions of cubic feet of natural gas, if we will just free it for exploration and development.

I thank the Senator from New York for offering his amendment. I am pleased to be a cosponsor. Later today, I shall offer detailed support for it.

Mr. BUCKLEY. I thank the distinguished Senator from New Mexico for his constructive contribution to the debate.

His positions are thoroughly grounded in fact. I had not been aware that a State that is so close to abundant sources of energy has been forced by Federal regulations to turn to our neighbor to the north—Canada—to get natural gas that is badly needed by the people in his area, gas for which they must pay $2 a cubic foot, when natural gas can be discovered in the United States if we will only liberate our economy in all its facets.

Mr. President, I should like to read from an article entitled "Why We Have An Energy Crisis," written by M. Stanton Evans, the distinguished editor of the Indianapolis News. The article is relevant to the discussion we are having now:

[From the Human Events, Dec. 8, 1973]

WHY WE HAVE AN ENERGY CRISIS

(By M. Stanton Evans)

Careful inventory of our energy reserves suggests two salient facts. One is that we have sufficient quantities of coal, oil and natural gas to last for several centuries, and of course we have only begun to tap the potential of nuclear power. The second is that every one of these energy sources, without exception, has been saddled with government regulation hampering efforts to use the energy in question.

Examples to prove the point are legion, and may be plucked at will from the burgeoning archives of industrial regulation and environmental extremism. Rather than running through a laundry list of excesses, however, let us focus on one specific example which illustrates the irrational character of federal intervention—the case of natural gas.

This fuel is American industry's most important source of energy, supplying 49 per cent of current needs. It also provides 60 per cent of the requirements of commercial enterprise, 52 per cent of residential needs, and 24 per cent of power requirements in the generation of electricity. Yet despite its enormous importance to our economy, this major energy source is in danger of almost total depletion. Of all the shortages we face, that of natural gas is by far the most critical.

Reasons for this calamity are not far to seek: Since 1955 the Federal Power Commission in its wisdom has regulated the price of natural gas at the wellhead, as an allegedly humane piece of political business. The artificially low price has encouraged the widespread consumption cited above, while depriving developers of capital and incentives to explore for new reserves. The result is that demand has far outstripped supply and chances for appreciable enlargement of our natural gas resources are virtually nil.

Such an outcome could have been predicted by any competent economist who understands the working of the price system, since it is precisely the function of rising or falling prices to clear the market and any effort to hold a price below its natural level will create a tendency toward shortage. Workings of this process in the case of natural gas were traced in detail two years ago by Paul Mac Avoy of the Massachusetts Institute of Technology. In a meticulous analysis for The Journal of Law and Economics, Mac Avoy demonstrated that ceiling prices for natural gas "have added to demand and reduced supplies of new reserves. . . ." He estimated that in the absence of controls new reserve findings would have been 40 per cent higher.

And that is only the beginning. This exercise in federal regulation has also contributed to the ruination of the coal business, since the ridiculously low price of natural gas made it more economic than coal and drove out the latter as a source of energy—adding to other regulatory miseries of the coal producers. A study by the Chase Manhattan Bank sums up the marketing situation as follows:

". . . the coal industry was dealt [a] devastating blow by the rapidly expanding invasion of its . . . markets by exceedingly low-priced natural gas. . . . Unable to compete in terms of price, the coal industry experienced a large-scale loss of markets. With declining markets and a very low price received for the coal it was still able to sell, the industry had neither the financial means nor the incentive to develop additional productive capacity. Indeed, it was not even able to maintain existing capacity, as it continued to encounter rising costs of operation"

The impending shortfall of natural gas has also accelerated our dependence on oil and will eventually raise our need for oil by some four million barrels a day beyond the level it would otherwise have reached. That extra usage mandated by federal interference is more than double the anticipated output from the North Slope of Alaska when we finally start receiving it. Thus the regulation of natural gas has fouled up not one energy resource, but three.

What is true of natural gas is true of other energy supplies as well. Indeed, it is difficult to think of a step which our government might have taken to create an energy shortage which has been omitted—blockage of the Alaska pipeline, slowdown on offshore drilling, reduction of the oil depletion allowance, environmental stoppage of oil refineries, development of electrical facilities, mining of coal and atomic power. No aspect of the energy supply has been forgotten, it seems, in the crusade for colder winters.

The most vivid fact emerging from the natural gas example, however, is the ability of the regulators to aggravate the problem from both ends: Not only do they curtail supply, they also pump up demand.

The identical pattern emerges in other aspects of the energy crisis, most notably motor fuel. Here we find the regulators dutifully inhibiting production even as anti-emission standards for automobiles and factories have created vehicles that consume more fuel and induced a number of industries to switch from coal to oil to get within the guidelines.

Or consider the effect of federal price controls. Here are the energy planners urging everyone to turn down thermostats, pondering the desirability of rationing, weighing national speed limits, and considering enormous taxes on motor fuel to tide us over the shortage. We are on a crisis footing, supposedly, to curtail the consumption of gasoline and other energy resources.

But while all this is going on, still other departments of the federal government, administering Phase IV, are doing their bit to *encourage* consumption of gasoline by holding its price below the market rate. The same dispatches that bring us news of all that feverish planning to conserve the use of motor fuel also tells us new ceiling prices on gas must be posted this month, adjusted only to allow for cost increases absorbed by retailers.

When one has encountered enough of these absurdities, it becomes apparent that the regulatory wizards in Washington don't have the faintest idea of what they are doing. The government planners having created the problem, there is no reason whatever to suppose they are capable of solving it. That task will be accompanied only by a systematic program of de-regulation.

Mr. BARTLETT. Mr. President, will the Senator yield for a question?

Mr. BUCKLEY. I gladly yield to the Senator from Oklahoma.

Mr. BARTLETT. I would like to ask the Senator from New York, is not the basic supply and demand economic equation set around the idea that when something is in short supply, the price tends to want to rise in a free market?

Mr BUCKLEY. That is right.

Mr. BARTLETT. This then leads to the consumer being more concerned about purchasing, more careful in the use of the product. There is a damping of demand. On the other side of the coin, the producer will be encouraged to produce more of the product that is in short supply.

Mr. BUCKLEY. That is the classic effect of allowing the marketplace to create incentives and disincentives. A free economy is sensitive to the needs of the consumer because it provides incentives to producers to increase the supply.

Mr. BARTLETT. Is there not another part of this which is very important, particularly now? Although I am very aware that the USGS says that there are ample supplies of undiscovered oil and gas in this country in the Outer Continental Shelf, we do know that we are dealing in oil and in gas with finite amounts.

Am I right that the other part of this question that is very important is that there is a strong encouragement to the producer to seek other products, to develop other ways of producing better fuels that would meet the requirements of this country? For example, some of the research and development programs that might be developed with the bill to which the Senator's amendment would be attached is development of shale oils, development of tar sands, liquefaction and gasification of coal. These are some of the processes that might develop more quickly if there were a free market and if there were this additional encouragement to go into other areas, other fields, to develop a product that would supplement, perhaps in some ways replace, oil and gas?

Mr. BUCKLEY. I think the Senator from Oklahoma has touched on one of the most important aspects of this whole energy problem. If we will allow the various forms of energy to attain their natural economic levels based on their benefit to the consumer, and as is inevitable—and we have our heads in the sand if we think it is not inevitable when now oil is being sold in the international market at $7 a barrel and higher—when the cost of one form of energy starts going up, it brings into line of economic feasibility all kinds of alternatives of the type the Senator has suggested. We are reaching a point where the market incentives will channel huge private resources, and the varied intelligence and expertise of hundreds of firms will put their focus into development and extraction of oil from oil shale, the liquefaction and gasification of coal, and the development of geothermal resources. But at the same time it will accomplish another result that is so vitally important to this country at this time and in the years ahead, and that is to encourage conservation.

We are wastrels when it comes to conservation. We leave the lights on just because the added cost of electricity is not meaningful to the average purchaser.

When one goes to Europe and into a modern apartment house, one has to push a button in the hall to turn the light on, because the light is off. We do not efficiently insulate our houses because it adds something to the cost of purchase, even though good insulation will repay itself in 3 or 4 years out of savings in the cost of energy. If energy costs increase, there will be that much greater incentive to insulate not only new houses but old houses as well.

So it goes. The greatest stimulants to overcoming our domestic problems of energy supply are the stimulants created by allowing the different forms of energy to reach their competitive price.

And so long as we try to hold the lid on these most important single sources of energy which we have right now—natural gas—to that extent we distort the entire supply picture. And the longer we wait, the greater will be the cost of the alternatives and the greater the dislocations when we finally confront reality of supply and demand.

Mr. President, it just came to my attention that 10 million barrels of Nigerian crude have just been sold in Europe at a price of $16.80 a barrel. If we act intelligently now and if we make sure that the research and development will be directly unleashed for the development of our own resources, we in this country will never have to pay such prices. But if we insist on trying to sit on the price of natural gas, even though there is no gas in the pipeline, in desperation people will have to turn to other alternatives at extraordinary prices.

Mr. BARTLETT. Mr. President, if the Senator will yield further, with the artificially low price of natural gas and with this competing against the other prominent fuels, oil, and gas, there has been a decrease in the price of those two products and also a lower supply of all three available. Has there not been less incentive to investigate other sources of energy and other refinements of energy.

I know that the Senator feels confident that the research and development bill will develop new sources of energy that will be suitable to our environment. However, that development would not be hastened with a clear market price.

I am very pleased that the staff of the Interior Committee under the leadership of Mr. Van Ness, Dr. Tussing, and Pat Starratt recently presented material.

I read the material, and we also had some in-house hearings. That material showed that one of the main reasons for the low supply of gas was the low price of the natural gas.

I believe it is fair to say that the paper clearly recognizes the need for higher prices for natural gas. It also concludes that the price should rise to the market level taking into account the environmental premium on natural gas and the other desirable factors it has.

However, is there not in this equation of supply and demand one other thing that is very important—and the Senator certainly touched on that—that the free market price, determined by thousands and thousands of individual transactions, tends to put the products to their best use so that natural gas would then be utilized because of its attractiveness and its environmental qualities, more in home use, and would be less used by industry where coal or some other fuel oil might be more desirable and hence make a much bigger contribution than it now makes to a clean environment.

I think I recall reading that Mr. Ruckelshaus said that in the city of New York, in the State of the Senator from New York, with a 3-percent increase in natural gas—which would not be a lot, but at least from the total amount available it would not be a huge amount—this would pretty much eliminate pollution. And so a vital part of the whole supply and demand equation that becomes very important to all citizens in our country is that various fuels are used to their highest use. Is that not correct?

Mr. BUCKLEY. The Senator is correct.

Mr. BARTLETT. Mr. President, one other thing that has disturbed me from the point of view of the consumer, the view of those consumers who are far from the source of supply, such as those in the State of New York, is the statement by Mr. Rush Moody, Jr., a member of the Federal Power Commission that they have been making some studies and have studied one particular pipeline to determine what effect a reduction in the amounts flowing through the pipeline of natural gas would be underpriced. And in this particular pipeline they selected—apparently each line would have its own characteristic—they determined that a 5-percent reduction in volume would increase the unit price of natural gas by 3 cents a thousand cubic feet.

So, if nothing is done to increase the volume of gas flowing into interstate commerce and hence available to the State of New York and to other Eastern States, then the continuation of the decrease in volume would be inevitable and there would be, because of the need to amortize that line and charge that line pro rata on all gas flowing through it, there would be the need to have a sharp increase on price. So, if there was a 25-percent reduction to the line, there would be a 15-cent increase per thousand cubic feet on natural gas.

Does the Senator not think that is something the consumer is unaware of and is something that would be a real blow to his future fuel bills?

Mr. BUCKLEY. The Senator is correct. There is a profound ignorance concerning the fuel industry and the economics of the producing industry. And if there were any understanding of the facts, we would see the last resistance to this proposal, and the supply of natural gas would increase.

Mr. President, how much time do I have remaining? Is the time equally divided?

The PRESIDING OFFICER. The time is equally divided. We have until 3 o'clock for the vote.

Mr. CHURCH. Mr. President, would the Senator from New York object if those Senators opposed to the amendment were to use some time?

Mr. BUCKLEY. Mr. President, I have no objection. However, I would like to know the time I have remaining.

The PRESIDING OFFICER. The Senator from New York has used 1 hour. The other side has used 45 minutes.

Mr. FANNIN. Mr. President, that includes the suggestion of the absence of a quorum.

Mr. BUCKLEY. Mr. President, I would like to know how much time I have remaining?

The PRESIDING OFFICER. The Chair is informed that that cannot be determined because other amendments may be offered and they would each have a half hour. All that the Chair can say is the amount of time the Senators have used and that the vote is set for 3 o'clock.

The Senator from New York used 1 hour. The Chair understands that the other side has used 45 minutes. The time is to be equally divided. It is impossible therefore to say how much time the Senator has remaining.

Mr. BUCKLEY. Mr. President, under those circumstances I will try to be my own scorekeeper.

Mr. President, I will be glad to yield to my friend, the Senator from Idaho, on his time.

Mr. CHURCH. I thank the Senator very much.

Mr. President, I have listened with some consternation to the arguments thus far, and I have wondered why we should be bleeding so over the present condition of the big oil and gas companies. One would think that they were being cruelly abused, and that immediate relief was in order. Otherwise, why should an amendment of such a sweeping nature be offered to a bill, the purpose of which is to encourage development and research?

The argument seems curiously ill-timed. In this morning's paper, for example, we learned from an article that appeared on the first page of the Washington Post, bylined by Mr. James L. Rowe, Jr., the following:

> Propelled by a huge surge in fuel prices, the nation's index of wholesale prices jumped 1.8 per cent last month, the government reported yesterday.
>
> A large, 3.2 per cent jump in industrial commodity prices more than offset a 1.5 per cent decline in farm products and processed foods.
>
> All figures are adjusted to account for normal seasonal variations.
>
> Herbert Stein, the chairman of the President's Council of Economic Advisers, said the big rise in fuel prices last month was "inevitable and necessary."
>
> He said about three-quarters of the increase in wholesale prices was accounted for by fuel price increases.
>
> Because of sharply rising world petroleum prices and an increasing shortage of oil and oil products here, plus the exemption of 25 per cent of the nation's domestically produced crude oil from price controls, observers expect a similarly large increase this month as well.
>
> The fuels portion of the wholesale price index rose 19.3 per cent during November. It was 47.7 per cent higher than a year ago, with about half the rise occurring last month.

Mr. President, for the sake of time, I ask unanimous consent that the entire text of the article to be printed in the RECORD at this point.

There being no objection, the article

was ordered to be printed in the RECORD, as follows:

FUEL LEADS WHOLESALE PRICE RISE

(By James L. Rowe, Jr.)

Propelled by a huge surge in fuel prices, the nation's index of wholesale prices jumped 1.8 per cent last month, the government reported yesterday.

A large, 3.2 per cent jump in industrial commodity prices more than offset a 1.5 per cent decline in farm products and processed foods.

All figures are adjusted to account for normal seasonal variations.

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Because of sharply rising world petroleum prices and an increasing shortage of oil and oil products here, plus the exemption of 25 percent of the nation's domestically produced crude oil from price controls, observers expect a similarly large increase this month as well.

The fuels portion of the wholesale price index rose 19.3 percent during November. It was 47.7 percent higher than a year ago, with about half the rise occurring last month.

The 1.8 percent increase in wholesale prices would work out to a 21.6 percent increase for a year if prices rose as fast during the next 11 months as they did last month.

At 141.8, the wholesale price index means that products costing $100 in 1967 cost $141.80 last month, up from $139.50 in October. The index is 17.5 per cent higher than it was in November, 1972.

The index is a precursor of higher consumer prices in the months to come, although economists cannot predict the ultimate effect of a rise in wholesale prices on the prices consumers pay.

A special price index does correspond to the commodities portion of the consumer price index, and that rose 3.5 percent during November. The commodities portion accounts for about 62 percent of the consumer price index.

The Labor Department noted that of the major commodity groups measured by the index, 12 increased and three declined.

Large month-to-month increases were also registered by lumber and wood products, metals and metal products, pulp and paper products, and textiles and apparel.

Although farm products declined for the third month in a row, they are still 42.9 percent higher than they were a year ago.

Fuels, particularly petroleum and petroleum products, accounted for most of the price increases. "Refined petroleum prices averaged 34.7 percent higher," the Labor Department said. "Gasoline was responsible for more than half of the rise for refined products, and middle and light distillates contributed most of the remainder."

Wednesday, in an attempt to encourage refineries to produce more heating oil and less gasoline, the Cost of Living Council told refiners they could raise middle distillate prices by 2 cents a gallon but at the same time must reduce gasoline prices a penny.

The move will mean a 7 percent rise in retail heating oil prices on top of whatever other increases oil companies can justify because of other costs. The penny-a-gallon reduction in gasoline will not show up at the retail pump, council director, John T. Dunlop said. He said costs to refiners are far outrunning the 1 cent they must lower prices, so what the council's action means is that in January refineries will increase prices a penny less than they otherwise would.

Mr. CHURCH. Everyone knows by now that this country is in the grip of the most serious inflation in a quarter of a century. Who is suffering? Certainly not the oil companies. We are in the process of imposing all manner of controls upon the American people. Soon we will bind them to rationing. Yet, whatever adversity may lie ahead for the people of this country, obviously the oil companies are enjoying a bonanza of unprecedented proportions. Here are some figures, a few of which I would like to read into the RECORD. From an account in the Washington Star-News, appearing in the edition of October 24, 1973, from an article captioned "Ten Oil Firms' Profits Soar," let me just highlight what is happening:

Ten oil companies have reported hefty earnings increases this year, with three firms—Gulf, Cities Service and Standard of Ohio—showing profit gains of 55 to 60 percent.

Gulf Oil's nine-month net increased 60 percent to $570 million, or $2.88 a share vs. $356 million or $1.71 a share in the 1972 period. . . .

Cities Service net for the third quarter was up 61 percent, to $28.6 million or $1.09 a share vs. $17.8 million or 69 cents last year. . . .

Standard Oil of Indiana posted a 37 percent gain for the third quarter. . . .

Getty Oil earned $33.7 million, or $1.78 in the third quarter, up from $21.4 million, or $1.13 (per share last year).

Again for the purpose of saving time, Mr. President, I ask unanimous consent that the full text of the Washington Star-News story, plus a similar story that appeared in the October 25 edition of the Washington Post, be printed in the RECORD at this point.

There being no objection, the articles were ordered to be printed in the RECORD, as follows:

[From the Washington Post, Oct. 25, 1973]

EARNINGS UP SHARPLY, FOUR BIG OIL FIRMS SAY

Four large oil producers yesterday announced sharply higher third-quarter and nine-month earnings with the largest of the group, Mobil Oil Corp., reporting a 64.1 per cent boost in third-quarter profits.

Worldwide gains in operating volume, higher product prices and continued improvement in chemical operations more than offset increased taxes and operating expenses, Mobil said.

But Rawleigh Warner Jr., Mobil's chairman noted that the petroleum industry and consumers will be adversely affected to an unknown degree by boosts in tax and royalty payments recently announced by oil-exporting nations, and by production cuts and embargoes ordered by Arab nations that export oil.

Arab states' proposed cutbacks also were cited by Charles E. Spahr, chairman of the Standard Oil Co. (Ohio).

Mobil's third-quarter estimated earnings were $231.2 million ($2.27 a share) on revenues of $3.2 billion, up from 1972 third-quarter earnings of $140.9 million ($1.38) on revenues of $2.56 billion.

Nine-month earnings rose by 38.4 per cent from $412.7 million ($4.06) to $571.2 million ($5.61) and revenues rose from $7.56 billion to $8.96 billion.

Sohio's nine-month earnings before $15.3 million in extraordinary gains from the sale of oil properties and uranium interests rose by 55 per cent to $62.5 million ($3.40 a share) as revenues increased from $1.01 billion to $1.10 billion.

Third-quarter net income was $18 million (97 cents) compared with 1972 third-quarter net income of $15.8 million (87 cents).

Phillips Petroleum Co. third-quarter earnings rose from $37.59 million (50 cents a share) in 1972 to $53.85 million (71 cents) as revenues increased from $520 million to $738.3 million.

Nine-month net income rose from $110.3 million ($1.47) to $143.7 million ($1.90) as revenues increased from $1.90 billion to $2.11 billion, an 11 per cent gain.

"Virtually all segments of the company's operations outside the United States" and domestic chemical operations generated improved results over 1972 levels, according to W. F. Martin, Phillips president and chief executive officer.

Getty Oil Co. said its third-quarter net income was $33.7 million ($1.78 a share) on revenues of $436.2 million compared with 1972 third-quarter net income of $21.4 million ($1.13) on revenues of $388.2 million. Included are a 1973 special credit of $1.889 million and a 1972 special credit of $2.830 million.

Nine-month net income was $90.1 million ($4.76) on revenues of $1.243 billion compared with 1972 nine-month net income of $73.3 million ($3.85) on revenues of $1.155 billion. Included are a 1973 special credit of $7.658 million and a 1972 special credit of $21.644 million.

Destruction of an oil refinery in a fire cut production last year.

[From the Washington Star-News, Oct. 24, 1973]

TEN OIL FIRMS' PROFITS SOAR

Ten oil companies have reported hefty earnings increases this year, with three firms—Gulf, Cities Service and Standard of Ohio—showing profit gains of 55 to 60 percent.

Gulf Oil's nine month net increased 60 percent to $570 million or $2.88 a share vs. $356 million or $1.71 in the 1972 period.

Gulf attributed the strong increase to higher sales of refined products, continued strengthening of prices, increased capacity of its crude oil tanker fleet, increased production, sales of plastics and chemicals plus elimination of unprofitable operations.

Cities Service net for the third quarter was up 61 percent, to $28.6 million or $1.09 a share vs. $17.8 million or 69 cents last year. Nine-month net was $105 million or $4.02 a share vs. $84 million or $3.26, a 25 percent increase. Results for the nine months include a special gain of $11.3 million or 43 cents a share reflecting a reduction of a provision made in 1972 for loss on sales of the agricultural chemicals business.

Standard Oil of Indiana posted a 37 percent gain for the third quarter, making the net $147 million or $2.11 a share compared with $107 million or $1.54 in the 1972 quarter. Nine months net totaled $390 million or $5.59 a share vs. $295 million or $4.24 in the 1972 period.

Getty Oil earned $33.7 million or $1.78 in the third quarter, up from $21.4 million or $1.13. For the nine months Getty's profit was $90 million or $4.76 vs. $73.3 million or $3.85. Special credits accounted for $7.6 million of the 1973 net and $21.6 million of 1972's.

Continental Oil third quarter net was $54 million of $1.07 a share vs. $39 million or 77 cents in the 1972 quarter. Nine month consolidated net was $153 million or $3.04 a share vs. $124 million or $2.45 in the 1972 period.

Standard Oil of Ohio earned $62.5 million, or $3.40 a share before special items in the nine months, a 55 percent increase. For the third quarter the profit was $18 million, or 97 cents a share, compared to $15.8 million

or 87 cents. But the figures were released with a warning by the company that it may not be able to maintain refinery operations at scheduled rates because of a shortage of crude oil as Arab states curtail shipments.

Ashland Oil earned $24.4 million or 97 cents a share in the fourth quarter vs. $20.8 million or 81 cents in the 1972 quarter. For the year Ashland reported a net of $85 million or $3.37 a share vs. $68 million or $2.64 in 1972.

Commonwealth Oil nine month net totaled $19.1 million or $1.33 a share vs. $5.3 million or 28 cents in the 1972 period.

Clark Oil & Refining said their earnings for the third quarter and nine months more than doubled results in any other comparable period. Third quarter net was $9.2 million or $1.28 a share vs. $3.2 million or 45 cents last year. Nine month net was $22.4 million or $3.15 a share vs. $5 million or 70 cents in the 1972 period.

Barber Oil nine month net was $2.1 million or 76 cents a share vs. $1.9 million or 74 cents in nine months of 1972.

Meanwhile, Philip Morris reported a profit of $42.34 million, or $1.48 a share, in the third quarter, up from $34.56 million or $1.21. For the nine months the company earned $113 million or $4.12 vs. $93.8 million or $3.53.

Mr. CHURCH. In addition, Mr. President, the staff has provided a comprehensive list of oil and gas company profits by quarters, comparing their profits in the first and second quarters of this year with the comparable quarters of last year. This gives the whole picture, but there are some companies whose profits have risen so unbelievably that I would like to highlight what is happening by extracting some of the figures from this list; then I shall ask that the entire list be printed in the RECORD.

Clark Oil & Refining Co., for example, in the second quarter of this year, realized profits that were 773 percent greater than in the comparable period last year.

Commonwealth Refining Co. had profits that were 174 percent greater.

Murphy Oil Co. showed profits 645 percent greater.

Occidental Petroleum showed profits that were 566 percent greater.

All these figures relate to the comparable quarters of last year.

Mr. President, for the information of Senators, I think that the entire list should be printed in the RECORD, the lists for the second quarter and the first quarter of this year, as compared with last year, and I ask unanimous consent that these figures be printed in the RECORD at this point.

There being no objection, the tables were ordered to be printed in the RECORD, as follows:

OIL: CRUDE, INTEGRATED DOMESTIC, AND INTERNATIONAL

[Dollar amounts in millions]

Company	Sales		Profits	
	1st quarter 1973	Change from 1972 (percent)	1st quarter 1973	Change from 1972 (percent)
Amerada Hess	$405.2	10	$36.7	25
American Petrolina	73.6	12	4.7	105
Apco Oil	30.7	9	.9	—34
Ashland Oil (3)	439.0	9	15.9	41
Atlantic Richfield	997.6	5	50.3	52
Belco Petroleum	30.7	—3	3.0	25
Cities Service	521.8	10	34.4	17
Commonwealth Oil Refining	91.1	38	2.8	13
Continental Oil	931.2	9	47.5	12
Crown Central Petroleum	42.5	—2	.3	35
Exxon	5,674.0	13	508.0	43
Getty Oil	360.6	4	27.0	21
Gulf Oil	2,103.0	9	165.0	19
Kerr-McGee	174.8	8	11.9	20
Marathon Oil	354.9	17	24.2	50
Mississippi River	42.2	—2	3.7	13
Mobil Oil	2,790.0	13	155.8	10
Murphy Oil	$107.9	14	$6.5	58
Occidental Petroleum	681.4	2	9.6	70
Pennzoil	255.1	26	19.6	24
Phillips Petroleum	680.8	7	43.4	22
Quaker State Oil Refining	45.0	21	3.6	6
Shell Oil	1,089.5	12	80.2	49
Skelly Oil	153.4	5	10.0	3
Standard Oil (Indiana)	1,469.0	11	121.1	12
Standard Oil (Calif.)	1,608.4	17	152.8	24
Standard Oil (Ohio)	402.9	10	17.5	48
Suburban Propane Gas (3)	49.2	19	3.8	14
Tesoro Petroleum (3)	62.5	9	4.3	88
Texaco	2,495.0	14	264.0	15
Union Oil of California	636.9	10	38.3	28
Industry composite	24,799.9	14	1,866.8	27

OIL: CRUDE, INTEGRATED DOMESTIC, AND INTERNATIONAL

[Dollar amounts in millions]

Company	Sales				Profits	
	2d quarter 1973	Change from 1972 (percent)	6 mo. 1973	Change from 1972 (percent)	2d quarter 1973	Change from 1972 (percent)
Amerada Hess	$393.7	27	$798.9	17	$33.3	66
American Petrotina	82.1	13	155.7	13	6.3	63
Apco Oil	32.5	3	63.3	3	1.5	0
Ashland Oil (3)	518.0	16	957.0	13	22.3	35
Atlantic Richfield	1,069.8	14	2,067.3	9	68.4	50
Cities Service	457.9	—2	979.7	4	30.5	23
Clark Oil & Refining	96.4	41	180.2	30	8.4	773
Commonwealth Oil Refining	99.2	34	190.3	36	7.1	174
Continental Oil	1,029.9	17	1,961.1	13	51.7	24
Crown Central Petroleum	43.1	—3	85.4	—3	.5	NM
Exxon	5,830.0	20	11,504.0	16	510.0	54
Getty Oil	364.8	5	725.4	4	23.6	120
Gulf Oil	2,397.0	27	4,500.0	18	195.0	82
Kerr-McGee Oil	190.4	0	365.2	3	19.0	22
Marathon Oil	363.0	24	717.9	20	27.6	66
Mississippi River	33.2	—5	76.1	—2	3.7	19
Mobil Oil	2,880.0	14	5,680.0	14	184.2	41
Murphy Oil	$114.4	30	$222.3	22	$9.2	645
Occidental Petroleum	810.3	21	1,491.7	11	28.9	566
Pennzoil	244.3	12	499.3	14	19.3	25
Phillips Petroleum	693.8	8	1,374.8	8	46.4	25
Quaker State Oil Refining	48.5	24	93.5	22	4.7	32
Shell Oil	1,211.9	19	2,008.4	15	89.5	54
Skelly Oil	157.8	8	311.3	8	9.0	25
Standard Oil (Indiana)	1,527.2	11	2,997.0	11	121.3	37
Standard Oil (Calif.)	1,817.2	28	3,425.7	22	181.7	42
Standard Oil (Ohio)	394.9	16	774.8	13	27.0	110
Suburban Propane Gas (3)	33.7	21	87.9	20	1.3	60
Sun Oil	532.2	21	1,041.1	15	48.4	41
Tesoro Petroleum (3)	76.2	37	137.2	23	4.4	24
Texaco	2,727.0	26	5,221.0	20	267.5	44
Union Oil of California	714.6	17	1,267.4	14	40.2	44
Industry composite	28,990.0	24	51,960.4	18	2,089.8	52

Mr. BUCKLEY. Mr. President, will the Senator yield for a question?

Mr. CHURCH. As soon as I have finished. I will be glad to yield.

I recognize, Mr. President, that an argument can be made that natural gas being sold in this country is being treated differently than other fuels. It is true that the posted price of oil in the Middle East is outside the jurisdictional control of the United States. We are being gouged to death by the Arab governments, but we have no control of that. Yet we continue to impose controls upon oil here at home by limiting the size of the passthrough the companies may charge.

They are not immune from domestic control at the present time, and therefore I think that it is illogical to argue that because we have no control over the wellhead price in the Middle East for oil, we should therefore lift controls over the price of natural gas in this country.

But who could foretell what the impact would be? We have not had hearings and we have not had testimony. Committees with proper jurisdiction have not made any responsible inquiries into the consequences of such a move; and there-

fore, it would be a very hasty and ill-considered step for the Senate to take at this time, to adopt an amendment that could have such wide-ranging consequences, one that would inevitably add a further stimulant to an inflation already out of control.

That is the principal objection we have reached at this time to the amendment. It is not really germane to the pending bill. As I mentioned before, S. 1283 is a research and development bill, while the purpose of the amendment of the Senator from New York (Mr. BUCKLEY) is to deregulate the price of natural gas.

Mr. President, the Committee on Interior and Insular Affairs is currently in the process of preparing a report to the Senate and to the Commerce Committee next week. Moreover, I understand that the distinguished chairman of the Commerce Committee plans to report a bill on this subject before Christmas, a bill that comes from the committee with proper jurisdiction and one that will be based on competent testimony.

That is the orderly procedure to follow and that is the reason why I feel constrained to oppose the amendment, and to urge the Senator from New York to consider not pressing the amendment at this time. He will have the opportunity, along with others who propose to deregulate natural gas, to present his argument in the course of the upcoming hearings. The Senate will then be better informed by that regular process, when a recommended bill comes before us for action.

I would say, Mr. President, that if we were compelled to vote today, without the benefit of hearings, without the careful consideration that the committees of proper jurisdiction will give to such a measure, there are other amendments that will doubtless be offered.

An amendment, for example, to impose an excess profits tax on the producers of natural gas would seem in order, and I expect that such an amendment will be offered.

An amendment to require congressional review and approval of any rate increases is another we could expect to be offered if this decision is hastily forced upon us.

An amendment to make intrastate gas subject to FPC jurisdiction, might well be offered, along with an amendment to grant end-use control authority over all gas users to the Federal Power Commission.

I am told that an amendment to repeal the depletion allowance for natural gas producers and to mandate disclosure of reserves data are also being considered.

If the Senate is forced now, without the proper hearings and preparation, to vote on the pending amendment, it simply raises so many other questions of basic policy that in the aftermath of such a vote, it can be expected such amendments will then be brought up one by one for the consideration of the Senate.

So I am really pleading now for following the regular order, particularly in view of the fact that both the Interior and Insular Affairs and the Commerce Committees plan to take this question up in the very near future, with the expectation that a bill will be brought before the Senate before Christmas.

That is the way to proceed, Mr. President, in a matter that has such wide flung consequences as the decontrol of natural gas.

Mr. HANSEN. Mr. President, will the Senator from Idaho yield?

Mr. CHURCH. I yield.

Mr. HANSEN. The observations of the distinguished Senator from Idaho (Mr. CHURCH) are quite accurate. I am not certain that he is aware, also, that there has been thought given to an amendment to provide the Tennessee Valley Authority with certain language; but first, Mr. President, I ask unanimous consent to have printed in the RECORD the text of the complete amendment.

There being no objection, the text of the amendment was ordered to be printed in the RECORD, as follows:

On page 107, after line 6, insert the following new title:

TITLE V—INTRASTATE NATURAL GAS REGULATION

SEC. 501. This title may be cited as the "Intrastate Regulation of Natural Gas Act".

SEC. 502. The Congress finds and declares that: (1) natural gas is an important national resource; (2) conservation and property utilization of natural gas supplies are in the national interest; (3) the intrastate market for natural gas has operated free of Federal wellhead price regulation; (4) this exemption has caused unfair and unreasonable discriminations to arise between different classes of consumers of natural gas; and (5) such discrimination has constituted and constitutes an undue burden on interstate commerce.

SEC. 503. Subsection (a) of section 1 of the Natural Gas Act (15 U.S.C. 717(a)) is amended by striking out "of natural gas and the sale thereof in" and inserting in lieu thereof "or sale of natural gas which affects".

SEC. 504. Subsections (b) and (c) of section 1 of the Natural Gas Act (15 U.S.C. 717 (b)) are amended to read as follows:

"(b) Except as provided in subsection (c) hereof, the provisions of this Act shall apply to the transportation and sale of natural gas and to natural gas companies engaged in such transportation and sale."

"(c) The provisions of this title shall not apply to (1) production facilities and the construction of such facilities, or to the gathering of natural gas; and (2) the local distribution of natural gas and the facilities used for such distribution."

On page 107, after line 6 insert the following new title:

TITLE IV—FEDERAL PETROLEUM CORPORATION

SEC. 401. This title may be cited as the "Federal Petroleum Corporation Act."

SEC. 402. The Tennessee Valley Authority Act of 1933, as amended, (16 U.S.C. 831 et seq.) is amended by adding at the end thereof the following five sections:

"SEC. 32. The Congress finds and declares that: (1) the Federal Government must become directly involved in securing and developing additional sources of petroleum to assure adequate supplies to American consumers at reasonable and competitive prices; (2) a Federal Corporation engaged in the development and sale of petroleum and petroleum products could help to assure adequate energy supplies; and (3) the Tennessee Valley Authority has since its creation provided a competent and expert example of government involvement in energy matters.

"SEC. 33. The Tennessee Valley Authority (hereinafter the 'Corporation') is authorized and directed, at any place in the world, without regard to any other provision of law relating to the places at which the Corporation may function, to explore for natural gas and oil on Federal, States, foreign, or private lands; to develop and sell natural gas and oil discoveries by exploration or otherwise obtained by sale, lease, purchase, exchange, or contract, and to build and operate all those facilities necessary for the development or sales of such resources; and to build, lease, purchase or otherwise obtain and operate facilities necessary for the sale, purchase, transportation or delivery of natural gas or oil.

"SEC. 34. The Corporation is authorized to incur debt for capital purposes to carry out its functions under this title. Payment of principal and interest on obligations issued by the Corporation under this title is guaranteed by the United States.

"SEC. 35. When the annual revenues of the Corporation, from the activities authorized by this title, exceed the amounts necessary to satisfy, in accordance with customary business practices, the obligations and expenses incurred by the Corporation and to maintain the financial reserves necessary for such activities the Corporation shall pay such excess revenues into the general fund of the Treasury of the United States.

"SEC. 36. There are hereby authorized to be appropriated to the Corporation for the fiscal year ending June 30, 1974, and for each of the next ten succeeding fiscal years, $50,000,000 for the Corporation to carry out its activities under this title. All funds appropriated pursuant to this title shall remain available until expended."

On page 107, after line 6 insert the following new title:

TITLE VI—NATURAL GAS CONSERVATION

SEC. 601. This title may be cited at the "Natural Gas Conservation Act".

SEC. 602. Section 1 of the Natural Gas Act (15 U.S.C. 717(a)) is amended by adding the following new subsection:

"(d) Natural gas is a highly useful source of energy which is environmentally superior to alternative fossil fuels; natural gas supplies should be directed toward their highest and best uses, particularly direct residential consumption; natural gas is being wastefully used in large quantities during time of shortage under electric utility boilers that have available adequate substitute fuels meeting applicable requirements.

SEC. 603. Section 7 of the Natural Gas Act (15 U.S.C. 717f) is amended by adding the following new subsection:

"(i) The Federal Power Commission is authorized and directed to prohibit further consumption of natural gas by any electric utility subject to the jurisdiction of the Commission. Such natural gas consumption shall be prohibited by the Commission upon a determination after a hearing conducted pursuant to the provisions of section 556 of title 5, United States Code, that adequate time has elapsed to reasonably permit conversion to alternative fossil fuels and installation of emission control devices to assure compliance with applicable environmental requirements.

On page 107, after line 6 insert the following new title:

TITLE VII—EXCESS PROFITS TAX

SEC. 701. This title may be cited as the "Major Petroleum Corporation Excess Profits Tax Act".

SEC. 702. Congress finds and declares that the major petroleum corporations are enjoying record high profits at the same time that the Nation's consumers are suffering serious hardship as a result of shortages,

price increases, and restrictions on the availability of petroleum products. Congress further finds and declares that such record high profits are massive windfalls that are of no benefit to American consumers.

SEC. 703. The Comptroller General of the United States is authorized and directed to establish a uniform system of accounts for all major petroleum corporations. Such a system of accounts shall require separate accounting for the following activities: (1) exploration, development and production; (2) transportation; (3) refining; and (4) marketing. As used in this title "major petroleum corporation" means any person subject to the jurisdiction of the United States who produced in any location or locations more than 10,000,000 barrels of oil during calendar year 1973 for consumption in the United States.

SEC. 704. The Commissioner of Internal Revenue is directed to impose and collect an excess profits tax of 50 per centum on the excess profits of all major petroleum corporations. As used in this title "excess profits" means rate of return, as determined in accordance with the uniform system of accounts established under section 703 of this title, in excess of the average annual rate of return of that major petroleum corporation during its fiscal years 1963 through 1973.

SEC. 705. Each major petroleum corporation subject to an excess profits tax under this title shall be disallowed deduction for depletion allowances on its foreign production activities and shall be further disallowed any U.S. tax credits for foreign taxes.

Mr. HANSEN. Mr. President, I want to read to the Senator from Idaho the excerpts concerning the TVA:

"SEC. 33. The Tennessee Valley Authority (hereinafter the 'Corporation') is authorized and directed, at any place in the world, without regard to any other provision of law relating to the places at which the Corporation may function, to explore for natural gas and oil on Federal, State, foreign, or private lands; to develop and sell natural gas and oil discovered by exploration or otherwise obtained by sale, lease, purchase, exchange, or contract, and to build and operate all those facilities necessary for the development or sales of such resources; and to build, lease, purchase or otherwise obtain and operate facilities necessary for the sale, purchase, transportation or delivery of natural gas or oil.

"SEC. 34. The Corporation is authorized to incur debt for capital purposes to carry out its functions under this title. Payment of principal and interest on obligations issued by the Corporation under this title is guaranteed by the United States.

"SEC. 35. When the annual revenues of the Corporation, from the activities authorized by this title, exceed the amounts necessary to satisfy, in accordance with customary business practices, the obligations and expenses incurred by the Corporation and to maintain the financial reserves necessary for such activities, the Corporation shall pay such excess revenues into the general fund of the Treasury of the United States.

"SEC. 36. There are hereby authorized to be appropriated to the Corporation for the fiscal year ending June 30, 1974, and for each of the next ten succeeding fiscal years, $50,000,000 for the Corporation to carry out its activities under this title. All funds appropriated pursuant to this title shall remain available until expended."

Mr. President, I would ask the distinguished Senator from Idaho if he is aware that this among other amendments that he has listed have been prepared.

Mr. CHURCH. The Senator reads the text of an amendment to me for the first time. I was not aware of it before. So far as I know, none of the amendments which I have referred to have been introduced. But if the Senate were suddenly to decide to take such a sweeping move as to deregulate the price of natural gas, then that would immediately give rise to a host of policy questions that would then become relevant. It was in an attempt to tick off some of the policy questions that I referred to possible amendments we might expect in the aftermath of such a decision.

The amendment to which the Senator from Wyoming has referred, from which he excerpted, is one with which I am not familiar.

Mr. TOWER. Mr. President, will the Senator from New York yield me some time?

The PRESIDING OFFICER (Mr. BIDEN). The Senator from Idaho has the floor and controls the time.

Mr. CHURCH. Mr. President, I had promised to yield to the distinguished Senator from West Virginia (Mr. RANDOLPH). I had also promised to yield to the distinguished Senator from Illinois (Mr. STEVENSON) who has been waiting here very patiently for some time. So, before I yield to other Senators, I would yield first to the Senator from West Virginia (Mr. RANDOLPH).

INCREASED NATURAL GAS PRICES NEEDED TO AVOID FUTURE SHORTAGES OF THE VITAL ENERGY SUPPLY

Mr. RANDOLPH. Mr. President, there is a generally recognized need for realistic price increases for domestic oil and gas supplies.

For the last 5 years, the U.S. domestic gas reserves have been declining at an alarming rate when compared to projected demand. The immediate consequence is a widespread shortage as natural gas pipeline operators curtail distributors and, in turn, their customers.

The current situation has all the signs of a natural gas shortage comparable to that now being experienced in petroleum products.

As of January 1973, the United States proved natural gas reserves in the lower 48 States were at their lowest level since 1957, and are continuing to decline. Proved oil reserves also were at their lowest in 20 years. This situation is the product of many factors—

Artificially low prices for natural gas which have stimulated consumption but inhibited exploration and development for replacement supplies;

Intermittent, and delayed, Federal offshore lease sales; and

The fact that the Federal Power Commission's regulatory authority is limited to interstate gas.

If new domestic gas supplies are to be developed prices must increase; however, economists are unable to tell us their price eleasticity—how much gas would be produced at a given higher price. The producers also cannot, or will not, indicate how much gas might be forthcoming at different price levels.

An added factor contributing to natural gas shortages is that unregulated intrastate customers are able to outbid regulated interstate pipelines—thus diverting what now are limited new supplies from existing interstate customers. This situation has contributed to shortages in many areas of the country such as the curtailment now occurring in my State of West Virginia and the Midwest.

At hearings of the Senate's national fuels and energy policy study on August 9, 1972, James Wilson, president of the American Association of Petroleum Geologists, estimated future potentially recoverable domestic oil and gas resources—probable and possible supplies—that can be found and produced with current and near-term technology.

These are some 141 billion barrels of domestic crude oil and 595 trillion cubic feet of natural gas. An obvious conclusion is the need for realistic price increases if domestic oil and gas supplies are to be brought to the marketplace. This is essential if the necessary funds are to be provided to promote the development of domestic energy supplies. For these resources are essential if we are to mitigate our projected heavy dependence on imported oil and gas.

In order to increase interstate natural gas supplies, the Federal Power Commission has initiated several actions allowing for higher prices. Nevertheless, I cannot understand how price increases by the Federal Power Commission for interstate natural gas, alone, will resolve the predicament. It seems to me that no matter how high the price for natural gas established by the FPC for sales to interstate pipelines, the intrastate buyers still will be able to bid slightly more, or offer other contractual inducements. Thus there will continue to be a potential for diversion of gas to users within the producer States.

Mr. President, I have long believed that the Congress must restore the balance between interstate and intrastate markets. Only the Congress can assure equitable treatment of both national and regional customers.

When the Federal Power Commission's authority was enacted concern was for unfair competition between producers at the well head. Today, the issue is competition between intrastate customers and federally regulated interstate customers, which, in turn, is contributing to natural gas shortages in regions which do not have sufficient resources to satisfy even present demands, such as West Virginia.

Mr. President, I understand the oil and gas industry in West Virginia. My father was an oil and gas producer, and I worked in the oil and gas fields in my youth. I understand their problems, and this understanding is the basis for my comments today.

But I also must withdraw my support for the amendment of Senator BUCKLEY—I think that legislation on this matter must come at a later time, on its own. Nevertheless, this is an appropriate time to express my feeling about the general subject of a price increase, which I think is merited for natural gas.

Mr. President, in my January 16, 1973, Senate remarks I proposed several actions to promote the development of

domestic natural gas supplies to mitigate our dependence on oil and gas imports. These were—

First, to use the Federal Power Commission's existing authority to assure natural gas supplies on Outer Continental Shelf are placed in production and channeled into interstate markets;

Second, to provide for limited Federal decontrol of producer prices for new natural gas supplies under two comprehensive and complementary Federal initiatives;

Third, as the quid pro quo for eliminating wellhead price regulation as a determining factor in Federal Power Commission regulatory actions governing new gas sales, all other jurisdictional indices, or criteria, other than price should be extended to cover intrastate natural gas producer sales; and

Fourth, promulgate national guidelines for the curtailment of natural gas customers during periods of shortage, with authority for the Federal Power Commission to impose the established end-use priorities with regard to both direct and indirect natural gas sales.

When these recommendations were offered 11 months ago, I believed, and I still do believe, that higher prices are needed if natural gas supplies if they are to be stimulated to the point where they keep up with demand.

Mr. President, I also believe that we are at a point where natural gas shortages are so severe that prices alone can no longer be relied on as the determining factor in who gets available supplies. The diversion of natural gas supplies from inferior uses to higher priority uses may well be necessary if our country is to maintain national and regional economic, environmental, and societal well-being.

The United States needs a new national fuels policy for natural gas. I commend the Senator from New York (Mr. BUCKLEY) for realizing that this is an urgent matter. But this must be a balanced and comprehensive energy policy which reflects all aspects of the problem.

Mr. President, the deregulation of new interstate natural gas sales is but one element of national natural gas policy.

Although I recognized this fact, I cosponsored Senator BUCKLEY'S amendment No. 767, because I agreed with it in principal. Nevertheless, because I believe Congress needs to formulate a comprehensive natural gas policy rather than simply deregulate the sale of new gas, I must withdraw my support of this amendment. I believe that the measure under consideration is the wrong vehicle for such legislation.

Mr. BUCKLEY. Mr. President, will the Senator yield?

Mr. RANDOLPH. I yield.

Mr. BUCKLEY. Mr. President, I fully understand the thinking and reasoning of the Senator from West Virginia. I appreciate his support for my amendment in principle.

I happen to feel that, as a result of more than a year of hearings before the Committee on Interior and Insular Affairs, action is needed today.

Mr. RANDOLPH. I appreciate the comment of the Senator from New York.

The proposed legislation, Mr. President, provides for a national energy research and development policy for the United States. This measure recognizes in the priorities set forth in section 106 that the development of both high-Btu and low-Btu synthetic gas from coal offer a significant potential for supplementing domestic energy supplies and mitigating our energy crisis. At the same time, these potential new sources of supplies are inherently clean, also serving to enhance environmental quality.

By 1980, synthetic high-Btu coal gas, a supplemental supply for natural gas, can be produced at $.60 to $1 per 1,000 cubic feet or 1 million Btu's. This compared to imported liquefied natural gas at about $1.25 to $1.60 per 1,000 cubic feet.

But it must be recognized that these synthetic and imported substitutes for natural gas are very expensive compared to natural gas. While these technologies are needed for the United States to achieve the goal of energy self-sufficiency, there also is a commensurate need for increased natural gas supplies from traditional sources.

Mr. CHURCH. Mr. President, I yield to the able Senator from Illinois.

Mr. STEVENSON. Mr. President, my good friend, the distinguished Senator from New York (Mr. BUCKLEY), said that any analysis of the record could lead to only one conclusion, a conclusion that would be supported by a majority of the members of this body; namely, that the price of new gas at the wellhead should be deregulated.

Mr. President, there is a record. It is now a lengthy record. It is a record on this subject in the Committee on Commerce. I have chaired most of the hearings which comprise that record, and can say, after chairing some 6 lengthy days of hearings and after many weeks of study of this subject, that the record does not support that conclusion. It does support a number of other conclusions: First, the regulatory status quo is unacceptable; it should be changed one way or another; regulation of the industry could be improved. Probably it would be improved by permitting some increases of gas prices at the wellhead.

I think, as does the Senator from West Virginia, that some increases in the price of natural gas are justified at this point and necessary to provide not only the incentives but also the financial resources with which to conduct further exploration and development of natural gas resources.

Mr. President, that record supports another conclusion. It is very easy to come to the floor of the Senate and say that we have to increase the supplies of natural gas. We can all agree on that. It is as easy to support as motherhood and apple pie. But, if there is anything the record supports, it is that this amendment would do nothing to increase the gas supply, and not one witness, not even the most ardent supporter of deregulation of natural gas, has contended that deregulation would increase the supply of natural gas in this country soon.

The administration witnesses, including the Secretary of Interior, testified it would take at least 3 or 5 years before deregulation would have any effect on the availability of natural gas in this country.

That record supports another conclusion that is alluded to by the distinguished Senator from Idaho. While deregulation of natural gas would not now increase supply, and I should add at this point that to the extent, if any, that deregulation would increase supplies of natural gas for the short term to help us through the emergency, the authority already exists in the Federal Power Commission to deregulate gas. The Chairman of the Federal Power Commission came before the Committee on Commerce and said he had all the necessary authority to act on an emergency basis if deregulation was indicated as a means of producing additional supplies of gas.

Deregulation probably would not increase the supply of gas. It might have the effect of diverting some intrastate gas to the interstate gas market.

No; the only short-term effect of deregulation, so-called, of natural gas prices at the wellhead would be on the revenue of producers and the price to the consumers. Revenues to oil and gas producers would increase between $6 and $8 billion. That $6 to $8 billion increase is the additional price to the consumers across the country. For the family with the home warmed by gas in New York City or in Chicago the annual gas bill would increase between 30 and 40 percent. As the Senator from Idaho also mentioned, that family is suffering now. It is hard-pressed now with the high cost of living. The real income of the average worker is declining under pressures from high prices and high taxes.

Deregulation of natural gas would only add to those pressures, and why? Is it because the oil and gas industry is suffering and in need of more subsidies from the Federal Government, more breaks?

The largest 23 oil and gas companies increased their profits in the first 9 months of this year over the same period in the preceding year by 63 percent. For the third quarter of 1973 the largest, Exxon, increased its profits over the same period last year by 80 percent, Gulf by 90 percent.

At the same time prices to the consumer were rising. The wholesale price for fuels has increased 48 percent so far this year. In 1 month it increased 19 percent.

Mr. President, deregulation now would not increase supplies now. All it would do would be to increase the profits of an industry already fattening on the energy crisis.

It is wrong to speak of "deregulation." There is no such thing. There is no way of deregulating the price of natural gas. The real question is: Who will regulate the price of natural gas: The industry, foreign governments?

The distinguished Senator from New York mentioned that oil had sold in Nigeria for $16.80 a barrel. The price of

oil in Nigeria, like the price of oil in Saudia Arabia and Kuwait, is regulated; it is controlled by the governments of those countries or their trading companies. The governments of most foreign producing countries exercise control over pricing; indeed they have formed a cartel to jointly regulate the price of oil.

Explicit in all the arguments in favor of deregulation, so-called, is the suggestion, and it has been repeated again here today, that fuels are substitutable; that the price of natural gas should be permitted to rise naturally to the price of alternative fuel. The price of those alternative fuels is regulated. It is regulated in Nigeria. It is regulated by OPEC.

Mr. President, the question is not whether there will be regulation or deregulation of natural gas. If the assumption is correct—that the price of gas will rise to the price of alternative fuels—then the question is, Will the price of American gas be regulated by the American Government or of the Nigerian Government? Or will it be regulated by the industry?

Mark Twain said once that there is nothing so horrible as a beautiful myth being murdered by an ugly fact. The ugly fact is that there is no free enterprise system, no free market in the oil and gas industry. This is a heavily concentrated industry; it is a vertically integrated industry.

Competition does not exist between sellers. Competition does not exsit between buyers and sellers. Producers of oil and gas sell it to the pipelines that they control. The pipelines sell it to the refineries they control, and the refineries now sell it to the marketers and jobbers that they control. They contrived, not at a time of gasoline shortage, but at a time when gasoline inventories were higher than ever before, early this summer, to use an alleged gasoline shortage as an excuse for cutting off the supply of gasoline to the last remaining competition in the industry, the independent jobbers and dealers.

The 20 major oil companies control 86 percent of the Nation's refinery capacity. They control 70 percent of the Nation's oil production. They control 75 percent of the retail gasoline stations and 93 percent of the pipelines through which petroleum products move.

It is a heavily concentrated industry. It is a vertically integrated industry. It is becoming increasingly an industry that is integrated horizontally also. And it is also an industry with operations characterized by joint ventures, interlocking directorates, and exchange agreements. It acts in unison. I have never suggested that it acts conspiratorially. I do not believe it. It does not need to. It acts in the same way and responds in the same way to the same problems.

It would be bad enough if there were something approaching a balance between supply and demand in the industry, but that is not now the case. This industry operates at a time when demand far exceeds supply. Of a desperate consumer it can demand almost any price, or it could, barring the Cost of Living Council and Federal Power Commission controls.

It is not as if this industry made shoes. One can go without shoes, but we cannot in this Nation go without energy. It is the Nation's most vital industry. It is as vital as agriculture. Food cannot be produced without energy. Every home, farm, and industry in the country is dependent on it for energy.

Mr. President, the question is not one of regulation or deregulation; it is a question of who will regulate. It is very largely a question of whether we dare, in view of what has happened to us, permit every individual, every business, every farm to remain at the mercies of this highly concentrated, vertically integrated, vital industry. It is a question of whether regulation is going to be conducted by the industry itself or by the Government, and if so, what form it should take. It is a question of whether foreign governments by controlling the pricing of foreign energy should consequently control the prices of domestically produced energy.

It was said by the Senator from New York that his amendment would prevent windfall profits. It would not prevent windfall profits. It would give the Federal Power Commission the authority to permit the renegotiation of contracts for the sale of natural gas to "assure optimum production from producer reservoirs." That is a large loophole, and it gives the Federal Power Commission virtually no guidelines.

But that is not the main loophole in this amendment. Contracts for the sale of natural gas do not need to be renegotiated. They have been drawn in such way as to trigger increases in wellhead prices just as soon as Congress adopts the Buckley amendment. It is automatic. Prices will go up. The contracts trigger increases as soon as Congress takes that action.

Mr. JACKSON. Mr. President, will the Senator yield at that point?

Mr. STEVENSON. I yield.

Mr. JACKSON. I think it is important that the Senate fully understand how far-reaching the Buckley amendment would be, if approved. This is what the Senator from Illinois was about to refer to, and did, in part. The key provision here is that while it would appear that it applies only to new gas, the effect of the amendment would be to deregulate old gas as well. All gas would be deregulated. I have before me a standard provision in a contract that exists between a gas company and its customers. We were able to obtain the contract from the Federal Power Commission. Here is a typical clause:

(d) If at any time during the term of this agreement the Federal Power Commission (or any successor agency having jurisdiction over the rates charged for gas sold hereunder) ceases to have jurisdiction over such matters or ceases to exercise price control over this agreement, the price to be charged after the cessation date shall be redetermined and the redetermined price shall be the average of the three (3) highest prices then being paid for gas or substantially the same quality and quantity under comparable terms and conditions produced and sold in interstate commerce within the South Louisiana and offshore area. Furthermore, the price shall be redetermined on the same basis each four (4) years from and after the aforesaid cessation date. However, in no event shall the price to be charged for any period be lower than the higher of the applicable step-scale price or the price in effect prior to the time the price was redetermined.

I have been reading from a Cities Service contract. This is language from a boiler-plate contract, is signed by the companies, and relates to the sale of natural gas. Therefore, the effect of the amendment, which is to be found specifically on page 2, section 302, would not be merely to deregulate the new gas, but it would be to deregulate the old gas. We are talking about old gas which was selling as low as 6 cents a thousand cubic feet, a lot of it around 12 cents, and a lot—or quite a bit—around 20 cents.

Obviously, current prices are, I think, around 60 cents or thereabouts based on some research of sale contracts. However, we are talking about as much as a 500-percent increase in the cost of natural gas.

Mr. President, I think I can look at this as objectively as anyone. I want to say that the pricing policy on natural gas has not been right. It has been wrong.

I thank the Senator from Illinois.

Mr. STEVENSON. Mr. President, the Senator is correct.

Mr. BUCKLEY. Mr. President, something has been read into my amendment that is not there. My amendment prohibits any modification on an existing contract controlling gas that is going into interstate pipelines.

I do not see how it can be stated that somehow it permits a change of price under the existing contract.

Mr. JACKSON. That is correct. But it is not a matter of being modified. They can be terminated. Contracts would be terminated.

I know that the Senator from New York wants to be fair. The Senator knows of the high regard which I have for him. I am simply reporting here what I understand to be the legal situation, that these contracts would be terminated. It is in the paragraph of the contract which I just read. That would reregulate the old gas.

Mr. President, I just want to complete my thought on the basic problem facing the Senate. As I say, the pricing policy has been wrong, fundamentally wrong. It has resulted in a situation in which we have not been using our natural gas for the best possible purposes and objectives. It has made it possible for large users of natural gas to buy it at a very low cost. I do not blame them for doing that, because it was available to them.

Second, it helps them insofar as environmental problems are concerned. It is the cleanest fuel and it has been the cheapest fuel.

I do believe this policy has resulted, without a doubt, in the loss of production. I feel that whatever other changes are made, we need to make adjustments in the price of natural gas that will more clearly reflect the true price of that product in economic terms.

It would appear that if we are going to achieve that objective in the very difficult climate we now find ourselves in, the answer is not deregulation, which could

be psychologically as well as economically catastrophic.

I believe that what is needed is the right kind of formula that would provide for price adjustments that would encourage production, and permit a more proper relation of the price of gas to those of alternative fuels. All kinds of safeguards could be written in. We do not want to create a situation in which there can be unconscionable profits.

I am convinced, the more we look at this problem, that the more we will need to look at effective regulation. Unless we do that, I think we are going to have adverse attitude in this country on the part of the public that is already coming to the fore.

As far as providing the kind of encouragement that would bring about greater production of natural gas, as the Senate has been advised previously, the Senate Committee on Interior and Insular Affairs held extensive hearings. A number of studies—and in fact a special staff study—have been made in connection with the whole subject of natural gas.

Hopefully, we are down to the point now where we will be making a recommendation to the Commerce Committee, and specifically to the subcommittee headed by the able Senator from Illinois.

The Senate will have an opportunity to express its judgment on the whole subject of natural gas in an orderly way when this matter is presented to the Senate by the Senate Commerce Committee, which I understand will not be very long from now. Is that a fair statement and judgment?

Mr. STEVENSON. Mr. President, we hope and expect to report a bill on this subject by the middle of February.

Mr. JACKSON. Mr. President, I think it is important that we move as fast as possible. The Senate Committee on Interior and Insular Affairs pursuant to Senate Resolution 45 will be glad to help in every way possible to see that all points of view are expressed. There are many points of view in our committee on this subject.

I thank the Senator for yielding, and I appreciate the amount of time he has already put in on this rather complicated subject.

Mr. MAGNUSON. If the Senate is to consider natural gas amendments as a rider to the pending energy research and development legislation, the full range of options should be examined. Several other approaches would increase the supply of energy available to the consumer while maintaining reasonable prices. The Nation faces serious shortages and swift action is needed to increase supplies to assure that sufficient fuel is available to continue the American way of life, and maintain productivity and employment.

These other approaches would stimulate competition in the petroleum industry by establishing a Federal petroleum corporation. Such a Federal corporation would act as a yardstick of pricing and performance of the private sector of the industry, thereby helping to assure adequate supplies at reasonable prices.

Second, another concept would extend the jurisdiction of the Federal Power Commission to intrastate sales of natural gas. Natural gas is a national resource and currently anticompetitive distortions in the intrastate market have caused large diversions of gas to low priority uses such as utility boilers. If we are to have a workable and streamlined system of price regulation it must apply equally to all throughout the Nation.

Third, perhaps we should gradually phase out the use of natural gas for utility boiler fuel purposes. When natural gas is used to heat water to generate steam to drive a turbine, which turns a generator which generates electricity that is transmitted to consumers for heating their homes, this process requires up to three times as much natural gas than when natural gas is used directly by the ultimate consumer in his furnace. In fact, the energy content of the gas consumed by electric utilities in 1970 was more than enough to heat 10 times the number of electrically heated homes in the country. Thus, sufficient gas for heating American homes would be available if this gas was diverted from its use as a power plant fuel. Major utilities often have alternative fuel supplies to which they can convert readily. Therefore it is appropriate to have a gradual program to divert natural gas from low priority utility boiler fuel uses to higher priority residential uses. Such a switch would also permit the Nation to use the vast coal resources which are in abundant domestic supply in the Nation.

Fourth, an excess profit tax has been proposed. Although there are fuel shortages throughout the Nation the profits of the oil companies are at record levels. Such profits are occurring at a time when the Nation's consumers are suffering serious hardship as a result of shortages, price increases, and restrictions on the availability on petroleum products. The oil industry's record profits are massive windfalls that do not benefit American consumers. Therefore, if the Nation is to benefit by increased incentives for conservation, let the increased revenues flow to the people of the United States rather than the private coffers of the oil industry.

The consumer expects Congress to take a positive step to increase supplies without causing massive inflation and billions in windfall profits. These concepts must also be explored in conjunction with consideration of deregulation proposals.

The Commerce Committee is intensively considering all of these issues in a rational open fashion. Our hearing record exceeds 2,100 pages and more than 70 witnesses have appeared or submitted statements. We are working hard to reach agreement on a proposal that satisfies the valid objectives of all interested parties—consumers and producers. Thus, I hope that the Senate considers this complex and controversial issue with the benefit of the Commerce Committee's recommendation—a recommendation arrived at in an orderly, open process.

Mr. STEVENSON. Mr. President, I thank the Senator from Washington.

Certainly, no one has invested more time in this entire subject than has the distinguished Senator from Washington.

The Interior Committee has already devoted a great deal of time to the subject and its studies have been very valuable.

I also thank the Senator for making the point that I was trying to make about the effect of the Buckley amendment on the price of old gas.

The Senator from Washington read from a typical gas sales contract. He read from a contract I was referring to. It is typical. However, the point is still not clear in the RECORD.

The Buckley amendment would not terminate those contracts, nor would it permit in all cases renegotiation of the contract.

What it would do under the provisions referred to by the Senator from Washington would be simply to trigger an automatic increase under the contract in the price of gas. That increase could be as much as 500 percent. That is what it would do. It would not permit a renegotiation in all cases. It would not terminate the contract. It would simply trigger a drastic and immediate increase in the price of natural gas to consumers of natural gas throughout the country.

Mr. President, I have only one remaining point, and that has just been made by the distinguished Senator from Washington.

The Commerce Committee is conducting a very serious study of this subject. There are many regulatory possibilities, as well as the possibility of deregulation proposed by the Senator from New York. Hearings have been going on for a long while. They will continue. We do hope, on the basis of an exhaustive, balanced study to make some recommendations to the Senate and make them soon.

I do not know at this point what those regulations will be. There are many possibilities. One would be to deregulate the little producer or the independent producer. He is the one that goes out and explores for natural gas. It is not the large oil or gas corporation.

They are the ones who need the incentive and the money with which to continue increasingly expensive development and exploration operations. And they are the ones who compete.

We might recommend that of the 4200 natural gas producers in the country all but, say, the top 30 get deregulated, and that the top 30 not be deregulated because of the noncompetitive nature of their operations and because, again, of the enormous economic concentration in this industry.

The eight largest natural gas producers in the country control 74 percent of the Nation's natural gas reserves. The four largest control 51 percent.

Mr. BARTLETT. Mr. President, will the Senator yield?

Mr. STEVENSON. Mr. President, I ask unanimous consent to have printed in the RECORD at the conclusion of my remarks a chart which sets out the percentages of uncommitted reserves controlled by the largest producers in the country in the various producing areas.

The PRESIDING OFFICER (Mr. BIDEN). Without objection, it is so ordered.

(See exhibit 1.)

EXHIBIT 1

TABLE 1.—CONCENTRATION OF THE AVAILABLE NEW GAS SUPPLIES AS OF DEC. 31, 1971 AND JUNE 30, 1972 [1]

[Percentage of reported uncommitted reserves controlled by 4 and 8 largest producers] [2]

Producing area	Dec. 31, 1971		June 30, 1972	
	4 largest	8 largest	4 largest	8 largest
Permian Basin	63.6	86.4	80.6	94.2
Hugoton Anadarko	76.6	94.5	62.6	83.3
Other southwest	93.3	98.6	94.4	99.3
South Louisiana:				
Onshore	96.9	99.6	92.3	98.4
Offshore (Fed.)	57.0	83.3	49.6	74.9
Offshore (State)	84.5	100.0	94.9	100.0
Texas gulf coast:				
Onshore	89.4	96.7	84.4	92.4
Offshore (Fed.)	98.5	100.0	100.0	100.0
Offshore (State)	100.0	100.0	100.0	100.0
Rocky Mountain	63.4	82.9	70.4	86.0
Appalachian	99.6	100.0	100.0	100.0
Unclassified:				
Michigan	100.0	100.0		
California	95.4	100.0	94.3	100.0
Miscellaneous	87.7	99.9	98.0	100.0
Alaska	93.9	99.9	93.9	99.9
Total, United States	51.4	75.9	51.0	73.9

[1] Concentration ratios are based on individual company reserve reports. To the extent that 2 or more companies report pro rata ownership shares of jointly held leases for which there is a single operation, the concentration ratios tend to underestimate the actual degree of seller concentration.

[2] Reports were obtained from 79 large producers. These producers provide most of the gas sold to interstate pipelines (e.g., in 1971 the top 22 supplied over 70 percent of all interestate gas). Nevertheless, to the extent that nonreporting small producers may have had significant volumes, the ratios reported here tend to slightly overstate actual market concentration.

Mr. BARTLETT. Mr. President, will the Senator yield?

Mr. STEVENSON. I yield to the Senator from Oklahoma.

Mr. BARTLETT. The Senator from Illinois just made mention of the 30 top companies in size, and the fact that their nature was anticompetitive. Is it not correct, as to the number of wells drilled, that those 30 companies or totalities drill only about 20 percent of the total oil and gas wells drilled in this country?

Mr. STEVENSON. I take it that the Senator's point is that they do very little drilling. That was also my point. I was suggesting deregulating the independent producers because they do most of the drilling.

Mr. BARTLETT. Will the Senator yield further?

Mr. STEVENSON. I yield.

Mr. BARTLETT. The information I have—and according to the hearings we are having now in the Committee on Interior and Insular Affairs, in the special Committee on Vertical Integration—is that the competition among oil companies is moderate rather than heavy, and less than in many heavy industries such as steel, autos, and so forth.

My question is, if the Senator has information that the companies are not competitive, would he not then have information that they are in violation of the antitrust laws, and if so, why would he not pass that information on to the Justice Department, or suggest that there be a strengthening of the antitrust laws?

Mr. STEVENSON. Let me first inform the Senator that I have already advised the Justice Department of possible violations. From all indications thus far, this Justice Department is not enforcing the antitrust laws as it should be in the oil and gas industry. There has only been one antitrust action that I know of in the last year, involving only one exchange agreement, and exchange agreements are epidemic throughout the industry. It was conveniently settled just a few days ago.

But there is an independent agency of our Government which also has antitrust powers, and that independent agency has filed a complaint alleging anticompetitive behavior by the 8 largest companies in the industry. The Federal Trade Commission is taking action, but not the Attorney General of the Nixon administration. State attorneys general are also taking action; some 14, at the moment, are either considering or have already filed antitrust actions against corporations in this industry. And what is more, individuals are filing civil suits all across the country under the antitrust laws, and judgments are being entered against these companies.

Mr. BARTLETT. Mr. President, I ask unanimous consent to have printed in the RECORD documents which show the concentration ratios of various manufacturing industries.

There being no objection, the charts were ordered to be printed in the RECORD, as follows:

TABLE 5.—MANUFACTURING INDUSTRIES IN WHICH 4-FIRM CONCENTRATION RATIOS EXCEEDED 60 PERCENT IN 1960

SIC code	Industry	Concentration ratios	
		4 firm	8 firm
3717	Motor vehicles	79	83
	Steel:		
33121	Coke oven and blast furnace	68	76
33122	Steel ingot and semifinished shapes	70	84
33124	Hot rolled bars, shapes, etc	63	74
33126	Steel pipe and tubes	61	(3)
3571	Computing and related machines	63	78
3721	Aircraft	67	88
3011	Tires and inner tubes	71	90
3861	Photographic equipment	67	79
3352	Aluminum rolling	65	78
2111	Cigarettes	81	100
3411	Metal cans	71	83
2841	Soap and other detergents	72	80
2824	Organic fibers	85	95
3632	Household refrigerators	72	93
2032	Canned specialties	63	79
3661	Telephone apparatus	94	97
2141	Tobacco stemming	69	91
3694	Engine electrical equipment	72	81
2052	Biscuit crackers	59	68
2647	Sanitary paper products	64	80
3612	Transformers	66	80
2087	Flavorings	63	71
3633	Household laundry equipment	79	95
3229	Pressed and blown glass products	72	85
2823	Cellulose man-made fibers	85	100
3511	Steam engines and turbines	87	98
3672	Cathode ray tubes	89	(3)
2812	Alkalies and chlorine	63	88
2046	Corn milling	67	90
2043	Cereal preparations	87	(3)
3741	Locomotives	98	99
3211	Flat glass	96	99
3691	Storage batteries	60	80
2816	Inorganic pigments	64	83
2063	Beet sugar	68	97
2813	Industrial gases	72	88
3572	Typewriters	79	99
3313	Electrometallurgical	74	91

Mr. ABOUREZK. Mr. President, will the Senator yield?

Mr. STEVENSON. I am not in control of the time in opposition to the amendment. I yield back to the Senator from Washington the remainder of my time.

Mr. BUCKLEY. Mr. President, can the Chair inform us as to where the time lies? I have a feeling that perhaps I can make some time available to the Senator from Washington.

Mr. JACKSON. That is a good point. Mr. President, how much time do we have on the respective sides?

The PRESIDING OFFICER. At this stage, the Senator from New York has at least an hour left, and the Senator from Washington—as it stands now, the Senator from New York has used approximately an hour and 10 minutes, and the Senator from Washington has used an hour and 50 minutes. There is approximately one hour and 5 minutes left on the amendment.

Mr. JACKSON. If I have used an hour and 50 minutes, a parliamentary inquiry.

The PRESIDING OFFICER. The Senator will state it.

Mr. JACKSON. When will I be out of time on the pending amendment?

The PRESIDING OFFICER. If there is to be equal time involved on this amendment, the Senator from Washington should be yielding over to the Senator from New York in about 10 minutes.

Mr. JACKSON. I appreciate the inquiry of the Senator from New York. As always, he is very decent about these things.

Very frankly, Mr. President, I do not plan to use any more time on our side. I think my senior colleague (Mr. MAGNUSON) would like about 2 minutes. I wonder if I could yield my friend from South Dakota 7 minutes.

Mr. ABOUREZK. That is fine.

Mr. JACKSON. That will take everything that is left.

Mr. ABOUREZK. Mr. President, the issue of natural gas price deregulation is of major concern to this Nation's consumers of natural gas, in particular, residential consumers. Those Senators who are suggesting that prices of natural gas will not rise significantly at the consumer level are either not informed of the facts, or are not being completely honest in their arguments. Economists at the Library of Congress and at the Federal Power Commission have stated that the impact on gas consumers of deregulation in terms of higher prices will be significant.

The price increases at the wellhead will be automatically passed through to the consumer. Most gas producers are predicting that the increase in the price of natural gas will be equal to the difference in the price of natural gas now being sold in interstate commerce and the price of alternative fuels, such as SNG, LNG, et cetera.

In short, we are talking about increases of anywhere from 75 cents to $1.25 per 1,000 cubic feet. It is important to keep in mind that just a 1-cent increase in the price of natural gas at the wellhead would cost the Nation's consumers an additional $220 million a year. And a 10-cent increase would cost a hefty $2.2 billion a year, while an increase of $1 would cost this Nation's citizens roughly $22 billion a year at current consumption levels. And this money will flow directly from the pockets of consumers into the bank accounts of the major oil companies. Furthermore, all the major oil companies, bar none, have admitted that there is no guarantee that

higher prices will elicit all the gas that is needed. Secretary Wakefield has suggested that the Nation ought to "experiment" with deregulation and find out what happens. Unfortunately, that experiment comes at a most dangerous time. Under the threat of worsening shortages, this Congress is being intimidated by the Nation's major oil companies and the administration to the degree that unless Congress deregulates natural gas prices, the country's economic outlook will be very dim and uncertain.

This argument is as false as it is dangerous. Deregulation would have an enormous economic impact on our constituents. And as their representatives, it is our responsibility and duty to protect their welfare. We would be remiss in our duty if we voted on deregulation as an amendment to this research and development bill. It is our duty to debate the issue on its own merits, after the conclusion of full and complete hearings and after the Senate Commerce Committee reports out its bill on the matter. Most Senators, I am sure, have heard some discussion of deregulation. Many have not heard both sides of the issue and many are unaware of all the facts and arguments involved. Many Senators have been deeply involved in other issues of equal national importance, and have not as yet given serious consideration to the deregulatory scheme being advocated by those who wish to abandon the protection of consumers afforded by the Natural Gas Act, which Congress after long and arduous debate passed in 1938.

Consumers of this country and the natural gas producing industry, up until 1969 were well served by the provisions of that act. In 1968 there was no gas shortage. Ironically, the gas shortage coincided with the appointment of a new Federal Power Commission. Since 1969, the Nixon-appointed FPC has done everything it could to administratively deregulate the price of natural gas from increasing area rates to issuing its optional pricing procedure. The present commissioners, all of them, have called for deregulation, in effect, publicly advocating that the Commission give up its congressional mandate and function. It seems to me that intent of Congress was clearly interpreted by the Supreme Court in the Houe case; namely, that the purpose of the Natural Gas Act, its primary purpose, was to "protect consumers from exploitation by natural gas companies." The present commissioners, from their actions, appear to disagree with the intent of Congress and the Supreme Court.

The reason we are experiencing a gas shortage today is not because of regulation, but precisely because the present Commission has not properly regulated the nautral gas industry. When the President of the United States and his administration, and when the FPC itself, are clamoring for higher gas prices and deregulation, then producers, if they are good businessmen—and from seeing their recent profits, they obviously are—they would be foolish to sell their gas—a wasting asset—knowning that in a few days, weeks, or months, its price might double or even triple. The Nixon administration and the FPC have been raising the expectations of producers for higher prices. The producers have responded accordingly. Their sales of natural gas to the interstate market have dropped drastically; their additions to the Nation's reserves have followed suit and have not kept up with consumption. In anticipation of higher prices, there has been an increase in drilling activity, but no increase in supplies to the Nation, particularly in time of shortage, it would be a grave error to react out of panic or fear, and hope that a vote for re-regulation will somehow magically, solve our immediate, or even long-range energy problems. It will not.

One of the major problems, of which I am sure many of you are aware, have been analyzed by economists in both the Federal Power Commission and at the FTC. These economists have found a lack of workable competition in the natural gas producing industry. The Nation's major producers of natural gas are the major oil companies—against whom the Federal Trade Commission—by a 5 to 0 vote—has issued a complaint alleging that the structure of the petroleum industry is monopolistic and that the major companies cooperate rather than compete in the marketplace.

These are serious charges. And thus, I do not believe that we would be acting in the best interests of our citizens, if we moved too hastily, without all the facts, and voted for this amendment. By voting for deregulation, we might be voting to increase the concentration of economic power of a few major oil companies and thus place the future of our Nation's economy in the hands of a few corporations which are rapidly gaining control of all the Nation's energy resources—oil, natural gas, coal, uranium, oil shale, tar sands, et cetera.

Furthermore, serious questions have been raised by the Federal Trade Commission and Senator HART's Antitrust and Monopoly Subcommittee as to the validity and reliability of the Nation's gas reserves as reported by the gas producing industry. The FTC, after examining some of the internal papers of a number of major companies, found serious underreporting of reserves. How can we vote on an amendment to deregulate natural gas prices, when we do not even know the extent of our proven and probable reserves?

I strongly urge the Senate to vote against this amendment.

Mr. President, I yield back the remainder of my time.

Mr. BUCKLEY. Mr. President, before I yield to the Senator from Texas (Mr. TOWER), I should like to ask the Senator from Washington (Mr. JACKSON) if it is not true that the evidence before the Committee on Interior and Insular Affairs has indicated that the pricing by the FPC has been a deterrent to exploration?

Mr. JACKSON. Yes. I agree with that. It has been unrealistic. As I indicated, the old prices varied from as low as 5 or 6 cents per thousand cubic feet to up to 20 cents per thousand cubic feet. Also, we are bringing in gas from Algeria which is laid down in New York for I believe $1.25 a thousand cubic feet.

I would point out further that the talks and discussions with Soviet authorities regarding the development of natural gas in Siberia could lead to the importation of LNG that would be over $2 per thousand cubic feet. I think it makes no sense at all to support such program dependent upon a source that we have certainly learned by now will not always be reliable—I do not care what country is involved.

Mr. BUCKLEY. Would the Senator from Washington also agree with the language in the report on the Energy Conservation Act, page 18, which states:

. . . where realistic pricing is inhibited by regulator constraints, as with the present controls on wellhead prices of natural gas, legislation will be necessary to allow marketplace factors to play their proper role.

Would the Senator agree with that statement?

Mr. JACKSON. In general, yes.

Mr. BUCKLEY. I am quoting from the Senator's report.

Mr. JACKSON. I understand. That report, of course, represents the consensus of the committee. The Chair does not always agree precisely with all the language put in. Certain passages reflect the views of our colleagues, as the Senator well knows.

The point I would make is that legally I think what is required is an amendment to the law. The Federal Power Commission, theoretically, now has the power to make adjustments in price up to and including that which would more accurately reflect the true market value in the marketplace. The long series of decisions by the FPC, and by precedent, have, I think, created a situation in which any move by the Federal Power Commission to make the adjustments in price might be subject to endless litigation, with the result that it would not bring about the optimum adjustment in price. Therefore, it would be my judgment that we will have to legislate if we are going to do something about it, and I do believe that legislation is necessary.

Mr. BUCKLEY. I am glad, Mr. President, that the Senator agrees we need this legislation in order to allow market factors to exercise their influence, because that is precisely what will be accomplished by the adoption of my amendment. That is its purpose, and I am glad to elicit this agreement from him.

Mr. JACKSON. I do not want the Senator's statement to be construed as meaning that I am supporting deregulation at this time—that is, the total restraints—removal of all on price insofar as natural gas is concerned. I am reserving my final judgment on this question until we have had an opportunity to work out the Interior Committee's recommendations to the Committee on Commerce.

Mr. BUCKLEY. Mr. President, I yield 7 minutes to the Senator from Texas.

Mr. TOWER. I thank the Senator from New York.

Mr. President, it is too bad that a number of people have gotten themselves

rooted into archaic and outmoded arguments against the deregulation of natural gas. The argument against it has been going on for some years.

I recall that some years ago I said to my colleagues in this body that, some day, the time would come when the oil-producing countries of the Middle East would say to us, "You can have oil or Israel, but not both." That time has come.

Therefore, it is incumbent upon us to do what we can to develop our own domestic sources and to move as close to self-sufficiency—although we can never reach that happy state—as we can. It has been suggested that we in Congress would be turning our backs on a congressional mandate given the Federal Power Commission 40 years ago. The fact is that only 17 years ago, Congress passed legislation calling for the deregulation of natural gas. That is the latest expression of congressional intent. As everybody knows, that bill was vetoed by President Eisenhower because of the impropriety of a lobbyist.

There is a great deal of talk about big oil companies, about big profits, about abandoning the protection of the consumer. The big oil companies do not do the lion's share of the drilling in this country. It is done by independent drillers, many of whom have gone broke and out of business in the past 4 years. In my home town of Wichita Falls, Tex., oil geologists are working as shoe salesmen or used car salesmen because there is not enough business left for them to work at.

Let us look at the drilling figures. From 1956 to 1972, exploratory activity declined in terms of the number of wells from 16,207 to 7,587. That is the disastrous effect this thing has had. Eighty percent of the oil and gas resources in this country is found by the small independents, who take very high risks. You have to have profit in a high risk business in order to attract capital. People are not going to turn away from safe investments and invest in high-risk ventures if there is not some prospect of a good profit, if they are lucky enough to hit.

Far from abandoning the protection of the consumer, we are trying to protect the consumer in deregulating the price of gas. It does not make sense to say that we are protecting the consumer when we insist on paying $1.25 or $1.50 for Algerian fuel or gas generated from naphtha rather than allow that gas to be replaced by gas that might cost 70 to 75 cents from domestic sources. No one can tell me that it is better for the consumer to pay $1.50 per thousand cubic feet for his gas than to pay 75 cents. I do not see how anybody can make a case for the consumer on that basis.

The Washington Post has editorialized in favor of the proposal sponsored by the Senator from New York and others. They have editorialized more than once. I should like to read portions of an editorial in the Washington Post of last March. The editorial stated:

The economics of natural gas has gone badly askew in this country. The latest illustration is the Washington Gas Light Company's plan to generate synthetic gas at Cockpit Point on the Potomac River. The company is, involuntarily, demonstrating that the federal government's misguided efforts to hold down the price of gas is going to cost the residential consumer a lot of money.

In deference to an obsolete view of the consumers' interest, the Federal Power Commission holds the price of natural gas low.

Further, the article stated:

Washington Gas Light gets its gas from the pipelines that carry it here from the southwest. A year ago one of the lines cut back on its deliveries. That was the point at which Washington Gas Light announced that it could accept no new customers. Now another line has warned the company to expect a further cut next year. In response, quite properly, Washington Gas Light has drawn up a proposal to protect itself and its customers by making synthetic gas at Cockpit Point from naptha.

The numbers are illuminating. The average cost of natural gas at the well runs about 20 cents per thousand cubic feet. The pipelines sell it to Washington Gas Light for 55 cents a thousand cubic feet. The Cockpit Point plant will produce the synthetic gas at $1.50 a thousand cubic feet. Because the FPC holds the price of natural gas too low, there is a shortage, and because there is a shortage, we must buy a synthetic substitute that costs three times as much. Who is saving money for whom?

The Washington Post editorial concluded, as to deregulation:

The solution is to deregulate the price of natural gas at the well. No one can forecast accurately how high the price might go if the regulation were lifted. Most specialists guess that it would go up to a level somewhere between twice and three times its present price—which is to say, between 40 and 60 cents a thousand cubic feet. Adding the cost of transporting that gas to Washington, the price would still be less than a dollar. It would still be one-third less than that of the synthetic gas produced at Cockpit Point.

Mr. President, let us not kid anybody. The amendment of the Senator from New York does not favor the major oil companies. Right now, the policy of the FPC favors the large companies, because the rate basis is formulated on an average cost basis, and the big companies can spread costs. The small producers cannot. With the price below replacement costs, producers are driven out of business. If you want more gas, you have to deregulate it.

Mr. BUCKLEY. I thank the Senator from Texas for providing the hard facts of the situation.

It seems to me, Mr. President, that we have been treated by the Senators from Idaho, South Dakota, and Illinois with glorious rhetoric, but it is rhetoric that is really irrelevant to the merits or demerits of my amendment.

We have heard all kinds of talk about the monopolistic hazards of oil companies, but that, I submit, has nothing to do with those companies that are engaged in the business of risking large sums in order to try to find natural gas that we in the East and the Northeast and throughout the country badly need.

We have heard about the widows and the little children who will be bludgeoned and be crucified by a handful of bloodless, heartless giants of industry, who will force prices to go through the ceiling. What are the facts? I do not believe that we can legislate without attention to facts, and we only become obscured by rhetoric.

First of all, insofar as there is any monopolistic hazard—and I do recognize that there may be a problem when you have producing affiliates of pipeline companies—my amendment copes with that problem. It provides the FPC with specific authority to disallow any pass-through of any portion of a price paid to an affiliate that cannot be justified by objective, external, free, competitive pricing standards in the area of production.

Mr. President, we are told, as I say, that the prices will be allowed to soar up and penalize widows, children, the poor, and the helpless. My amendment applies only to new gas, and if one decontrols new gas and allows it to reach its normal price measured by its importance in the economy, that new price will be rolled in with all other gas that will dominate the flow in the interstate pipeline for years to come.

What is the effect on the consumer, whom we are all anxious to protect? According to a study by the American Petroleum Institute, which was quoted in a staff memorandum published on November 20, 1973, by the Committee on Interior and Insular Affairs, the effect of my amendment on consumer prices would be a rise of 6.4 percent the first year, 3.8 percent the second year, 3 percent the third year, and so on. This is based on a 65 cent per mcf price for new gas.

The total effect of this on the average consumer would be an increase in the first year of $8.30 for natural gas. The total projected increase, if we were to deregulate now, would be an increase in the average cost to the consumer by 1980 of $33.06. Mr. President, $33.06 is a sum of money, but I submit that the average American would rather pay $33.06 for gas than to have no gas at all. That is what we are talking about.

What are the alternatives for the consumer if we do not restore the incentives required to cause people to risk money to find new gas for the interstate pipeline? They are going to have to pay two or three times as much for either liquefied natural gas brought in from insecure sources, or manufactured gas, or naphtha brought in from insecure sources, or degasification of coal, all of which are higher.

All the rhetoric on the record about the protection of the consumer is absolutely irrelevant to the problem facing this country today. We heard the distinguished Senator from Illinois argue that there is not a scintilla of evidence as to the immediate impact of the higher prices on discovery and production of new gas. Perhaps before his committee there was no such evidence, but certainly before the Committee on Interior and Insular Affairs, which has been conducting hearings on precisely this subject, there has been very clear evidence.

I have in my hand a chart that shows that in Blaine County and Hill County in Montana there was a decline in the rate of wells being drilled when the price was about 15.5 cents for 1,000 cubic feet.

When the price was raised to 23.5 cents in 1971, the number of wells drilled rose from a little over 100 to more than 300.

We also find the evidence that we see today in States like Oklahoma, where there is an intrastate market at prices three times what is allowed for export. We see enormous exploration going on, new gas being put in the stream. But none of that reaches consumers out of the State.

It is simple logic that if an interstate pipeline can compete for gas that is now about to be discovered, we in the Northeast, and those in the Midwest, will have an opportunity to purchase that gas. We also know that there is much gas that is known to exist but cannot be economically reproduced at the prices allowed by the Federal Power Commission. Upon the lifting of controls on new gas it would be immediately possible to do the engineering of those fields and to get it into the pipelines.

To say we might have a delay of a week or two, a month or two, or even a year or two between cause and effect is no reason whatever. We ought to begin now the chain of action and reaction to produce natural gas.

We have in this bill some very necessary proposals that are not designed to have a practical fallout until the year 2000, but we understand we have to begin working today if we are not to be high and dry by the year 2000.

I have other examples of the responsiveness of drilling operations to demand. In Sutton County, Tex., we see a quadrupling of drilling in response to even relatively small rises in price. The same thing is true in Weld County, Colo. The evidence is replete with such examples, but one does not have to go to the evidence to support what commonsense should dictate.

We had a vigorous natural gas industry exploring for natural gas and discovering gas faster than it was being consumed until the Federal Power Commission came along and began invoking authority. Then, we saw a drop in wildcat wells from 45,000 to 7,000.

We have heard rhetoric about the lack of competition in the field. I am worrying here today about big integrated companies, refineries, distribution of products, and so forth. My problem is with the production of natural gas, the discovery and development of natural gas reserves. I do not see how anyone could say that this particular facet of the overall industry is not competitive when the Federal Power Commission is regulating the production of over 3,700 producers at the present time. If 3,700 producers do not constitute competition I do not know what competition is.

Then, we have the hundreds of people operating in the intrastate market. We must not allow ourselves to be deflected from the pragmatic fact, about worrying about whether Gulf, Exxon, or some other company is earning more money this year than last year. It is irrelevant to the question of unshackling an industry, the natural gas industry, which is closed to thousands of small and intermediate operators whose task it is to try to discover the natural gas, which is the most important energy ingredient supporting the American economy today.

Mr. President, I shall offer some summation remarks later but we have Senators who have asked for an opportunity to be heard.

I would like to yield now to the Senator from New Mexico.

The PRESIDING OFFICER. The Senator from New Mexico is recognized.

Mr. DOMENICI. I thank my friend, the Senator from New York (Mr. BUCKLEY), for yielding. I have a great deal to say but I think since the time is running late and we have been engaged in a very lengthy discourse about the propriety and fairness of the Senator's amendment that I shall just say that I am pleased to be a cosponsor of the amendment.

The Senator from New York is to be highly commended for the leadership he has provided in trying to enact this legislation, legislation we feel is in the best interest of all Americans regardless of where they live or how they make a living. Our belief in the truth of that statement is perhaps no better demonstrated than by the fact that Senator BUCKLEY, representing a populous, energy-hungry State in the Northeast, and I, representing a sparsely populated, energy-abundant State in the Southwest, agree that this amendment is not only good for the entire Nation and all its citizens, but is also good for both our States and all those citizens.

Senator BUCKLEY has spoken eloquently as to the reasons this legislation is good for the Nation including residents of the energy-dependent areas of this country. I associate myself with his remarks in that regard and would simply emphasize the following facts.

Fact No. 1—America is now in the midst of one of the most serious domestic crises of its history—a critical shortage of energy. Need I say more on such a painfully obvious fact?

Fact No. 2—It is beyond question that the artificially low price of natural gas delivered to interstate pipelines has resulted in expanding the demand for natural gas at the expense of other fuels while at the very same time discouraging exploration and increased production of natural gas. The disastrous effect of this unrealistic pricing policy is summed up very well by the objective and scholarly British Petroleum Press Service which, after analyzing the energy problem in the United States, concludes that:

> Because of apparently unlimited supplies of indigenous fuels, energy in the U.S.A. has always been cheap: indeed, a major factor in the nation's economic growth and prosperity. More recently however it is apparent that energy has been too cheap, leading to a certain degree of waste but more importantly to a lack of incentive in developing new resources to meet the very demand that low prices have created.

Fact No. 3—There is no shortage of natural gas in the ground. I say this because we have such vast "proven" reserves—that is those reserves which can be recovered with reasonable certainty. As of December 31, 1972, the Nation's proven reserves were estimated at 266.1 trillion cubic feet.

And this figure does not include "potential reserves"—that which is believed to be present in the earth. Those reserves are estimated to be in excess of 1,140 trillion cubic feet, more than 50 times the current annual production of natural gas in the United States. Of this potential, 28 trillion cubic feet is in New Mexico. But, that gas will never be utilized if our present policy of disincentives continues to prevail because it will not be marginally profitable to find and develop.

Fact No. 4—The main reason these vast amounts of natural gas have not been developed is the lack of development incentive. Mr. President, when American businessmen and investors see a situation where demand is zooming out of sight and when an energy crunch can be seen coming for years, why have not they taken advantage of that situation to make a little money? As incredible as it seems, the answer is that there has been no money to be made in developing and producing gas for interstate transactions.

The gas is there, we know it is there, but our pricing policies have favored development of substitutes and imports and discouraged development of these vast reserves by limiting producer prices at levels one-half of alternate sources. Consequently, investment money has quite naturally gone into something else. In the free enterprise system you cannot expect people to put money into a high-risk venture with a low rate of return, regardless of the fact that there would be continued increased demand for their product.

To dramatically illustrate this fact—an oilman from New Mexico points out to me that it is outrageous that in Roosevelt County, N. Mex., the going price is 6 cents per 1,000 cubic feet, while Canadian gas brings more than $2.50 per 1,000 cubic feet of liquefied petroleum gas laid down at Lowell, Mass. Give him part of that $2.50 and he will get out and with his own money and that of other New Mexicans and Americans, develop New Mexico's 12.3 trillion cubic feet of proven reserves—and he will do it now. But, if the conditions remain as they are now, he will bypass the dubious opportunity to produce an expensive dry hole in New Mexico and invest his money in liquefied petroleum gas production in Canada or somewhere else.

Additionally, there are many other problems for people looking for oil and natural gas, some of them created by Government. As an oilman from New Mexico summed it up recently:

> Money for the risky job of drilling is hard to find and expensive. We in the oil industry have difficulty in obtaining a rig to drill new exploratory wells. Steel pipe for these wells is almost unobtainable at any price. Cement is in short supply. Costs and problems seem to suffer daily explosions.

I have already mentioned that New Mexico has vast proven reserves and even greater potential reserves. This can only mean increased activity and corresponding economic benefit to the State and its residents. In 1972, the State of New Mexico produced almost 2 trillion cubic feet of natural gas—fourth highest in the Nation—with a value at the well head of $225 million, even at the

low prices imposed by the FPC on interstate sales. In 1972 the number of people engaged in production of crude oil and natural gas was right at 7,000. So, Mr. President, New Mexico, which is one of the largest producing States of energy sources and has always been an exporter of raw petroleum products, holds much of the solution to our current energy crisis.

In summation, Mr. President, natural gas holds the key to increasing our total available energy, particularly in the short run. Both of the disastrous effects of unrealistic pricing policy—expanded demand and diminished exploration and development—can be reversed by removing the price constraints. I am firmly convinced that removal of price controls on all natural gas is the optimum solution and that it will eventually come about. This is not my conclusion alone. Many people who have analyzed this issue in great depth have reached the same conclusion.

In their summation of their recent Harvard Law Review article—April 1973—entitled "The Natural Gas Shortage and the Regulation of Natural Gas Producers," Stephen Breyer and Paul W. MacAvoy, experts at Harvard and MIT respectively, stated:

> In sum the arguments against the system of gas field market regulation are compelling. Price control is not needed to check monopoly power, and efforts to control rents require impossible calculations of producer costs and lead to arbitrary allocations of cheap gas supplies. In practice, regulation has led to a virtually inevitable gas shortage. It has brought about a variety of economically wasteful results, and has ended up hurting those whom it was designed to benefit. Thus, less, not more regulation is required.

For those reasons I am an original cosponsor of S. 371. I am also convinced that the removal of controls on field prices of "new gas" is a step we can take right now, here today, and that it would make available more additional energy, more rapidly than any other action we could take. I say, "Let us get on with it."

Mr. President, I ask unanimous consent to have printed in the RECORD two telegrams, one from the commissioner of public lands for the State of New Mexico and the other from the director of our conservation commission, both of whom endorse the deregulation of natural gas, not from the parochial standpoint of New Mexico, but from the standpoint of what it would do for the energy crisis and the country.

Mr. President, I ask unanimous consent that the two telegrams that I referred to may be printed in the RECORD.

There being no objection, the telegrams were ordered to be printed in the RECORD, as follows:

Hon. PETE DOMINICI,
U.S. Senate, Capitol Hill, D.C.:

As commissioner of public lands in New Mexico I favor the de-regulation of natural gas prices. I feel that it would result in increased exploration and development and enhance future supplies for the whole country.

ALEX J. ARMIJO,
Commissioner of Public Lands.

Hon. PETE DOMINICI,
U.S. Senate, Capitol Hill, D.C.:

As director of the New Mexico Oil Conservation Commission since 1956 I strongly support legislation that will deregulate the price of natural gas that is produced for interstate shipment.

A. L. PORTER, JR.,
Secretary-Director.

Mr. DOMENICI. Mr. President, let me, for the purpose of floor discussion, emphasize two rather distinctive periodicals which I think deserve further comment here; first of all, the distinguished and scholarly periodical known as the British Petroleum Press Service, which states, and I think it supports wholeheartedly from the international viewpoint what the distinguished Senator from New York has been saying these past few hours:

> Because of apparently unlimited supplies of indigenous fuels, energy in the USA has always been cheap; indeed, a major factor in the nation's economic growth and prosperity. More recently, however, it is apparent that energy has been too cheap, leading to a certain degree of waste, but more importantly, to a lack of incentive in developing new resources to meet the very demand that low prices have created.

One further periodical indicates probably better than anything else that the time has come for serious deliberation on this issue, and that is the Harvard Law Review for April 1973, in which Professors Breyer and MacAvoy said many things in recommending deregulation, but I would like to quote one paragraph:

> In sum, the arguments against the system of gas field market regulation are compelling. Price control is not needed to check monopoly power, and efforts to control rents require impossible calculations of producer costs and lead to arbitrary allocations of cheap gas supplies. In practice, regulation has led to a virtually inevitable gas shortage. It has brought about a variety of economically wasteful results, and has ended up hurting those whom it was designed to benefit. Thus, less, not more, regulation is required.

I commend the distinguished Senator from New York and his 25 cosponsors for bringing to the floor of the Senate and, hopefully, to the attention of the American people that, while it is appropriate to talk about long-term research and development, conservation, and the like, it is more appropriate than anything else to bring to the attention of the American people the most realistic immediate tool to assist this great country in the energy crisis, probably doing little, or no harm to anyone, but whose both long-term and short-term benefits are manifold. I hope in the not too distant future this proposal will become the law of the land. I agree that it will, more than anything else, begin to solve this serious crisis.

I thank the Senator for yielding.

Mr. BUCKLEY. Mr. President, as always, the Senator from New Mexico has brought a better perspective to the discussion, and I appreciate that he has done so.

I would now like to yield 1 minute to the Senator from Wyoming (Mr. HANSEN).

Mr. HANSEN. Mr. President, I thank my distinguished colleague from New York for his courtesy.

PETROLEUM INDUSTRY PROFITS

Historically, the petroleum industry's profitability has been lower than the average for all manufacturing industries.

Based on comparative studies by the First National City Bank of New York,[1] over the last 10 years, 1963 through 1972, net income as a percent of net worth in the petroleum industry averaged 1.8 percent. For the same period, the ratio for all manufacturing industries in the bank's survey, averaged 12.2 percent. See table I, attached. For more than half of this period, 7 out of 10 years, the profitability of the petroleum industry was lower than the all-manufacturing average. Of particular significance for current analysis is the fact that the petroleum industry's rate of return has been on an almost uniform downtrend since 1968, dropping to a 10-year low in 1972. In that year, the petroleum industry's rate of return was 10.8 percent, as compared to a manufacturing average of 12.1 percent.

Turning to the more recent record, according to the latest Federal Trade Commission reports,[2] petroleum industry profits for the four quarters ending in June 1973, were 10.5 percent above the comparable year-earlier period. Over the same two annual periods, profits of all manufacturing corporations increased by 28.1 percent. See table II, attached.

In terms of the critical yardstick of profitability, petroleum industry profits as a percent of stockholders' equity has grown from 9.2 percent to 9.6 percent, between these two periods, an increase of 4.3 percent. Over the same time span, average manufacturing profits have risen from 10.0 percent to 11.8 percent, an increase of 18 percent.

These data make clear not only that the rate of return in the petroleum industry is substantially below that of the average for all manufacturing corporations, on an absolute basis, but that manufacturing corporations generally have increased their profitability, in the past 2 years, by more than four times the rate for petroleum refining.[3]

Assertions as to the growth of petroleum industry profits have been based on comparisons of individual quarterly results in 1973 and 1972. The fallacy underlying these comparisons is that petroleum profits were falling to a 10-year low in the 1972 base periods, while average manufacturing profits were rising. Hence, the ostensible quarterly growth in petroleum profits actually represents recovery from depressed profit levels rather than real profit trends.

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[1] First National City Bank, Monthly Letter, April of each year.

[2] Federal Trade Commission, "Quarterly Financial Report for Manufacturing Corporations", Washington, D.C.

[3] Profits in petroleum refining include the integrated profits of corporations engaged in refining and other phases of petroleum industry operations.

These misleading statements have frequently attributed the rise in petroleum profits to unwarranted increases in petroleum product prices. But such price increases as have been allowed by the Cost of Living Council have been based on fully documented increases in costs, particularly the sharply rising costs of imported crude oil and products. For example, in recent months the landed costs of imported crude oil have risen to more than $7 a barrel, while No. 2 home heating oil has ranged from 35 cents to 45 cents a gallon.

The damaging consequences of distorted allegations of high petroleum profits is that they divert attention from the large capital expenditures that are needed to assure the Nation of reasonable self-sufficiency in oil and gas resources. According to estimates by the Chase Manhattan Bank, the domestic capital requirements of the petroleum industry over the 15 years, 1970 to 1985, will total $220 billion.[4]

I ask unanimous consent to have printed in the RECORD the tables to which I have referred.

There being no objection, the tables were ordered to be printed in the RECORD, as follows:

[4] The Chase Manhattan Bank, "Capital Investments of the World Petroleum Industry, 1971." New York, December 1972.

TABLE I.—NET INCOME AS A PERCENT OF NET WORTH: PETROLEUM, OTHER SELECTED INDUSTRY GROUPS, TOTAL MANUFACTURING AND TOTAL MINING 1963 THROUGH 1972

Industrial groups	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972[1]	10-year average 1963-72
Drugs and medicines	18.7	19.8	21.2	22.5	20.3	19.8	17.7	18.8	19.0	19.7	19.5
Soap and cosmetics	16.9	17.6	17.0	17.9	19.4	18.9	18.6	18.7	19.3	20.4	18.7
Instruments, photo goods, etc	13.4	16.6	19.2	21.2	20.3	19.2	18.7	15.8	15.4	16.8	17.6
Office equipment and computers	18.0	17.9	18.7	18.1	17.8	19.0	17.4	13.9	12.5	13.8	15.8
Autos and trucks	19.6	19.9	23.4	17.8	12.0	16.6	13.8	5.8	15.0	17.2	15.6
Tobacco products	14.0	13.4	13.3	13.9	14.8	14.6	14.6	16.4	16.6	16.2	14.9
Printing and publishing	12.4	14.6	16.9	17.9	15.4	14.9	14.8	12.5	12.6	13.7	14.3
Household appliances	12.8	14.1	15.0	15.0	14.7	14.0	13.5	11.9	12.1	15.4	13.8
Clothing and apparel	12.0	13.6	16.3	16.2	13.6	15.7	13.3	10.7	10.8	11.1	12.8
Electrical and electronic equipment	10.7	11.1	14.8	16.7	15.4	14.1	13.0	10.1	10.7	13.0	12.7
Dairy products	11.2	12.2	12.5	12.6	11.8	11.7	11.8	12.0	12.6	12.6	12.1
Chemical products	13.2	14.2	15.4	14.6	11.5	11.7	11.4	9.5	9.7	11.3	12.0
Automotive parts	11.4	12.2	13.4	14.0	11.4	12.6	13.0	8.9	10.4	13.1	11.9
Lumber and wood products	8.1	11.5	11.5	11.0	9.4	14.1	15.2	10.2	11.2	13.9	11.9
Petroleum production and refining	11.5	11.5	11.9	12.6	12.8	13.1	11.9	11.0	11.2	10.8	11.8
Glass products	11.6	12.1	13.5	12.7	11.1	11.9	12.2	9.0	11.1	12.5	11.7
Farm, construction equipment	9.4	13.7	14.4	14.7	10.9	8.4	10.4	9.3	8.8	12.1	11.1
Aerospace	11.7	13.1	15.4	15.7	13.4	13.9	11.4	6.7	6.3	8.8	11.0
Rubber and allied products	9.9	11.4	11.8	12.8	10.8	12.7	11.1	7.6	9.8	11.7	10.9
Nonferrous metals	7.1	9.2	11.8	15.7	11.4	11.1	12.5	10.6	5.0	7.2	10.0
Distilling	7.9	8.5	9.6	10.4	10.5	10.2	10.4	10.1	10.3	10.7	9.9
Building, heating and plumbing equipment	6.4	8.9	10.6	12.0	11.3	11.3	8.5	7.0	8.4	11.6	9.6
Paper and allied products	9.2	10.5	10.5	11.8	9.5	10.7	10.3	7.4	5.6	8.7	9.2
Textile products	7.1	8.9	11.6	12.3	8.8	9.8	8.8	6.4	6.6	7.8	8.7
Iron and steel	7.3	9.0	9.6	9.4	7.4	8.5	7.4	4.6	4.6	6.2	7.3
Total mining	9.1	10.4	12.1	13.9	16.2	15.0	12.6	11.7	8.5	9.6	11.7
Total manufacturing	11.6	12.6	13.9	14.2	12.6	13.3	12.4	10.1	10.8	12.1	12.2

[1] Preliminary.

Source: First National City Bank, Monthly Letter, April of each year. May 1973.

PROFITS

	Petroleum			Total manufacture		
	Actual	Number of companies	Percent change	Number of companies	Actual	Percent change
1963	3,920	115	+14	2,280	16,261	+10
1964	4,239	122	+7	2,328	18,774	+15
1965	4,638	109	+10	2,298	21,753	+17
1966	5,175	106	+12	2,279	24,074	+9
1967	5,696	107	+10	2,292	23,307	−5
1968	6,128	99	+8	2,250	26,067	+11
1969	6,087	91	0	2,068	26,650	+2
1970	5,892	97	−2	2,127	23,413	−12
1971	6,419	96	+8	2,319	26,971	+13
1972	6,525	108	+2	2,414	31,959	+19
Total increase		+66.5				+96.5

Source: First National City Bank.

TABLE II

	After-tax profits (million dollars)		Return on stockholders' equity (percent)	
	Petroleum refining	All manufacturing	Petroleum refining	All manufacturing
1971:				
III	1,508	7,538	10.6	9.3
IV	1,407	7,980	9.8	9.8
1972:				
I	1,287	7,934	8.8	9.5
II	1,095	9,633	7.4	11.3
Total	5,297	33,085	9.2	10.0
1972:				
III	1,296	8,776	8.7	10.1
IV	1,478	10,125	9.8	11.5
1973:				
I	1,406	10,506	9.2	11.6
II	1,671	12,972	10.7	14.0
Total	5,851	42,379	9.6	11.8
Percentage change:				
1971/III–1972/III			−14.1	+16.4
1971/IV–1972/IV			+5.0	+26.9
1972/I–1973/I			+9.2	+32.4
1972/II–1973/II			+52.6	+34.7
1971–72 to 1972–73			10.5	+28.1

Mr. HANSEN. Mr. President, I would like to ask the manager of the bill a couple or three questions, if I may. I have in my hand U.S. petroleum statistics for 1973, prepared by the Independent Petroleum Association of America. Comparing the year 1956 with the year 1972, it is my information, from reading the statistics for crew-months worked, total acres leased, and wildcat wells, that in 1956 there were crew-months worked of 7,857, total acres leased of 383,863, with a total number of wildcat wells drilled of 16,207.

Dropping down to the year 1971, the crew-months worked decreased to 2,760, the acres leased amounted to 332,647, and there was a total of 6,922 wildcat wells drilled.

I would just ask my distinguished colleague from Washington if I might conclude that there would be some relationship between the wellhead price of gas and these statistics. Would that, in his judgment, be a factor?

Mr. JACKSON. Is the Senator referring to natural gas or is he referring to petroleum?

Mr. HANSEN. These are the number of wells drilled.

Mr. JACKSON. These are gas or oil wells?

Mr. HANSEN. These are either oil or gas.

Perhaps it would be useful for me to go over to where the Senator is to show him these figures.

Mr. JACKSON. I will not need them. I am trying to differentiate what the Senator is saying.

Let me just comment that there is no question that, in the area of natural gas, with the price being static and not related to alternative sources of fuel, there has not been an incentive. I do not disagree with that, but let me observe, regarding oil drilling, the point that is lost here is that all during the period when the oil depletion allowance was 27.5 percent, when the major international oil companies had an opportunity to decide whether they would drill in the United States or abroad, they moved abroad.

The reason is very obvious. When the companies went to Saudi Arabia for oil, they found the cost in Saudi Arabia was much lower. Or let us take Kuwait specifically. In Kuwait the cost was 6 cents per barrel. In Saudi Arabia it was 8 cents per barrel. In the United States it was $2.40 per barrel.

Mr. President, what happened was that the cash flow from the large companies—I am not talking about wildcatters—was used abroad, because obviously that is where the profit was. And despite a 27½-percent depletion allowance, it really was not used in the United States, because the companies had a more profitable alternative.

The result is that we now find ourselves, in large measure, in the situation of a short supply in the United States in relation to our needs.

I must say that the oil is here, especially in the Outer Continental Shelf, and I would hope that we can now recognize the fallacy of permitting such enormous operations abroad, to the detriment of drilling operations here at home.

Mr. HANSEN. I thank my colleague.

Mr. President, I ask unanimous consent that such information from the chart to which I was referring as I may submit may be included in the RECORD at an appropriate place.

There being no objection, the statistics were ordered to be printed in the RECORD, as follows:

EXPLORATION (GEOPHYSICAL CREW ACTIVITY, ACREAGE UNDER LEASE, WILDCAT WELLS DRILLED)

Year	Crew months worked	Total acres leased January 1 (thousands)	Wildcat wells			Year	Crew months worked	Total acres leased January 1 (thousands)	Wildcat wells		
			Total	Dry	Percent dry				Total	Dry	Percent dry
1952	8,923	273,067	12,425	10,090	81.2	1963	4,174	387,457	10,664	8,686	81.5
1953	8,675	(1)	13,313	10,633	79.9	1964	4,406	372,408	10,747	8,951	83.3
1954	7,969	315,568	13,100	10,389	79.3	1965	4,471	375,306	9,466	8,005	84.6
1955	8,240	(1)	14,942	11,832	79.2	1966	3,835	350,895	10,313	8,705	84.4
1956	7,857	383,863	16,207	13,118	80.9	1967	3,496	333,858	8,878	7,360	82.9
1957	7,242	(1)	14,714	11,904	80.9	1968	3,390	325,106	8,806	7,439	84.5
1958	5,731	371,146	13,199	10,632	80.6	1969	3,259	332,005	9,701	8,001	82.5
1959	5,696	382,607	13,191	10,577	80.2	1970	2,521	343,213	7,693	6,422	83.5
1960	5,207	424,251	11,704	9,515	81.3	1971	2,760	332,647	6,922	5,834	84.3
1961	5,024	416,871	10,992	9,022	82.1	1972	(1)	350,725	7,587	6,293	82.9
1962	4,231	408,870	10,797	8,815	81.6						

[1] Not available.

DRILLING (ROTARY RIGS ACTIVE AND TOTAL WELL COMPLETIONS)

Year	Rigs active	Total well completions					Year	Rigs active	Total well completions				
		Oil	Gas	Dry	Service	Total			Oil	Gas	Dry	Service	Total
1953	2,613	25,762	3,806	18,449	1,262	49,279	1963	1,501	20,288	4,751	16,347	2,267	43,653
1954	2,509	29,773	3,977	19,168	1,012	53,930	1964	1,502	20,620	4,855	17,488	2,273	45,236
1955	2,687	31,567	3,613	20,742	760	56,682	1965	1,388	18,761	4,724	16,025	1,922	41,432
1956	2,619	30,730	4,543	21,838	1,049	58,160	1966	1,270	16,780	4,377	15,227	1,497	37,881
1957	2,429	28,612	4,626	20,983	1,409	55,024	1967	1,134	15,329	3,659	13,246	1,584	33,818
1958	1,923	24,578	4,803	19,043	1,615	50,039	1968	1,170	14,331	3,456	12,812	2,315	32,914
1959	2,074	25,800	5,029	19,265	1,670	51,764	1969	1,195	14,368	4,083	13,736	1,866	34,053
1960	1,746	21,186	5,258	17,574	2,733	46,751	1970	1,028	13,020	3,840	11,260	1,347	29,467
1961	1,763	21,101	5,664	17,106	3,091	46,962	1971	975	11,858	3,830	10,163	1,449	27,300
1962	1,637	21,249	5,848	16,682	2,400	46,179	1972	1,107	11,317	4,929	11,089	1,436	28,771

PROVED RESERVES (LIQUID HYDROCARBONS AND NATURAL GAS)

January 1	Liquid hydrocarbons (million barrels)			Natural gas (trillion cu. ft.)	Reserve/production ratio			January 1	Liquid hydrocarbons (million barrels)			Natural gas (trillion cu. ft.)	Reserve/production ratio		
	Crude oil	Gas liquids	Total liquids		Crude oil	Total liquid	Natural gas		Crude oil	Gas liquids	Total liquids		Crude oil	Total liquid	Natural gas
1953	27,961	4,997	32,958	198.6	12.4	13.1	23.1	1963	31,389	7,312	38,701	272.3	12.3	12.8	20.0
1954	28,945	5,438	34,383	210.3	12.5	13.2	22.9	1964	30,970	7,674	38,644	276.2	11.9	12.4	19.0
1955	29,561	5,244	34,805	210.6	13.1	13.6	22.5	1965	30,991	7,747	38,738	281.3	11.7	12.2	18.3
1956	30,012	5,439	35,451	222.5	12.4	12.8	22.1	1966	31,352	8,024	38,376	286.5	11.7	12.1	17.6
1957	30,435	5,902	36,337	236.5	11.9	12.5	21.8	1967	31,452	8,329	39,781	289.3	11.0	11.5	16.5
1958	30,300	5,687	35,987	245.2	11.8	12.4	21.4	1968	31,377	8,614	39,991	292.9	10.3	10 9	15.9
1959	30,536	6,204	36,740	252.8	12.9	13.5	22.1	1969	30,707	8,598	39,305	287.4	9.8	10.3	14.8
1960	31,719	6,522	38,241	261.2	12.8	13.3	21.1	1970	29,632	8,143	37,775	275.1	9.3	9.6	13.3
1961	31,613	6,816	38,429	262.3	12.8	13.2	20.1	1971 [1]	29,401	7,703	37,104	264.7	8.8	9.1	12.1
1962	31,786	7,049	38,835	266.3	12.6	13.0	19.9	1972 [1]	28,463	7,304	35,767	252.8	8.7	8.9	11.5

[1] Excludes 9,600,000,000 barrels of crude oil and 26,000,000,000,000 cubic feet of natural gas added for Alaskan North Slope.

Mr. HANSEN. Mr. President, I would just like to make one further observation. What the distinguished Senator from Washington has said is factual. It is very true that the oil companies went abroad. It just underscores again that industry goes where there is a reasonable expectation for profit, and it goes first where that expectation is the greatest. I think that is the whole thrust of the amendment proposed by the distinguished Senator from New York.

I would like to ask my colleague from New York if that is true.

Mr. BUCKLEY. Mr. President, that goes right to the heart of it. It is as simple as that. If there is the incentive, there will be an increase in the supply.

Mr. President, before I yield to the Senator from Oklahoma, I want to comment on one point made by the Senator from Illinois when he asked the rhetorical question, "Who regulates the price of natural gas? Is it the domestic government, foreign government, or industry?" He then said that last week Nigeria had sold 10 million barrels of Nigerian crude at $16.80 a barrel. And he said this is outrageous. We cannot allow that. We cannot allow a foreign government to dictate the price.

I thoroughly agree. I am not quite sure what we will do about that, as we have dispensed with gunboat diplomacy. I do not know what we can do about it unless we develop a policy that will liberate us from the unilaterally controlled price, unilaterally set by others abroad. We will not do that unless we find the supplies available here.

The Senator from Illinois failed to name a fourth regulator of price. And that is the regulator that regulates the price of just about everything in this country, at least before we imposed wage and price controls, namely, the marketplace.

If we are sure there are enough independent producers competing with each other in the marketplace, we are automatically assured of a sensitivity in the regulation of the price and a fairness in the price that is far more stimulating than anything the FPC or any board could come up with.

Mr. President, I yield for a question to the Senator from Oklahoma.

The PRESIDING OFFICER. The Senator from Oklahoma is recognized.

Mr. BARTLETT. Mr. President, there have been accusations made against those producing States that are interested in deregulation. It is a selfish one.

I would like to point out that we do have intragas in our own State that is not regulated. It is a free market. Because of this, we have an ample supply. If we were selfish about this, then we would not wish to have the interstate gas under the FPC regulations deregulated for new gas so that it would be available for interstate shipment.

I cite to the Senator from New York that there are industries from various parts of the country that are looking and have already looked at our State because of the ample supply of energy. Our interest is in sharing this gas with the other States and getting the same price which we pay for it ourselves.

I know that the Senator from New York is interested in having an ample supply of gas in the State of New York and in the other 49.

I am very much aware that a number of gas wells are shut in. I heard the Senator testify the other day before the Committee on Interior and Insular Affairs that in his State there were a number of small wells shut in because of the low price, so low that they were not able to operate them.

My concern, and my question, is that I know that there are many small gas wells, just as there are stripper wells where rising costs interfere with the marketability of the oil where there is sand that may have caved in or some process is needed to enhance production. However, there is not enough profitability in the price structure to warrant it.

Also, as a gas well becomes smaller and smaller, as they eventually do, and as the lesser pressure is insufficient to buck the line pressure of the gas company's gas line, there is a need of finding a compressor, which is very expensive.

Is there any relief in the Senator's amendment for the smaller producers, of which there are many thousands, and for the small wells, of which there are thousands and thousands, that would have the immediate result of enhanced production in the marginal wells?

Mr. BUCKLEY. There is no relief for small producers as such.

There is recognition of the fact that as a well gets depleted, a problem arises that could be cured by cracking, and so forth.

Under those circumstances, the Federal Power Commission is authorized to approve such adjustments in existing contracts as would be necessary to assure optimum production from the producing wells.

Mr. BARTLETT. Mr. President, I wish to congratulate the distinguished Senator from New York on his amendment, particularly for this provision, which I think will perpetuate or lengthen the production time and reserves of many gas wells throughout the country.

Mr. BUCKLEY. I thank the Senator from Oklahoma.

Mr. President, we are approaching the hour of 3 o'clock, when we shall have a vote on the passage of the bill.

Mr. McGEE. Mr. President, would the distinguished Senator from New York be willing to yield me a minute to submit a conference report?

Mr. BUCKLEY. I am glad to yield.

GOVERNMENT EMPLOYEES HEALTH BENEFITS—CONFERENCE REPORT

Mr. McGEE. Mr. President, I submit a report of the committee of conference on H.R. 9256, and ask for its immediate consideration.

The PRESIDING OFFICER (Mr. BARTLETT). The report will be stated by title.

The assistant legislative clerk read as follows:

The committee of conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H.R. 9256) to increase the contribution of the Government to the costs of health benefits for Federal employees, and for other purposes, having met, after full and free conference, have agreed to recommend and do recommend to their respective Houses this report, signed by a majority of the conferees.

The PRESIDING OFFICER. Is there objection to the consideration of the conference report?

There being no objection, the Senate proceeded to consider the report which reads as follows:

CONFERENCE REPORT (H. REPT. No. 93–706)

The committee of conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H.R. 9256) to increase the contribution of the Government to the costs of health benefits for Federal employees, and for other purposes, having met, after full and free conference, have agreed to recommend and do recommend to their respective Houses as follows:

That the Senate recede from its amendments numbered 6 and 7.

That the House recede from its disagreement to the amendments of the Senate numbered 1, 5, and 8 and agree to the same.

Amendment numbered 2: That the House recede from its disagreement to the amendment of the Senate numbered 2 and agree to the same with an amendment as follows: In lieu of the matter proposed to be inserted in the House engrossed bill by Senate amendment numbered 2 insert the following: "in 1974."

And the Senate agree to the same.

Amendment numbered 3: That the House recede from its disagreement to the amendment of the Senate numbered 3 and agree to the same with an amendment as follows: In the matter proposed to be inserted in the House engrossed bill by Senate amendment numbered 3 strike out "55" and insert in lieu thereof "60".

And the Senate agree to the same.

Amendment numbered 4: That the House recede from its disagreement to the amendment of the Senate numbered 4 and agree to the same with an amendment as follows: In lieu of the matter proposed to be inserted in the House engrossed bill by Senate amendment numbered 4 insert the following: "in 1975 and in each year thereafter."

And the Senate agree to the same.

GALE W. McGEE,
JENNINGS RANDOLPH,
QUENTIN BURDICK,
HIRAM L. FONG,
TED STEVENS,
Managers on the Part of the Senate.

T. J. DULSKI,
DAVID N. HENDERSON,
JEROME R. WALDIE,
LAWRENCE J. HOGAN,
Managers on the Part of the House.

Mr. McGEE. Mr. President, the ranking minority member of the committee, the distinguished Senator from Hawaii (Mr. FONG), and I have found no objections to agreeing to the conference report. We move its adoption.

The PRESIDING OFFICER. The question is on agreeing to the conference report.

The report was agreed to.

ORDER OF BUSINESS

Mr. ALLEN. Mr. President, will the distinguished Senator from New York yield 2 minutes to me, that I might bring up a bill about which there is no contest?

Mr. BUCKLEY. I am glad to yield to the Senator from Alabama, without losing my right to the floor.

TUSKEGEE INSTITUTE NATIONAL HISTORICAL PARK

The Senate proceeded to consider the bill (S. 262) to provide for the establishment of the Tuskegee Institute National Historical Park, and for other purposes, which had been reported from the Committee on Interior and Insular Affairs with amendments on page 2, in line 2, after "National", strike out "Historical Park" and insert in lieu thereof "Historic Site", and at the end of line 2, strike out "park" and insert in lieu thereof "site".

On page 2, in line 10, strike out "park" and insert in lieu thereof "site".

On page 2, in line 15, strike out "park" and insert in lieu thereof "site".

On page 2, at the end of line 20, strike out "park" and insert in lieu thereof "site".

On page 2, in line 21, strike out "park" and insert in lieu thereof "site".

On page 3, beginning in line 1, strike out:

SEC. 4. The Secretary is authorized to render financial and technical assistance to the owners of real and personal property within the boundaries of the park to aid in the interpretation and preservation of the park's unique historical and cultural features.

On page 3, in line 6, strike out "5" and insert in lieu thereof "4".

On page 3, in line 11, strike out "park" and insert in lieu thereof "site".

On page 3, in line 12, strike out "6" and insert in lieu thereof "5"; and in the same line, strike out "park" and insert in lieu thereof "site".

On page 3, at the beginning of line 17, strike out "7" and insert in lieu thereof "6"; and at the end of the same line, strike out "sums necessary to carry out the purposes of this Act." and insert in lieu thereof "not to exceed $185,000 for land acquisition and $2,722,000 for development of the historic site."

On page 3, beginning in line 21, add the following language:

SEC. 7. Notwithstanding any other provision of law, the Secretary is authorized to construct roads on real property remaining in non-Federal ownership within the boundaries of the historic site. Any roads so con-

structed shall be controlled and maintained by the owners of the real property.

So as to make the bill read:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Congress finds Tuskegee Institute, Tuskegee, Alabama, to be of national importance in illustrating the advancement of education for black Americans under the leadership of such men as Booker T. Washington, its founder, and George Washington Carver, the noted agricultural scientist.

Therefore, in order to preserve and interpret to the public the historic properties at and near Tuskegee Institute, the Secretary of the Interior (hereinafter referred to as the "Secretary") is authorized to establish the Tuskegee Institute National Historic Site. The site shall be comprised of those lands and buildings on or adjacent to the Tuskegee Institute campus that the Secretary, in his discretion, deems to be of historical and cultural significance. The Secretary shall establish the site by publication of a notice to that effect in the Federal Register, when he deems it advisable.

SEC. 2. The Secretary is authorized to acquire lands and personal property within the boundaries of the site by donation, purchase with donated or appropriated funds, or exchange.

SEC. 3. The Secretary is authorized to enter into cooperative agreements with the owners of real and personal property within the boundaries of the site to assist in the interpretation and preservation of those properties. These agreements shall contain, but shall not be limited to, a provision that the Secretary, through the National Park Service, shall have right to access at all reasonable times to all public portions of the lands within the boundaries of the site for the purpose of interpreting the site to visitors, a provision that no substantive changes or alterations shall be made in the buildings and grounds except by mutual consent, and a provision that the subject matter and method of interpretation shall be determined by mutual consent.

SEC. 5. 4. The Secretary is authorized to construct on a portion of the land which he has acquired pursuant to his authority in section 2 of this Act those administrative facilities which he deems advisable and a visitors center for the interpretation of the historical and cultural features of the site.

SEC. 6. 5. The site shall be administered by the Secretary in accordance with the Act of August 25, 1916 (39 Stat. 535; 16 U.S.C. 1, 2–4), as amended and supplemented, and the Act of August 21, 1935 (49 Stat. 666; 16 U.S.C. 461–467), as amended.

SEC. 7. 6. There are authorized to be appropriated not to exceed $185,000 for land acquisition and $2,722,000 for development of the historic site.

SEC. 7. 6. Notwithstanding any other provision of law, the Secretary is authorized to construct roads on real property remaining in non-Federal ownership within the boundaries of the historic site. Any roads so constructed shall be controlled and maintained by the owners of the real property.

Mr. ALLEN. Mr. President, the bill has been cleared by the leadership on both sides. It provides for the establishment of the Tuskegee Institute National Historical Park.

The PRESIDING OFFICER. The question is on agreeing to the committee amendments.

The amendments were agreed to.

The bill was ordered to be engrossed for a third reading, read the third time, and passed.

The title was amended so as to read: "A bill to provide for the establishment of the Tuskegee Institute National Historical Site, and for other purposes."

NATIONAL ENERGY RESEARCH AND DEVELOPMENT POLICY ACT OF 1973

The Senate continued with the consideration of the bill (S. 1283) to establish a national program for research, development, and demonstration in fuels and energy and for the coordination and financial supplementation of Federal energy research and development; to establish development corporations to demonstrate technologies for shale oil development, coal gasification development, advanced power cycle development, geothermal steam development, and coal liquefaction development; to authorize and direct the Secretary of the Interior to make mineral resources of the public lands available for said development corporations; and for other purposes.

Mr. PASTORE. Mr. President, will the distinguished Senator from New York yield to me?

Mr. BUCKLEY. If I may do so without losing my right to the floor.

Mr. PASTORE. I wish to speak on the subject on which the Senator is addressing the Senate.

Mr. BUCKLEY. I shall be glad to yield for a question. How many minutes will the Senator take?

Mr. PASTORE. I shall not take very long; I may take a minute or two.

Mr. BUCKLEY. I am glad to yield to the distinguished Senator from Rhode Island.

The PRESIDING OFFICER. The distinguished Senator from Rhode Island has 2 minutes.

Mr. PASTORE. I do not rise to harass the Senator from New York in any way. I think his motivations are sincere. I do not think he is a tool of the big oil or gas monopolies. But I think what he has said on the floor relates to the effects of the use of gas.

One thing that has particularly struck me in the whole debate is the fact that the woman in the kitchen, in history, is a captive customer. The question here is psychological and, in fact, relates to how we protect that captive customer against a proposition where certain individuals who are in business determine what the traffic can bear.

I realize that intrastate gas means a price higher than the price for interstate gas. But that is the fault of the Federal Power Commission. We have been regulated in a way that can create initiative in order to give us proper production.

What has happened to gas? All over the country, 5 or 10 years ago, the gas companies advertised, day in and day out, "Convert to gas. Throw away your coal stove. You can now buy the cheapest fuel and the cleanest fuel in the country."

And what did they do? They oversold it. They began to build refrigerators that would freeze by gas. Then they sold it for home heating, and they went on and on and on, and now they come along and say the American public has been on an energy binge.

Mr. President, the American public has not been on an energy binge. The producers and the big distributors of the gas have actually been on an advertising binge. That is the reason why we have the scarcity today.

But psychologically, we have to give protection to the consumer. We have to give protection to the captive customer; and the only way that we can do that is by making him realize that he has a governmental agent like the utility commissioner back home who is protecting his interests.

I am not saying anyone who does anything has got to lose money. I am not saying they are not entitled to a fair return on investment. I am not saying they should not have some tax incentives, to give them the initiative to explore for more gas. But what I am saying is, you take the protection away from the captive consumer and you will have a calamity in this country.

Mr. JACKSON. Mr. President, will the Senator yield me 30 seconds?

Mr. BUCKLEY. Thirty seconds only; time is running short.

Mr. JACKSON. Mr. President, I received just a few moments ago a letter dated December 7, 1973, from the general counsel, Karl E. Bakke, of the Department of Commerce, with reference to the patent amendment to this bill adopted yesterday.

I ask unanimous consent that the letter be printed in the RECORD at this point.

There being no objection, the letter was ordered to be printed in the RECORD, as follows:

WASHINGTON, D.C.,
December 7, 1973.

Hon. HENRY M. JACKSON,
Chairman, Committee on Interior and Insular Affairs, U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: This is to supplement our letter of October 25, 1973, concerning S. 1283, the "National Energy Research and Development Policy Act of 1973."

The Department of Commerce is seriously concerned over section 112 of the bill as reported by your Committee on December 1, 1973 and amended by Senator Hart's amendment no. 766, passed by the Senate December 6, 1973. In addition, we have a comment in reference to section 103 of the bill.

This is a very serious issue and should be handled through the normal Congressional hearing process during which time our Department and other executive branch agencies will be happy to testify and present appropriate recommendations.

We oppose the taking of any hasty action, in the form of this floor amendment, as a means of addressing this problem.

We object to subsection 112(c) of the bill, which would authorize compulsory licensing of privately-owned United States patents covering energy-related technology. The protection to intellectual property which patents afford has been a key element in fostering and encouraging innovation. Indeed, that is the fundamental rationale for the recognition of a patent system in the Constitution of the United States. We are concerned that section 112(c) could perhaps diminish the incentives provided by our patent system to invent in the energy field. We are not aware of any basis for assuming that developers of essential energy technology would refuse to make it available for development in the public interest, and to propose such a departure from the fundamental premise upon which the concept of the patent grant is based seems both unnecessary and unwise.

Apart from the foregoing, the scope of coverage of section 112(c) is unclear. Assum-

ing, however, that it is intended to cover the commercial utilization of patented inventions, as well as the use of the inventions in pilot projects, section 112(c) would be extremely broad in scope, effecting a major change in policy with respect to all patent rights held in a large area of technology. We note that the impact of section 112(c) and its continuing commercial implications would be vastly greater than the compulsory licensing provision that the Congress included in the Clean Air Amendments of 1970 (section 308, 84 Stat. 1708, 42 U.S.C. 1857h–6), the latter being explicitly limited to licensing of technology to a person who requires such technology in order to comply with the emission limitations imposed by the Act. Accordingly, the provision in question in the Clean Air Amendments of 1970 may not be a valid precedent for the proposal here under consideration.

The Department is opposed to section 112(c) even in the form in which it was reported by the Committee. Amendment no. 766 to section 112 further broadens the scope of the provision and liberalizes the conditions under which compulsory licenses could be granted. As amended, the bill permits the Chairman of the Energy Research Management Project, in his sole discretion, to make a value judgment between the virtues of the Project's own research and development efforts and the overall objectives of the patent system of adequately protecting public and private interests and stimulating technological advancements.

Section 112(a) of the bill as reported by the Committee made reference to the President's Statement of Government Patent Policy as the policy governing disposition of patent rights arising out of research under the bill. We agree with reliance on the Presidential policy statement, which contains provisions insuring protection of the public interest and providing a Government-wide approach to disposition of patent rights. However, section 112(a) as amended on December 6 omits the reference to the Presidential policy statement, and, in subsection (a)(2), requires non-exclusive licensing of Government patents in all cases. We believe this type of restriction could hinder the commercial utilization of inventions in those cases where exclusive rights may be necessary.

Subsection (a)(3) of section 112, as amended, requires a private participant in Government-sponsored research to make available its total background position of patents, trade secrets and proprietary information. Government agencies presently obtain such rights on a case-by-case basis where appropriate in the public interest. However, an across-the-board statutory requirement to obtain such rights in all situations might substantially reduce the cooperation of those companies having the greatest background positions.

We recommend the deletion of section 112 of the bill as amended by the substitute amendment offered by Senator Hart and the insertion in lieu thereof of the following language:

"Section 112. Patent policy:

"(a) The disposition of patent rights in inventions or discoveries arising out of research under this Act shall be governed by the President's Statement of Government Patent Policy issued on August 23, 1971 (36 F.R. 16887, August 26, 1971) and amended in September 1973 (38 F.R. 23782, September 4, 1973).

"(b) The Chairman is authorized to acquire any of the following described rights if the property acquired thereby is for use by or for, or is useful to, the performance of functions vested in him—

"(1) copyrights, patents, and applications for patents, designs, processes, and manufacturing data;

"(2) licenses under copyrights, patents, and applications for patents; and

"(3) releases, before suit is brought, for past infringement of patents or copyrights."

The adoption of the above language would be consistent with the previously enunciated Administration position as provided for in S. 2135, the original DENR legislative proposal, and the more recent S. 2744, the Administration proposal providing for a separate Federal Energy Research and Development Administration. S. 2744 was introduced by Senator Ribicoff, after being previously coordinated with the Administration, on November 27, 1973.

Turning to section 103(a)(7) of the bill, it is proposed that the Energy Research Management Project shall include the Director of the National Bureau of Standards. This provision should be revised to designate the Secretary of Commerce rather than the Director of the National Bureau of Standards. Apart from the sweeping scope of the bill that goes beyond the parochial interests of the National Bureau of Standards, such a revision would make the proposal consistent with the Departmental Reorganization Plan No. 5 of 1950, which vests all authorities of the Department in the Secretary. The interests of the Department of Commerce in the program that would be established by the bill would extend to the activities of a number of the agencies within the Department.

We have been advised by the Office of Management and Budget that there would be no objection to the submission of our report to the Congress from the standpoint of the Administration's program.

Sincerely,

KARL E. BAKKE,
General Counsel.

Mr. JACKSON. Having just received this letter, it is obvious that we cannot offer an amendment for the administration so that the Senate could consider it. We are within 8 minutes of voting on the bill. I am sorry that there was such a long delay by the Department. We will have to consider this matter in conference.

Mr. BUCKLEY. Mr. President, obviously we have to do something about the mail from downtown to the Capitol.

I ask unanimous consent that the name of the Senator from Texas (Mr. BENTSEN) be added as a cosponsor of my amendment.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. BUCKLEY. Mr. President, as always, the Senator from Rhode Island speaks with enormous eloquence, and I appreciate the point he is making. Of course, it is precisely because the pipeline transmission business is a utility that there is regulation of the pipelines.

My concern is not with that, but rather with trying to make sure that the pipeline has gas to put in at one end and put out at the other. We regulate what an electrical utility charges because it does have State-granted monopolistic powers; but we do not regulate the price of the coal that it may purchase, we do not regulate the price of the oil that it may purchase, and I suggest that we do not regulate the price of the coal or the oil that so many——

Mr. PASTORE. If the Senator wants to pursue that, I can answer that, too.

Mr. BUCKLEY. Mr. President, I am afraid that I must retain what little time I have remaining.

What I am saying is that I want to see to it that the householder has the option of having gas, because that is the problem. We cannot, as the Senator from Illinois pointed out just a few minutes ago, dictate what Nigeria, Algeria, the Soviet Union, or Canada will allow to be charged for LNG shipped to this country. But unless we do something to unleash the industry and allow it to seek out the meaningful solutions that we in New England and New York need, most assuredly we will become dependent upon that far higher priced imported LNG, and we will be at the mercy of any arbitrary price raise that might be imposed.

Mr. President, this is a highly complex subject, and I recognize that many are not yet sufficiently informed to make a truly educated judgment. For that reason, I ask unanimous consent to have printed in the RECORD a convenient reference package of the following items:

First. My letter explaining this amendment to my colleagues under date of December 5, 1973;

Second. The factual portions of a staff memorandum on natural gas policy issues and options, prepared for the use of the national fuels and energy policy study, Committee on Interior and Insular Affairs, under date of November 20, 1973—a most useful compendium of existing information;

Third. An article entitled "The Natural Gas Shortage and the Regulation of Natural Gas Producers," written by Profs. Stephen Breyer and Paul W. MacAvoy, which was published in the Harvard Law Review; and

Fourth. Finally, I ask unanimous consent to have printed in the RECORD the text of a statement I made on this floor on January 18, 1973, in which I tried to marshal the facts from the perspective of the consumer States. Some of the figures in terms of current prices of natural gas delivered in New York City are obsolete, but the thrust continues to be accurate.

There being no objection, the items were ordered to be printed in the RECORD, as follows:

U.S. SENATE,
Washington, D.C., December 5, 1973.

DEAR COLLEAGUE: Later this week I will be introducing an amendment to S. 1283, the Energy R&D Bill, that is designed to increase deliveries of natural gas to interstate pipelines in the most effective way possible. It will do this by *restoring* normal marketplace incentives for the discovery and development of new reserves.

My amendment will remove the Federal Power Commission's existing authority to regulate the "wellhead" or field price of "new gas," i.e., natural gas that is not currently flowing under contract into interstate pipelines.

This amendment *will not* permit "windfall" profits because it will specifically prohibit the renegotiation of existing contracts for flowing gas. It will also protect the consumer against artificially high prices that could result from non-arm's length sales between a pipeline and an affiliated producer. The amendment specifically authorizes the FPC to refuse to allow a pipeline to pass through to consumers any portion of a price paid for natural gas to an affiliated producer that cannot be justified as reflecting the competitive market price for that gas.

It should be noted that the domestic gas producing industry is competitive. According to a memorandum prepared last month by the staff of the Senate National Fuels and Energy Policy Study Committee, the interstate sales of more than 3,750 producers are currently regulated by the FPC. Of these, only 47 represent producers with direct pipeline and distributor affiliates. At the present time there are many independent producers selling gas at unregulated prices to intrastate customers in such states as Oklahoma, Louisiana and Texas. A free and competitive market in natural gas in fact exists.

The elimination of price regulation on "new gas" will not result in a sharp increase in cost to the ultimate consumer. According to the same staff memorandum, "even if wellhead prices reached sixty-five cents per Mcf for new gas (approximately three times current regulated prices), the *average* field price would increase only gradually (to 51.45 cents per Mcf by 1980) according to a study conducted by the National Petroleum Institute. Under this assumption, consumer prices would rise 6.4 percent the first year, 3.8 percent the second year, 3.0 percent, 2.8 percent and 3.7 percent in succeeding years. At the 65.6 field market price, the initial effect would be an increase in the yearly gas bill of $8.30; the total projected increase by 1980 would be $33.06."

The alternatives to a rapid development of new domestic reserves of natural gas are far more costly to the consumer. To quote again from the staff memorandum, "supplemental gas sources are already two to three times as high as conventional natural gas at the city gate. Synthetic natural gas (S.N.G.), made from coal or made from imported liquid hydrocarbons, and imported liquified natural gas (LNG) are priced generally at $1.00 to $1.80 and up, per Mcf." To this must be added the cost of distributing that gas to the consumer, a cost that currently accounts for well over half the price to the consumer.

The evidence to support the need for this amendment is becoming increasingly visible as the shortfall in our energy supply becomes more conspicuous. In their introduction to a recent *Harvard Law Review* article (April 1973) entitled "The Natural Gas Shortage and the Regulation of Natural Gas Producers", Stephen Breyer and Paul W. MacAvoy, economists at the Brookings Institution, stated:

"Natural gas now supplies more than a third of America's energy needs and exists in the ground in sufficient quantities to forestall any danger in the foreseeable future of its extinction as a natural resource. Nevertheless, there is now, in the early 1970's, no lack of evidence that the United States is in the throes of a serious natural gas shortage. This article will show that shortage is a direct result of FPC regulation of producers' prices and that the shortage has been disproportionately borne by home consumers. Moreover, the article will show that the losses arising from the shortage have been so great that they cannot rationally be worth the pursuit of whatever valid purposes might be served by lower user prices."

My amendment provides for adequate safeguards against price increases that do not reflect ordinary supply and demand conditions in the market while providing the incentive to increase the supply to producers and a disincentive to inefficient use by many commercial, industrial, and utility users who should be using other forms of fuel.

I am enclosing a copy of my recent Senate remarks on natural gas deregulation. If you wish to cosponsor this legislation kindly contact Bill Schneider, X59560.

Sincerely,

JAMES L. BUCKLEY.

STAFF MEMORANDUM: NATURAL GAS POLICY ISSUES AND OPTIONS

(Prepared for the Use of National Fuels and Energy Policy Study, Committee on Interior and Insular Affairs, U.S Senate)

I. GENERAL BACKGROUND

A. Natural gas consumption and consumers

Natural gas accounted for 32.3 percent of domestic energy consumption in 1972 and was delivered to more than 43 million customers in the 49 continental states. Use of natural gas has more than doubled in the past fifteen years, rising from 10.1 trillion cubic feet (Tcf) in 1957 to 22.6 Tcf in 1972. During the period 1960 to 1968, the average annual rate of growth for natural gas was 5.6 percent, compared with the average annual growth rate of 4.3 percent for all sources of energy.

The West South Central states account for approximately 80 percent of the gas produced. Producing states account for one third of the natural gas consumed in the United States. The East North Central region is the second largest consuming area in the nation, and, as in the West South Central region, most of the gas consumed is used by industry and electric generating plants. New England accounts for the largest percentage of residential consumption of natural gas. The Bureau of Mines chart provides a complete regional breakdown on usage by class of customer.

REGIONAL U.S. PRODUCTION AND CONSUMPTION OF NATURAL GAS

[Millions of cubic feet]

	Production[1]	Consumption[2]	Volumes of gas consumed (percent)				
			Residential	Commercial	Industrial	Electric generation	Other
New England: (Connecticut, Maine, New Hampshire, Vermont, Rhode Island, Massachusetts)		254,912	52.2	20.2	18.7	5.1	3.8
Middle Atlantic: (New Jersey, New York, Pennsylvania)	78,653	1,810,365	44.2	15.2	30.2	8.2	1.9
East North Central: (Illinois, Indiana, Michigan, Ohio, Wisconsin)	106,600	4,005,921	38.5	15.8	37.9	6.9	.9
West North Central: (Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota)	922,526	1,852,386	28.4	15.4	29.8	23.0	3.4
South Atlantic: (Delaware, Florida, Georgia, Maryland, District of Columbia, North Carolina, South Carolina, Virginia)	237,763	1,489,655	23.7	11.7	39.6	22.7	2.3
East South Central: (Alabama, Kentucky, Mississippi, Tennessee)	191,972	1,021,695	22.1	12.7	49.5	13.7	1.9
West South Central: (Arkansas, Lousiana, Oklahoma, Texas)	18,489,026	5,796,153	7.6	3.4	55.5	32.0	1.5
Mountain: (Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming)	1,732,225	1,064,137	24.5	14.1	37.6	20.8	3.0
Pacific: (Alaska, California, Oregon, Washington)	734,247	2,341,988	29.6	11.4	33.7	24.4	.9
U.S. total	22,493,012	19,637,212	25.3	11.1	41.6	20.3	1.7

[1] Marketed production.
[2] Gas delivered to consumers. Includes imports. Does not include pipeline fuel, lease and plant fuel and extraction losses.

Mineral industry surveys, source; Bureau of Mines, Sept. 5, 1972.

B. The structure of the industry

Estimates of the total number of domestic oil and gas producers range up to 30,000. The interstate sales of more than 3,750 producers are regulated by the Federal Power Commission (FPC). The FPC-regulated producers with direct pipeline and distributor affiliates number 47. In 1971 the 22 largest producers individually sold over 100 billion cubic feet of natural gas in interstate commerce annually, thereby supplying 71 percent of the natural gas shipped through interstate pipelines.

The interstate distribution system includes 106 regulated interstate pipeline companies, 33 of which are considered major pipelines. Total natural gas pipelines nationwide (interstate and intrastate) number 137, and the number of local gas distributors exceeds 1,500.

C. The functioning and regulation of the industry

Natural gas exploration, development, and production is pursued directly and also occurs indirectly as a co-product of similar activities for oil. Most producers are engaged in both oil and gas production to some degree, although some producers operate in regions where only natural gas has been found (e.g., the natural gas fields in Oklahoma). In 1972, 78.9 percent of the natural gas produced came from gas wells; this gas was not in contact with or dissolved in crude oil in the geologic reservoir. The remaining 21.1 percent was found as a co-product with crude oil; such gas is known as "associated" gas.

The functioning of the gas industry can be traced as follows: Once gas has been produced, it may be used by the producer in the field, used by the producer outside the field (for example, in a refinery), sold to an industrial consumer in the field or made available to other potential purchasers. When gas is offered for sale, the potential buyers negotiate with the producer-seller for the new reserves. Prices realized by producers are known as "wellhead" or "field" prices. After the gas has been bought by a pipeline, it may be sold directly to industrial and commercial customers under "direct sales contracts" or to a distributor for resale to its customers.

The Natural Gas Act of 1938 gave the Federal Power Commission (FPC) jurisdiction over sales made by interstate pipelines to local distributors (sales for resale) and over the transportation of natural gas by interstate pipelines. In 1954, a divided Supreme Court interpreted an ambiguous sentence in the Natural Gas Act of 1938 to mean that producer sales to interstate pipelines also should be regulated by the FPC.

Thus, the following three transactions are not regulated by the FPC:

Producer sales to interstate pipelines;

Interstate pipeline sales to distributors; and

Interstate pipeline transportation for direct sales.

Exempted by statute from FPC jurisdiction (except where gas is imported or exported) are:

Producer sales and pipeline sales to buyers within the producing state;

Pipeline sales to direct customers [1]; and

Distributor sales to ultimate customers.

II. THE GAP BETWEEN DEMAND AND SUPPLY

A. Types of natural gas shortages

Three kinds of shortages can occur with respect to natural gas. First, when demand is exceptionally high (due to a sudden cold spell, for example), the quantities of natural gas being delivered by pipelines and the volumes of gas in local storage may be insufficient to meet these peak requirements. When this situation occurs, pipelines and distributors either reduce (curtail) deliveries to customers with "interruptible" contracts or try to meet the demand by injecting propane (a co-product of natural gas production) into their supply stream or borrowing supplies of natural gas from other pipelines or distributors with surpluses.

A second kind of shortage precludes gas pipelines or local distributors from increasing sales volumes to current customers or adding on new customers. In this situation, the pipeline or distributor simply has insufficient reserves or contracts to purchase the reserves required to increase its sales volumes. Thus potential customers are denied service and customers with contracts are denied increased supplies.

The third kind of shortage exists when pipelines and distributors are unable to maintain even current deliveries to gas customers at previously contracted-for volumes. This type of shortage is not due to peak demands, but rather to a depletion of reserves to such a point that producing wells are unable to meet contracted-for volumes. The required supplies are simply not available. In some instances, reserves may have been over-estimated where companies chose the high-side of geologists' estimates in order to be able to obtain long-term sales certificates from the FPC. It other cases, deliverable gas volumes declined sooner and to a greater degree than originally estimated.

B. Evidence of shortages

In recent years, signs of all three types of shortages have become evident to varying degrees in different regions of the nation. In an effort to meet peak winter demand, a gas distributor in the Boston area, for example, has been importing liquefied natural gas (LNG) overland from Montreal at prices equivalent to $1.13 and $1.58 per thousand cubic feet (Mcf) compared to the domestic gas price of 69 cents per Mcf, delivered in Boston.

In Washington, D.C., and in other cities, potential customers have been denied service. The waiting list in Chicago in 1971 included the following potential customers: 14,000 residences; 2,000 businesses; and 800 industrial users. By 1972, some potential gas customers were denied service in a least 21 states.

Further manifestations of a shortage in deliverable supplies are the increasing cutbacks in customer deliveries by pipelines. As indicated in the September 1973 FPC Staff Report "Firm Requirements and Curtailments of Major Interstate Pipeline Companies," the following curtailments have taken place or are projected to occur:

Period and volume

[Billion cubic feet]

Winter:	
November 1972–March 1973	423
November 1973–March 1974	509
Annual:	
April 1972–March 1973	825
April 1973–March 1974	1,250

The projected curtailment of firm volume commitments for the period April 1973–March 1974 is equivalent to six percent of total annual domestic production or 200 million barrels of oil. In the winter of 1973–74, two pipelines (United Gas Pipe Line Company and Trunkline Gas Company) are expected to curtail about one-third of their firm commitments, and three other pipeline companies are expected to curtail between 13 to 19 percent of their firm commitments. While the situation with regard to specific pipelines and regional curtailments differs, major curtailments are expected from November 1973 to March 1974 in the Appalachian, Great Lakes, New England and Northern Plains regions.

The FPC estimates that gas distribution companies and direct industrial users were only able to offset 15 percent of last winter's curtailed volumes with gas supplied from other sources. Natural gas curtailments are also beginning to be reported in the producing states (the intrastate market which is not regulated by the FPC). The state regulatory agency in Texas, like the FPC, is requiring that pipelines submit curtailment plans to ensure that high priority customers will be served, and has issued orders requiring curtailments.

C. Effects of shortages

Generally, only industrial sales (both firm and interruptible) are now being curtailed. In many cases, however, industrial consumers whose supplies may be curtailed do not presently have the capability built in to switch to other fuels such as low sulfur oil or coal. Some industrial users claim that they can not afford the high cost of converting their facilities to use an alternate fuel and would close if unable to continue to use natural gas. Others who have the built-in capability to use either natural gas or oil are apparently finding it difficult to obtain sufficient quantities of low sulfur oil to maintain operation of their plants. Those that could afford to install an alternate fuel capability are concerned also over the difficulty of obtaining sufficient quantities of low sulfur fuels.

With respect to oil, there is a domestic shortage, and low sulfur oil is in high demand at premium prices worldwide. The existing domestic refinery capacity shortage exacerbates the supply situation as well, creating problems in meeting gasoline demand in the summer which in turn adversely affects the ability to meet heating oil demands in the winter and industrial refined product demands year-round.

Similar comments can be made with respect to the availability of low sulfur coal. The National Academy of Sciences (NAS) and others indicate a limited capability for developing new low sulfur coal supplies sufficient to meet national requirements occurring as a result of implementation of the Federal Clean Air Amendments of 1970.

In addition, there is limited national capability to install sulfur oxide control technology. The National Academy of Sciences and an Environmental Protection Agency-contracted study with the Mitre Corporation indicate that this capability on a priority basis could amount to a maximum of 55 installations over the next five years. Thus the generally recognized issue is where to apply the above limited national capability to design and construct sulfur oxide control systems during the 5 to 10 year period of transition.

The natural gas shortage thus compounds and accelerates shortages in other areas, affecting both price and supply. In the two year period from 1970 to 1972, prices for domestic low sulfur oil and coal doubled. Currently natural gas utilities and large industrial consumers are multiplying their usual purchases of propane as a replacement for curtailed supplies of natural gas. Overall increased demands for limited propane supplies has created higher prices and spot shortages, expecially for its use in agriculture and transportation. Some crops in the Midwest and Louisiana were lost in 1972 because of the lack of sufficient propane supplies required by farmers for harvesting and processing wheat, corn, and sugar.

As a result of the natural gas shortages, gas consumers' prices are also rising. Whereas in past years, unregulated intrastate buyers generally outbid interstate buyers by only a small margin, in recent years, intrastate prices have gone up. Furthermore, where pipelines and distributors are unable to utilize their facilities fully, this increases the unit cost of transportation and thus results in higher consumer prices. Supplemental gas sources are already two to three times as high as conventional domestic gas at the city-gate. Synthetic natural gas (SNG) (made from coal or made from imported liquid hydrocarbons) and imported LNG are priced generally at $1.00 to $1.80, and up, per Mcf, compared to nationwide average gas prices (intra- and interstate) of 20.5 cents per Mcf at the well, delivered by pipeline to local distributors (for resale) at an average of 48 cents per Mcf.

D. The shortage in the future

The FPC's demand and supply projections indicate that such shortages will increase in volume and become more widespread. The FPC's Bureau of Natural Gas projects that demand for gas will exceed supply by 3.6 Tcf in 1973, 9.5, 13.7, and 17.1 Tcf in 1980, 1985, and 1990, respectively, despite the addition of gas supplements (22 Tcf is presently consumed nationwide). The FPC's projections are based on more moderate growth rates than were experienced in previous years.

To close this gap, an annual "finding rate" (annual additions to reserves) of approximately 37 Tcf would be required starting in 1973. This level of development represents a sustained level of annual new additions to reserves equal to that attained in 1970 when 26 Tcf of Alaskan gas were added to the reserve inventory. Put another way, the annual finding rate would have to equal one and one-half times the all time record for annual U. S. (non-Alaskan) reserve additions that was reached in 1956 of 24.7 Tcf, at the same time that supplemental sources are developed.

While demand projections may eventually prove unrealistic as economic factors change, in the past, both industry and governmental projections have erred on the low side in predicting demand for natural gas. Demand increases in the past appear to be attributable both to availability and price relative to other fuels. The effect of the Clean Air Act of 1970 has undoubtedly been to increase demand for natural gas even further. For the future, the demand for energy will be a demand for clean energy, and, where that demand is unmet by natural gas in the period prior to mid-1980's when newer forms of energy will be available, it will largely be transferred to oil, requiring a higher volume of oil imports than currently projected.

III. THE CAUSES OF THE SHORTAGE

A. Introduction

An inventory of natural gas reserves greatly in excess of current requirements was built up in the 1940's and 1950's largely as a result of oil exploration. Since that time, nationwide transmission networks and markets for natural gas have developed and the excess in reserves has been exhausted. To replace the reserves that are produced each year, therefore, new reserves must now be added to the inventory. Further growth in annual gas consumption, moreover, requires an increasing rate of reserve additions.

The American Gas Association (AGA) has been keeping records since 1946 that indicate changes in the natural gas reserves inventory, both in terms of reserve additions and depletions.[2] Using AGA figures for reserve addi-

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tions and depletions, two ratios are developed to indicate supply availability: (1) the ratio between the amount of new reserve additions ("findings") and the level of production (the F/P) ratio and (2) the ratio between total proved reserves and annual production at a given point in time (the R/P ratio). Both indicate fairly steadily declining trends in gas supply availability.[3] Between 1946 and 1970, new proved reserve additions increased by 63 percent while production increased by 344 percent. In the last five years, the *produced* volumes of natural gas have been twice as high as proved reserve additions to the inventory.

Since 1963, the FPC has been using pipeline company data to assess the physical capability to supply sources to continue to deliver gas. Over time, the production or "deliverability" (future capacity to deliver) of a well declines due either to physical conditions of the well (decreased pressure, for example), and/or to faster rates of production than originally anticipated. The combination of a high and steady increase in market demand plus insufficient new additions in the 1960's resulted in an accelerated depletion of reserves and falling deliverability rates. In December 1972, the FPC reported: "The composite 1971 estimates indicate that the presently owned and contracted for gas reserves can no longer sustain any increased market requirements . . .[4]."

In sum, the statistical data submitted by the industry for more than a decade to the FPC suggests that the reserve shortage is the result of declining trends in reserve additions at a time when overall production was escalating. In other words, total proved reserves have not only failed to keep up with demand, but have actually declined. The unprecedented and unforeseen growth in natural gas demand thus served to exacerbate further the already growing stress on limited reserves.

To the extent that the discovery of natural gas (even "non-associated" gas) has been a by-product of the search for oil, domestic oil prices may have affected gas reserve additions as much as did the demand for gas itself. For many years, state conservation regulation and the Federal Mandatory Oil Import Program resulted in domestic crude oil prices, higher than world market levels. This situation, in effect, "subsidized" the discovery and development of gas reserves, but since domestic oil prices declined in constant dollars in the 1960's, the proportion of domestic oil resources that appeared profitable to explore and develop was progressively reduced and with it the rate of associated gas reserve additions.

Another factor attributable to the supply shortage was the rate of federal lease offerings in prospective areas. The most promising domestic acreage for hydrocarbon discovery and production is now the Outer Continental Shelf (OCS). Yet the frequency and size of Federal lease sales on the OCS have been insufficient to offset the progressive development and depletion of the most productive onshore acreage.

Drilling and success rates in natural gas exploration and development reflect this combination of economic and geological factors. The number of oil wells drilled declined from the record high of 30,528 in 1956 to 11,306 in 1972, thereby affecting the magnitude of reserve increases of associated gas. Since 1961, when the number of gas wells completed peaked at 5,459, gas well drilling has generally declined through 1971 when 3,830 wells were completed. In 1972, however, a total of 4,928 gas wells were drilled.

There has been a sharp decline in all categories of drilling from relatively high levels achieved in 1957. Total new field wildcat wells drilled in 1971 were down 44 percent from the 1957 level. For the corresponding period, all other categories of wells drilled in known fields declined by 51 percent. Natural gas well completions resulting from exploratory drilling increased through 1959 but since then have been in a long-term decline. The success percentage for all exploratory drilling has declined from a high of 20 percent in 1959 to a low of about 15 to 16 percent.

The number of successful exploratory gas wells drilled declined from 1966 through 1972 in nearly every producing area. The average number of successful wells drilled in 1970–72 was 42 and 54 percent less than in 1966 in the Southern Louisiana and Permian Basin areas, respectively. Of all the producing regions, only the Rocky Mountain Area shows a definite upward trend in successful exploratory gas well drilling.[5]

B. Producer regulation and the shortage

1. Introduction

Beyond the factors described above, explanations for the natural gas shortage can be grouped, simply and broadly speaking, into two polar views which rest upon different interpretations of market structure and behavior in natural gas producing fields.

According to one view (as expressed in its most sweeping formulation), natural gas field markets are competitive and would be competitive in the absence of Federal regulation. This view implies that the shortage is a direct and inevitable result of low regulated ceilings on wellhead prices, which inflate demand and depress supply. The logical policy implication of this "Regulated Price Theory" is complete deregulation of all field prices for natural gas, with no Federal restraints.

In the opposing view at the other pole, vertical integration (affiliations between producers, pipelines and gas distributors), market concentration, and affiliations among producers are said to result in balkanized markets and collusive market behavior. Therefore, a competitive equilibrium price is unlikely ever to occur. This view suggests that the shortage has been created, at least in part, by the attempt of producers to influence or eliminate wellhead price regulations. The policy response to this "Market Power Theory" is a proposal to extend producer regulation nationwide and to impose an unambiguous return to public utility-type regulation of natural gas field prices.

There are a host of different emphases among different advocates of either theory, and a broad spectrum of possible positions in between. Moreover, the two views are not entirely mutually exclusive. It is reasonable to believe, for example, that there are significant structural imperfections in the field market for natural gas and, at the same time, to believe that low FPC price ceilings have been a major factor in the fall in reserve additions. It is useful, however, to review the two major and opposing theories in their simplified form.

2. The regulated price theory

Support for the Regulated Price Theory is generally based on the following arguments: Federal wellhead price regulation is the root of falling reserve additions and the supply shortage. The principal reason why interstate supply has not responded to past FPC increases in price ceilings is that the increases have been too small and too seldom to stimulate new exploration and development. The FPC's regulation from 1961 to 1971 imposed a veritable freeze on wellhead prices for gas sold interstate. The freeze served to depress prices in the entire field market for natural gas (and probably depressed prices of other fuels) until the inevitable natural gas shortage developed. Between 1960 and 1972, the price of natural gas to the residential consumer increased only 19 percent, compared to a 41 percent increase in the consumer price index. Price increases in natural gas also lagged behind price increases for all other fuels and increases in the wholesale price index. During the same period, the cost of drilling well reportedly rose 57 percent.

It is also alleged that there are a variety of factors inherent in the practice of wellhead price regulation that has kept prices below competitive levels:

The FPC's use of utility rate-making formulas to set field price ceilings are said to be inappropriate to the economic conditions of the natural gas producing industry. Cost-of-service can only be determined by arbitrary methods because a number of costs are jointly incurred. Even when nonassociated gas is discovered, the presence of natural gas liquids complicates cost analysis. The methods used and cost estimates chosen have reportedly understated true economic conditions, resulting in low prices.

Price ceilings based on FPC estimates of average cost imply that roughly half the gas currently being produced costs more to develop than producers are allowed to receive for it.

Differential pricing for so-called "old" gas as opposed to "new" gas has discouraged the more intensive development of old pools, some of which are subject to old contracts providing prices as low as 4, 5 and 6 cents per Mcf.

Forward-looking price ceilings for what is determined (by date of contract or well completion date) to be "new" gas are derived from the same body of data that was used to formulate prior price ceilings. Prospective costs for bringing forth incremental natural gas supplies are not considered.

Price ceilings limit exploration to those reserves that the producer feels will be economic to produce. To the extent that price ceilings remain low and price ceilings influence drilling, therefore, only 'low cost' reserves will be developed. Accordingly, price ceilings based on "cost" will remain low, reflecting the fact that only "low cost" wells are drilled because of anticipated low price ceilings. Thus, a "cost-price circularity" is built into the regulatory system.

Time lags are inherent in the regulatory process; subsequent to FPC decisions, cases are invariably taken through the courts. Seven years passed before the first major case (the Permian Area Rate Case) was completed. Even where the FPC has speeded the decision-making process, judicial delay usually involves years. By the time ceiling rates are approved by the courts, they are out of date: for example, the area rate in Southern Louisiana was set in 1971 at 26 cents per Mcf and, even though the FPC staff and other economists estimate current costs to be significantly higher, the original case may yet be taken to the Supreme Court.

On the issue of competition, the field market for natural gas is described by one school of analysis as workably competitive. Support for this view is drawn from the bid pattern in OCS lease sales, where producers put forth widely divergent bids on acreage dependent on their own company evaluations, from the pricing patterns in the intrastate market (which is unregulated by the FPC) and from the fact that prices in the intrastate market were relatively stable (though higher than in the interstate market) until the lack of available supply began to affect the intrastate market as well.

Data on the market structure also is utilized to support the view that producers are competitive. The possibility of joint bidding and joint ventures are said to facilitate ease of entry, and because new companies can with ease enter the supply market, prices cannot be set at "monopoly levels." Since there are over 200 pipelines and as many as 30,000 producers in the United States, approximately 3,750 of whom are regulated by the FPC the market power ascribed to any particular number of "largest" producers would be impossible to attain. In terms of meaningful concentration ratios, half of the industries in the United States are less com-

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petitive than the natural gas production industry. It is also said that, as measured by nationwide and regional concentration ratios for new sales of gas, pipeline still have twice the market power (monopsony power) as producers.

3. The market power theory

Support for the Market Power Theory is generally based on the following arguments: the largest gas producers are major oil companies whose market power is sufficient to enable them to create a shortage by restricting supply in order to raise prices. It is also alleged that the major producers can and do manipulate reserve estimates to create the illusion of a more serious shortage than actually exists. A corollary to this view is that even at low natural gas price ceilings, substantially greater gas supplies could be brought forth if the producers were not withholding these supplies in the hope of obtaining substantial price increases from the FPC or legislative deregulation.

Support for this theory depends largely on an interpretation of data on industry structure. Numerous examples of both horizontal affiliations (joint bidding, farmouts, and exchange agreements) and vertical integration (producer interests in intrastate and interstate pipelines, and pipeline and distributor interests in production) have been interpreted as presumptive evidence not only of a "community of interest" among the major producers but also of the major oil companies' monopoly power over the smaller producers and the transmission companies.

According to the proponents of this view, the relevant concentration ratios for indicating monopoly power are not those for all gas nationwide, but rather they are the concentration ratios for gas available for new sales in a particular market area and in a time frame of no more than a year. While the nationwide concentration ratio is relatively low, seller concentration ratios for new supplies in limited areas for limited time periods approach 100 percent in some cases.

Vertical affiliations, either direct or indirect, are seen as permitting the owners to receive monopoly profits in production which they are precluded from taking in transmission or distribution by public utility regulation at those market stages.

The view that the shortage is at last in part contrived is based on comparisons of recent individual company reserve data against (1) data submitted by pipeline and producing company geologists to the AGA as proved gas reserves and production, and (2) data submitted by pipelines to the FPC representing purchased gas reserves. Where discrepancies occur, extreme advocates of the Market Power Theory see this as evidence of data manipulation to promote deregulation.

Since most natural gas production is by oil companies and some producers also have interests in coal and uranium, the loss of natural gas markets through shortages or higher prices is alleged to be of little concern to the major producers.

It is further stated that supply has not responded significantly to price increases in the past. Recent FPC changes in the criteria used to determine appropriate price levels are viewed as supply-depressants. It is alleged that such regulatory action leads to price speculation, and to the withholding of reserves in anticipation of further price increases.

4. An intermediate view

The two main theories regarding the natural gas producing industry are at a virtual stalemate. Each side can assemble a powerful *prima facie* case for its theory, but the *critical* issues are not correctly posed in black and white terms, *viz.*, "Is the natural gas field market competitive or monopolistic? Do the supply and demand for natural gas respond in the appropriate direction to price changes?" Rather, it is clear (1) that the natural gas producing industry falls somewhere between pure monopoly (a single seller in any one market) and pure competition; (2) that the natural gas transmission industry falls somewhere between pure monopsony (a single buyer in any one market) and pure competition; (3) that affiliations between and among buyers and sellers act as disincentives to increased competition, but to an unknown degree; and (4) that both supply and demand are responsive to price and in the right direction (i.e., higher prices would increase supply and diminish demand) but, again, to an unknown degree.

The relevant issues, therefore, are where, in the spectrum between pure monopoly and pure competition, does the natural gas industry fall for *public policy purposes;* and are supply and/or demand *sufficiently* responsive to price that unregulated markets are the most efficient means of bringing them into balance?

It was pointed out previously that there is no logical contradication between the two competing theories of the natural gas shortage. It is an entirely reasonable middle position to hold, for example, that:

(1) Vertical integration may result in substantial structural and anti-competitive elements in natural gas field markets, and these elements would be strengthened by deregulation unless legislation providing for deregulation included provisions dealing with structural imperfections.

(2) FPC regulation has depressed interstate gas prices substantially below the levels that would have prevailed in competitive markets, hence helping to inflate demand and depress supply;

(3) Producers may or may not be postponing development programs or sales of gas, awaiting higher prices or deregulation, but, if they are, this kind of behavior is entirely rational and does *not* necessarily imply collusion or monopoly power. Even a purely competitive firm would be foolish to sell assets (natural gas reserves) which are expected to appreciate in value at a rate higher than the cost of holding them. (4) There are important elements in the structure and regulation of the natural gas industry, other than wellhead price ceilings, that undermine the ability of market forces to balance supply and demand, among them the long term of gas contracts, the practice of charging a single "rolled-in" price for both low and high cost gas, and preferential rates to industrial customers.

The implications of this position would neither be complete and immediate deregulation nor a return to the status quo *ante* 1972.[6] Such an intermediate view might imply that, should regulation be continued for any number of producers, the FPC should be permitted to consider market factors as well as "cost" in setting price ceilings, for the following reasons. First, the cost figures used by the FPC do not represent "in fact" costs. Some 40 percent of the expenditures associated with natural gas production are incurred jointly with production of other hydrocarbons. Even in gas reservoirs not associated with oil, the presence of liquid hydrocarbons (butane, propane, ethane and pentane) requires that arbitrary allocations be made. Moreover, there is no way that the EPC can be sure that the numbers it chooses are "right" in terms of balancing supply and demand until some future date.

Second, price ceilings based on past data limit the number and kind of ventures that will be undertaken in the future to those projects involving similar "costs" as those used to set the price ceiling. Since the cheapest gas is always developed first, where possible, the exploratory effort by producers will become continually more restricted over the long term. As stated by the FPC's Office of Economics in 1970 (Docket No. R-389-A):

"To induce producers to find more gas in the period ahead, the Commission must provide an economic incentive for them to explore a wider range of prospects and to be willing to incur higher exploration and development costs. This means that the price increases must precede the cost increase. It follows, therefore, that the use of test-year costs to justify the necessary price to elicit the required additional supply is destined to be self-defeating."

Since the supply, demand and price of natural gas affects the availability and price levels of other fuels, it would similarly appear important to consider market factors in setting price ceilings under a continued regulation option. Natural gas is part of the overall energy spectrum and should be considered within that context.

Such a middle position might lean toward eventual deregulation as the most efficient means of allocating resources and balancing supply and demand. It would likely include measures aimed at strengthening competitive field markets for natural gas, for example by eventually prohibiting producer interest in gas pipelines or distribution companies and *vice versa*, while, in the interim, discouraging such activity with cost-based regulation. Joint bidding by major producers in federal lease sales could also be prohibited.

2. Structure and performance in natural gas field markets

On the issue of deregulation, there is concern about the responsiveness of supply to price increases. There is a fear that higher prices paid by consumers would elicit only a small increase in drilling (and supply) over the long-term. This fear is based on (1) the fact that, prior to 1972, increases in price ceilings have not elicited significant drilling increases; and (2) the presumption that unless the expected rate of return for domestic gas development equals that expected from other investment opportunities, profits resulting from higher gas prices will not be reinvested in domestic gas exploration and development.

Studies on the "price elasticity of supply" have generally concluded that the elasticity of natural gas is about 0.5. This means that raising a wellhead price ceiling from 25 cents to 50 cents per Mcf would result in an increase of gas supply in the vicinity of 50 percent. Several prominent independent experts (e.g., Edward E. Erickson and Keith C. Brown) recently concluded, on the basis of their studies, that the long-run price elasticity of supply is more likely to be 1.0. In fact, most recent econometric studies generally indicate that supply will respond significantly to higher prices.[7]

Analyses of past and present drilling trends also appear to support the position that increases in price ceilings determined on the basis of (past) FPC cost estimates have been too low. Experts have also said that FPC price ceilings served also to depress field prices in the intrastate market until the shortage developed, and prices began to rise to competitive levels. (Some spot prices appear to be higher than the levels that several economists have suggested represent appropriate competitive levels today.[8]) Moreover, a number of economists have made the point that the return on investment for domestic petroleum activity need not equal the return on every other investment opportunity available in order for producers to make substantial investments in domestic natural gas exploration and development. So long as the domestic natural gas business is expected to be *profitable*, investment dollars will become available, provided that there is no scarcity of investment capital in the U.S. market.

Another concern in the debate over natural gas policy is the impact of rising field prices on residential consumers' prices. Department of Commerce statistics indicate that the average annual gas bill for all residential customers amounted to $155.73 in

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1972, and the "average" moderate-income family with a total budget of $9,000 annually spend about 1.7 percent of the family budget on natural gas service.

The residential consumer's bill includes transportation and distribution, and, in 1971 the wellhead cost of gas represented only 17 percent of residential natural gas expenditures. Although wellhead price increases under deregulation may be substantial, the percentage increase in rates to residential consumers would be much less. Yet, under current conditions where supply is insufficient even to meet firm contract commitments to industrial consumers, initial field price increases under deregulation are expected to be higher than competitive equilibrium prices, unless a price ceiling is imposed during an initial period when new wells are being developed.

FOOTNOTES

[1] Based on recent court action, it may be concluded that the Commission has continuing jurisdiction over the volume and price of gas to be included in direct sales made by interstate pipelines. This issue is currently being litigated.

[2] The reason for the continual revision of AGA "proved" reserve figures is that full knowledge of reserves is only known after an entire field has been developed and depleted. Reserve estimating begins with geologic theory, and estimates often vary widely. With seismic tests, knowledge improves. As wells are drilled, reserves that were formerly categorized as "speculative" move into the "potential' category, and as more experience is gained, "potential" reserves are classified as "probable" and then "proven." AGA estimates of "proved" reserves, unlike individual company estimates, must conform to the AGA definitional standard and are said to be the most firm in terms of information known about a field. Reserve figures are also reported on forms submitted by interstate pipelines to the FPC. These often represent categories other than "proved" reserves as pipelines purchase reserves that are categorized as "potential" as well as reserves known as "proved." The pipeline forms also indicate the degree of deliverability of wells in production. The pipeline's current inability to deliver contract volumes apparently relates to problems of deliverability of wells already in production.

[3] Beyond reflecting declining gas availability, the fall in the lower 48 R/P ratio from 20.1 in 1960 to 10.5 in 1972 reflects a growing efficiency in the use of producing capacity, completion of a national gas transmission system, authorization by the FPC of shorter term sales contracts and the diminishing restraints on the production of associated gas by state (oil) conservation authorities. Existence of an R/P ratio greater than 15 justifies a presumption that wasteful overdrilling has taken place and/or that there are uneconomic physical or institutional production restrictions. The optimum economic production rate of developed gas reserves may lie in the range of 8 to 14 percent per year (equivalent to R/P ratios of 7 to 13). Without substantial new reserve additions, however, the R/P ratio will fall below the optimum rate, and problems of deliverability will continue to worsen supply shortages.

[4] *The Gas Supplies of Interstate Natural Gas Pipeline Companies—1971*, Federal Power Commission, 1972, p. 102. The FPC was referring to pipeline supplies of the companies reporting on deliverability on Forms 15 and 15–A.

[5] Details on exploration and development trends are provided in the Appendix for (1) gas wells and dry hole drilling costs; (2) gas reserves added per foot drilled; (3) significant field discoveries; and (4) dry hole/productive well ratios in exploratory drilling.

[6] Strict observance of public utility cost-of-service regulation.

[7] A recent comprehensive study of supply, demand and price relationships under various policy options concluded that significant price increases will markedly affect both supply and demand. (Prior to the econometric study, the author conducted extensive research on field market behavior which led him to the conclusion that field market behavior is effectively competitive.) According to this study, a 50 percent increase in wholesale prices spread over a 7-year period would decrease total demand for production by 14 percent and additions to demand by 40 percent. The full impact of field price increases for new gas would not be felt until 1980 when total additions to reserves leveled off at 34 Tcf, an amount approximately 21 Tcf greater than the 13 Tcf realized before price increases. In the model, field prices for new gas rise 15 cents per Mcf from 1973 to 1974 (from 29.6 to 44.1 cents per Mcf) and increase 3.0 cents per Mcf per year through 1980. Despite the increasing sophistication of such econometric models, no study can, in fact, spell out the future with precise numbers. The experts generally agree, however, that supply is responsive to price and in the right direction. See "Alternative Regulatory Policies for Dealing with the Natural Gas Shortage," by Massachusetts Institute of Technology Professor Paul W. MacAvoy of Robert S. Pindyck (Bell Journal of Economics and Management Science, Vol. 4 No. 2, Autumn 1973).

[8] Spot prices as high as 70 cents per Mcf are being paid in the intrastate (unregulated) market today. On the basis of their work, Robert M. Spann and Edward W. Erickson stated that their best estimate of the market clearing price for recent years ranges between 37 to 50 cents per Mcf at the wellhead in South Louisiana. ("Joint Costs and Separability in Oil and Gas Exploration," *Energy Modeling*, Resources for the Future, Inc., Washington, D.C., March 1973). The current FPC price ceiling for Southern Louisianian is 26 cents per Mcf.

THE NATURAL GAS SHORTAGE AND THE REGULATION OF NATURAL GAS PRODUCERS †

(By Stephen Breyer * and Paul W. MacAvoy **)

(NOTE.—In an attack upon the current natural gas shortage, President Nixon has recently urged an end to much of the Federal Power Commission's regulation on the price of natural gas at the wellhead. From the perspectives of both the lawyer and the economist, Professors Breyer and MacAvoy lend support to a policy change in this direction. They show that regulation of gas wellhead prices raises problems substantially different from the regulation of traditional public utilities. They argue that the policies the Commission has pursued were almost inevitably bound to result in wellhead prices below the market level that would call forth supplies sufficient to meet demand, and through econometric analysis, they demonstrate the extent to which the Commission's pricing practices produced the shortage. While the Commission's policies were aimed at helping home consumers, data gathered by the authors indicate that regulation has brought about precisely the opposite result. The Commission's experience may well cast light on the wisdom of adopting regulatory techniques to redistribute income when serious economic efficiency losses are likely to arise.)

In 1954, somewhat to the Federal Power Commission's (FPC's) surprise, the Supreme Court held in *Phillips Petroleum Company* v. *Wisconsin* [1] that the Commission had authority to regulate the prices at which natural gas field producers sold gas to interstate pipeline companies.[2] In the past decade, the FPC has devoted much of its energy and about 30 percent of its budget to such regulation [3] and has been remarkably effective in holding down producers' selling prices.[4] Whether this regulation has benefited the nation or even the consumers it was designed to help, however, is another matter. It is the purpose of this article to evaluate the results of the Court's decision [5] and the FPC's ensuing regulatory effort. Such an evaluation is especially timely because President Nixon has recently proposed the discontinuance of much wellhead price regulation.[6]

Natural gas now supplies more than a third of America's energy needs [7] and exists in the ground in sufficient quantities to forestall any danger in the foreseeable future of its extinction as a natural resource.[8] Nevertheless, there is now, in the early 1970's, no lack of evidence that the United States is in the throes of a serious natural gas shortage.[9] This article will show that that shortage is a direct result of FPC regulation of producers' prices and that the shortage has been disproportionately borne by home consumers. Moreover, the article will show that the losses arising from the shortage have been so great that they cannot rationally be worth the pursuit of whatever valid purposes might be served by lower user prices. To explain how this state of affairs has come about, we shall explore the objectives of producer price regulation and the methods used by the FPC to achieve them. We shall then describe the results that FPC regulation has brought about. We shall conclude that the harms regulation has produced so far outweigh the benefits of lower price that gas price regulation at the wellhead should be substantially abandoned.

The article has another, more general purpose. It is becoming increasingly common to think of price and profit regulation as designed to achieve not simply economic efficiency, but also a more nearly equal income distribution.[10] Of course, these two objectives often peacefully coexist: to limit a monopolist's prices increases output and also redistributes income, probably towards equality. Sometimes, however, these goals directly conflict: to hold prices below the competitive level may lead to a more equal income distribution, but it may also wastefully create excess demand. When faced with such a conflict, some may argue that the "income distribution" objective should be favored over "economic efficiency."

This seemingly has been the view of the FPC in regulating producer gas prices. We shall argue, however, that the FPC's efforts to hold prices down for the residential gas consumer have not helped him; in fact, they have simply led to a gas shortage that has hurt him more. If redistribution of income is a proper regulatory goal, the FPC has failed to achieve it. Our discussion of the reasons for this failure shows the extreme practical difficulties that face an agency trying to use prices to pursue such a goal. And these practical difficulties should explain our grave doubts about whether generally such a goal is proper when serious efficiency losses are at stake.

Before turning to an assessment of FPC regulation of gas producer prices, a brief description of the field market for natural gas may be helpful.[11] Most producers search for gas by drilling wells on leased land. The gas is brought to the surface where it is sometimes "refined," producing liquid by-products which can be sold separately. The gas itself may be sold directly to intrastate users and distributors, but most is sold to interstate pipeline companies.[12] These transmission companies transport the gas from the field and resell it either directly to industrial users or to distributing companies, which in turn resell to industry or to home consumers. Before World War II, gas was discovered and exploited mainly as a by-product of the search for oil [13] and was sold at prices that had only to pay the ascertainable separate costs of gas production.[14] How-

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the income that low-cost producers would otherwise receive. It has been claimed that these rents are exceptionally high in the oil and gas industries, so that price control systems should be devised that would deprive producers of these excess returns and give them to consumers in the form of lower prices.[35]

Although no one has measured the amount of rent that gas producers would earn without regulation, there are reasons to believe that rents would be large compared to those earned in other industries. First, gas is a wasting resource, and its presence in the ground in commercial quantities is uncertain until exploration and development are complete. At that point, the value or price of gas is in theory set by the cost of marginal additional exploration and development (at least when demand for gas is increasing sharply as it has been in the last two decades[36]). The difference between this cost of marginal additional exploration and development and the exploration and development costs of, let us say, the "lucky" producer who may have paid little for his land may constitute a considerable windfall. Of course, windfalls of this sort go in part to landowners who do not themselves produce gas but who have the ownership rights to the ultimate scarce resource (the location or site of the in-ground reserves). Strict control of producer prices, however, would prevent producers from paying these windfalls over to the landholders. Second, the cost of finding and developing gas reserves has increased considerably over the past two decades.[37] Thus, gas found and sold to pipelines 15 years ago in reserve commitments, but still not delivered, would have lower overall production costs than new reserves; such "old gas" may have even been found accidentally as part of the search for oil.[38] If production prices for this "old gas" were set at currently prevailing long term marginal exploration and development costs, its owners would receive appreciable windfalls or rents.

To eliminate these windfalls without interfering with the amount of gas produced, regulation would have to hold down the price charged to pipelines for intramarginal volumes of gas while allowing marginal units to be sold at a price equal to long term exploration and development costs. In effect, regulation would set different prices for different units of supply. Of course, such regulation would produce excess demand for the lower-priced intramarginal units received by the pipelines. To "clear" such excess demand by having the pipelines auction off these volumes would simply give windfall rents to the pipelines taking the highest bids. Rationing, on the other hand, might pass the windfall along to the retail distributor and presumably ultimately to the consumer.

This "tier" type of regulation is unusual, but not unheard of. Differential regulated prices are most commonly found in housing; rent control may hold down the price of existing housing while allowing the price of new housing units to rise so as not to discourage new building and to clear the market of demand for new rental units. But it is extraordinarily difficult to bring about the transfer of excess profits without affecting output. With regard to regulation of gas field prices, this requires extensive knowledge of the location and shape of the supply curve for both established production and new reserves. Moreover, if the reduced prices for intramarginal gas bring about the expected increase in the quantity demanded, then the excess demand has to be limited by recourse to such rationing devices as classifying users and designating one or more classes as "inferior" for purposes of allocating the lower-priced gas. To make such classification without reference to users' "willingness to pay," as measured by prices bid by users for the low-cost gas, is difficult, to say the least. In short, tier price regulation requires extraordinary sensitivity to changes in supply in order to react with necessary price changes, and, even in the best of conditions, it requires also a complicated rationing procedure.

Neither the Federal Power Commission nor the courts have clearly distinguished the two separate regulatory objectives of controlling market power and transferring rents to consumers, and often write as if they were trying to achieve both of them at once. Still, in view of the lack of empirical support for the "monopoly power" theory, we shall assume that regulating producers' market power is not a sensible regulatory goal. In fact, the Commission's writings in the past few years suggest that it has not pursued this goal with much fervor and indicate that the concern for income distribution predominates. For one thing, the Commission[39] and the courts[40] have expressed the belief or fear that efforts to limit price have reduced, rather than increased, the supply of new reserves and the actual level of gas production. Lowering prices from "monopoly" to "competitive" levels should have had just the opposite effect. The Commission's continued efforts to regulate, while holding this belief, suggest that it no longer sees itself as basically trying to control monopoly power. For another thing, the Commission has set two price levels in the area rate proceedings[41]—higher prices on "new" gas, and lower price on "old" gas.[42] Its doing so, while at the same time expressing the hope that the new gas price would be high enough to cover the costs of producing new supplies,[43] indicates that limiting producer rents and windfalls is the more important concern underlying more recent regulations.[44] We shall assume that this is what the Commission has ultimately been trying to do.

II. ALTERNATIVE METHODS OF REGULATING FIELD PRICES

After the Supreme Court's decision in *Phillips Petroleum Co. v. Wisconsin*,[45] the Federal Power Commission began to struggle with the problem of *how* to regulate.[46] The first approach was to treat producers as individual public utilities and to set limits on each producer's prices individually according to his "costs of service." After this approach proved unwieldy, the Commission set area-wide ceiling prices, allowing all individual producers within each gas production area to charge no more than the area ceiling.

A. Regulating producers individually

In attempting to regulate each gas producer, the Commission followed the same procedure it used to set prices for each gas pipeline. It sought the producer's "costs of service" and allowed prices sufficient for the company to recover these costs, but no more. This approach seemed to promise that no producing company would earn more than a reasonable return on its capital; producers with unusually low costs would not receive windfalls, but, instead, would have to charge their customers lower prices. This method of regulation also seemed to avoid the risk of a serious gas shortage. If costs increased producers could raise their prices, and, as long as there was demand for the higher-cost (and higher-priced) reserves, regulation would not inhibit production.

However, this summary description of individual producer regulation hides enormous problems. Although individual producer regulation allowed producers with different costs to sell at different prices, it provided no way to determine which gas users should get the more expensive gas and which the cheaper. And, even setting aside the difficulty of rationing the lower-priced gas, regulation of individual producers proved unwieldy because of the immense administrative burden it placed on the Commission. Most important, there were basic conceptual deficiencies in the regulatory method. Cost-of-service regulation was based on the assumption that it was possible to obtain detailed, accurate information about producer costs. It presumed that the cost of finding gas could be determined from accounting records, as can the costs of, say, gas pipelines, electricity generating companies, and telephone companies. Moreover, in searching for a proper rate of return on investment, the Commission assumed that gas produers' cost of capital could be rationally determined. But, as the Commission discovered, determining the costs of gas production and a proper rate of return to gas producers raises issues far less easy to resolve here—issues which require considerably more use of the regulator's subjective judgment—than in the case of traditional public utilities.

The difficulties the Commission experienced with individual producer regulation are typically attributed to management failure. The administrative burden placed on the Commission arose from the vast number of natural gas producers. In 1954 there were more than 4,500 producers,[47] and by 1962 they had submitted more than 2,900 applications for increased prices.[48] The individual price or "rate" case approach to regulation required finding which of the joint costs of oil and gas exploration and development attributable to gas alone, a judgment about the fairness of a particular rate of return on investment, and a determination of the proper amount of investment (or "rate base") for each of the 2,900 applications. To accomplish these tasks would have taken an interminable amount of time. The first producer rate case undertaken—the *Phillips* case itself—took 82 hearing days, with testimony filling 10,626 pages and a record including 235 exhibits.[49] Although later cases might have been handled more quickly, differences from case to case in both levels of costs and degrees of risk (and therefore in allowable rates of return) were such as to require some individual attention to each application. By 1960, the Commission had completed only 10 of these cases.[50] The backlog led the Landis Commission, appointed by President Kennedy to study the regulatory agencies, to conclude that "[t]he Federal Power Commission without question represents the outstanding example in the federal government of the breakdown of the administrative process."[51]

Management failure alone, however, does not account for the Commission's difficulties, for the problems of individual producer regulation went much deeper. Even if the Commission had had ten times the staff, it would have encountered severe conceptual difficulties in trying to separate the costs of oil and gas production and in setting a proper rate of return.

Finding the cost of natural gas posed several extraordinary difficulties which arose from the fact that gas is often produced in conjunction with petroleum liquids. Money spent by petroleum companies on *exploration* leads to the discovery of some gas wells, some oil wells that produce gas too, some pure oil wells, and many dry holes. Expenditures on *separate development* of gas fields often yield gas together with petroleum liquids, and expenditures on *gas refining* produce both "dry" gas and saleable liquid. Expenditures such as these, which yield two products but which are equally necessary to produce either one, complicate a regulatory process based on costs because there is no logical way to decide whether, or to what extent, a specific dollar outlay should be considered part of the "cost of gas production," or part of the "cost of liquid production."

This problem of joint cost allocation is

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ever, the growth of pipelines capable of bringing gas from fields in Texas, Oklahoma, and Louisiana to coastal markets increased the demand for gas to the point where today less than 25 percent of all gas produced comes from oil wells; most comes from wells that produce only gas, found in the search for gas itself.[15]

I. THE OBJECTIVES OF PRODUCER PRICE REGULATION

In order to evaluate the FPC's policy of regulating natural gas prices at the wellhead, it is necessary first to determine what the objectives of such a policy could be. There are two conceptually distinct purposes that regulation of gas producers might serve: reduction of market power and redistribution of income. That neither the Commission nor the courts have made much effort to distinguish between these purposes makes the task of evaluating regulation more difficult.

A. Control of market power

Control of market power constitutes the traditional economic rationale for regulation. Stated in simple and direct fashion, where one firm, or possibly a small group of firms, produces the entire output of an industry, the industry's output tends to be less—and profits more—than that which would be provided by competitive suppliers. This is so because the monopoly (or oligopoly) firm will restrict its output in order to increase the market price of its products—so as to add to net revenues via a higher price-cost margin more than is lost by restricting output. The government may seek to reduce prices and increase output by attacking market power directly through antitrust actions designed to create competition in the industry. If, however, such a policy is too costly because economies of scale make production by more firms less efficient, the government may try to combat market power by regulation of industry prices. In either instance, a major motivating force of the government's initiatives is to achieve efficient resource allocation; the objectives in setting lower prices at the margin are to reduce profits and to expand output, allowing buyers willing to pay the cost of extra units of goods to receive those goods.

Such a market power theory was advanced by supporters of gas producer regulation. They asserted that gas production was concentrated in the hands of a few producing companies—so few that the largest producers could raise the price of gas to the interstate pipelines above the level that competition would otherwise dictate.[16] Unless market power at the wellhead was checked, pipeline regulation would not be wholly effective in protecting consumers from noncompetitive prices; consumers would still have to pay monopoly wellhead prices for gas, since these prices would be passed through to retail distributors as "costs" of the pipelines. In the words of the Supreme Court,[17] "the rates charged [by producers] may have a direct and substantial effect on the price paid by the ultimate consumers. Protection of consumers against exploitation at the hands of natural-gas companies was the primary aim of the Natural Gas Act."

Thus, the argument ran, the FPC should determine the price at which gas would be sold under competitive production conditions and should forbid producers to sell at higher prices.

However, while the question of market power played an important role in the early history of the debate over producer regulation, it has become less significant in more recent years as accumulated evidence has created a strong presumption that gas producers do not possess monopolistic or oligopolistic market power. As the U.S. Court of Appeals for the Fifth Circuit has recently said,[18] "[T]here seems to be general agreement that the [field] market is at least structurally competitive." Federal Power Commission statistics show that in the early 1960's the largest gas producer accounted for less than 10 percent, and the 15 largest for less than 50 percent, of national production.[19] Nor in general has production in more narrow geographic markets been highly concentrated; in the Permian Basin, for example, the five largest producers have accounted for somewhat less than 50 percent of production.[20] This degree of production concentration in the narrow market has been characterized as "lower than that in 75–85 percent of industries in manufactured products."[21] And, even if concentration were higher here than elsewhere, it has been shown that entry into the industry is so free that the largest producers would not be able systematically to charge higher than competitive prices.[22]

One rejoinder to this evidence of structural competitiveness is that ownership of *production* is not really relevant to the price of natural gas at the wellhead. Rather, the market relevant for field prices is that in the sale to pipelines of *rights* to take gas from *new reserves*. Petroleum companies sell gas under long term contracts which commit to pipelines 10 to 20 years worth of production from new reserves.[23] While such a contract typically contains a specified initial price, many used to have a "most favored nation" clause under which the actual price to be paid for the gas produced at any given time was pegged to the pipeline's then newest, most expensive contract.[24] Thus, once a production contract was signed, only the *level* of production was "locked in"; the *price* for gas produced under the contract would depend on the market for the sale and dedication of new reserves. Proponents of regulation have argued that ownership of uncommitted reserves was so concentrated that a few petroleum companies were able to raise the specified prices in new contracts by controlling the supply of available natural gas reserves.[25] These higher prices were then passed through by triggering "favored nation" clauses in existing contracts, resulting in comparable prices for gas produced from previously dedicated reserves.

This argument, however, has little basis in fact. The available evidence[26] shows, for example, that the four largest production companies provided only 37–44 percent of new reserve sales in the West Texas-New Mexico producing area, 26–28 percent in the Texas Gulf region, and less than 32 percent in the Midcontinent region—all in the 1950–54 period just before the *Phillips* decision. These levels of concentration on the supply side of the market for new reserves were all less than half the concentration on the demand side, accounted for by the four largest pipeline buyers in each of these regions. Power to control new contract prices probably did not exist on either side of the market, but if the scales tipped at all, then surely the balance lay with the pipeline companies rather than with the producers.

Of course one can still argue that despite its apparently competitive structure, the producing segment of the industry has *behaved* noncompetitively. Certain proponents of producer regulation[27] have pointed to the rapid rise in the field price of natural gas between 1950 and 1958[28] as evidence of such noncompetitive performance. But economic studies of the markets for new contracts suggest that anticompetitive producer behavior did not cause this price increase.[29] During the early 1950's the presence of only one pipeline in many gas fields effectively allowed the setting of monopoly buyers' (monopsony) prices for new gas contracts, thus often depressing the field price below the competitive level. During the next few years, several pipelines sought new reserves in old field regions where previously there had been a such a single buyer. This new entry of buyers raised the field prices to a competitive level from the previously depressed monopsonistic level. In short, competition—not market power—accounted for much of the price spiral that has been claimed to show the need for regulation.

A further argument offered by those asserting the need to control the market power of gas producers was that producer competition was ineffective in bringing about competitive prices because the producers' customers—the pipelines—did not have enough incentive to bargain for low prices.[30] Since pipeline final sales prices were (and are) regulated on the basis of costs plus a fixed profit on capital, it was argued that the pipelines failed to resist producer price increases and simply passed them on as "costs" to be paid by the consumer.

This argument is theoretically suspect, however, for strict regulatory supervision should make the pipelines worry about whether they will be able to pass along producer price increases, and weak regulatory supervision might allow them to keep any extra profits they earn through hard bargaining with producers—at least until "regulatory lag" catches up with them. In either case they should wish to keep producers' prices low. More important, given some limit on price increases set by some combination of consumer demand and regulatory awareness, pipelines should prefer to keep fuel costs (on which they earn no return) low in favor of enhancement of capital costs (on which they earn a return).[31] Furthermore, the evidence available suggests that pipelines in fact bargained for minimum prices. In the 1950's pipelines pushed field prices below competitive levels wherever possible. When low prices threatened to drive producers out of exploration and development, the pipelines themselves went into the exploration business rather than allowing producers to raise their prices. The transmission companies selectively produced higher-cost gas while paying monopsony prices for the low-cost gas from petroleum companies, thus keeping payment of excess returns to producers to the minimum.[32] In sum, empirical study provides little evidence to support the theory that unregulated field prices were noncompetitive.[33]

If the view that unregulated producer markets were in fact competitive is correct, then to regulate as if firms had market power would in principle only cause trouble. The FPC, with the monopoly rationale in mind, would reduce prices below the level found in the unregulated market. But, since unregulated market prices were already the product of competition, any regulation would set prices below the competitive level. A lower than competitive price would stimulate demand, leading some buyers to use natural gas even though the economy could provide for their needs with other fuels at lower real costs. The lower price would also reduce the incentive of suppliers to provide new reserves and production, for the regulated price would not allow sufficient returns to producers at the margin. In short, the regulation-required price reduction would increase the quantity demanded and decrease the quantity supplied, thus causing a shortage.

B. Regulation to reduce rents and windfalls

Under certain special circumstances one might want to regulate prices even in a competitive market. One would do so not to correct resource misallocations, but in order to redistribute income.[34] In principle, price in a competitive market will equal the cost of producing marginal output—the last units that can be sold. Some producers can sell at that market price intramarginal units that are far less costly to produce, perhaps because the producer has special skill, knowledge, or expertise, or controls a resource that cannot easily be duplicated. Such producers realize "rents" or excess returns, and the objective of regulation in such circumstances would be to transfer to consumers some of

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distinctly a regulatory one. Without price controls and under competitive conditions, producers would recover marginal joint costs from the sale of gas and oil, with the relative amounts recouped from each varying from firm to firm.[52] If a regulatory agency controlled *both* oil and gas production, it might try to reproduce these competitive market results simply by requiring that the combined revenues from the sale of the two products be equal to their combined costs, including, of course, return to capital. Any combination of prices that would do no more than return total costs would meet this requirement.[53] The distinct regulatory problem in controlling field market prices for gas, however, was that liquid prices were not regulated by the FPC. Therefore, in order for the Commission to eliminate excess returns on gas production, it would have had either to find the "exact" costs of one of the joint products—something logically impossible to do—or to regulate indirectly the earnings on the unregulated sales of liquids—something it could not legally do.[54]

The Commission's efforts to overcome the joint cost problem in gas production in fact simply involved the application in various combinations of several traditional methods for allocating joint costs for accounting purposes.[55] But these methods only created the illusion that the joint costs of gas and oil production were separable and bore no particular relation to the problem of determining costs for rate setting. One method allocated joint costs according to the ratio of the separable cost of producing a barrel of oil to the separable cost of producing a thousand cubic feet (Mcf) of gas.[56] A second method allocated joint costs in proportion to the number of heating units (BTU's) contained respectively in the oil and gas produced.[57] A third method recognized that BTU's of oil and gas might not be of equal value in the marketplace, and therefore multiplied the BTU's by a factor representing relative value.[58]

None of the three procedures could yield either the long term costs of future gas production or the historical costs of past exploration and development. As methodology, they simply carried on a charade of implying separable costs when costs were joint and inseparable. In fact, if producers, in the absence of regulation, tended to recover most joint costs from oil revenues, and priced gas close to its ascertainable separate costs, the Commission's techniques, in allocating large shares of joint costs to gas, would force it to conclude that gas prices were too low. This fact may help to explain why the Commission held in the 10 pre-1960 individual producer rate cases that it completed that producers' proposed prices would not generate enough revenue to cover costs.[59] In short, as Justice Jackson said in a slightly different context: [60]

"The case before us demonstrates the lack of rational relationship between conventional rate-base formulas and natural gas production". . . .[61]

A second theoretical problem which the Commission had to confront in attempting to regulate gas producers individually was that of determining a proper rate of return for each of them. While such determinations are usually difficult, here the difficulties were of more than usual magnitude. For one thing, there was no simple process for choosing industries with comparable risks. To be sure, producing gas is probably riskier than running a telephone company; but is it as risky as mining copper or making steel? Arguably, the cost of capital can be determined directly by watching share prices fluctuate on an exchange (or, possibly, comparable risk can be measured in this way [62]); but few producers sold shares on exchanges, and those that did were obviously the larger firms which produced both gas and oil. Nor was it possible to determine costs of capital by looking to producers' debt, because gas producers had issued insignificant amounts of debt securities.[63] Finally, because of different degrees of expertise and different quality of land options, risks varied tremendously among gas producers themselves. To determine the rate of return needed to cover producers' opportunity costs of capital would have therefore required many highly subjective judgmental decisions about thousands of different producers. These problems were compounded by the fact that capital costs accounted for a high portion of total production costs,[64] and thus posed a problem at least as serious as allocation of joint costs for individual producer regulation.

The problems of determining the costs of production and the proper rate of return continued to plague the Commission as it turned to an administratively simpler regulatory method. And the Commission also continued to be plagued by the need to ration low-priced gas—as is any agency that tries to regulate competitive markets by setting different producer prices for sales of the same product at the same place and time.

B. Setting area rates

After regulation of individual producer prices proved unwieldy, the Commission embarked upon a policy of setting area-wide ceiling prices, allowing all individual producers within a given gas production area to charge up to, but not above, the area ceiling. In 1960, the major gas producing regions were divided into five geographical areas,[65] and hearings were begun to determine the legally binding ceiling prices for each. Because of statutory limitations on Commission authority,[66] the area rate proceedings could set limits on prices only prospectively, *i.e.*, from the time an area rate proceeding was completed. Therefore, to control producer prices during the many years that the proceedings would be in progress, the Commission worked out a legally complex, though operationally simple, procedure which set "interim ceiling prices" at the 1959–60 levels for new contracts.[67] During the 1960's rate proceedings were completed only for the Permian Basin and Southern Louisiana areas.[68] In these and the remaining production areas, contracts for new reserves were written throughout much of the entire decade as if economic conditions had not changed since the late 1950's.

In its area rate proceedings, the Commission sought to determine for each area two separate price ceilings: one for "new" gas from gas wells (new gas-well gas), and a second, lower ceiling that applied both to "old" gas from gas wells (old gas-well gas) and to all gas from oil wells. This two-tier area pricing system was designed to provide a fairly simple way to transfer rents from producers to consumers without seriously discouraging gas production and without imposing upon the Commission the administrative burdens of the multitier system of regulating producers individually. In embarking upon this new regulatory approach, the Commission assumed that gas found in conjunction with oil and old gas-well gas found several years before an area proceeding cost less to produce than new gas-well gas. It also assumed that the lower prices for old gas-well gas and gas found in conjunction with oil would not discourage their production, given that their supply was relatively fixed. Thus, lower prices for the old gas- and oil-well was would deprive producers of rents from the sale of these supplies to the benefit of the consumer, while higher prices for new gas-well gas would, at the same time, encourage enough additional gas production to meet total consumer demands.

Despite its apparent logic and simplicity, however, the two-tier pricing system contained potentially serious flaws. First, given that excess demand would be generated for the cheaper "old gas,"[69] the FPC had to devise a way of rationing the available supply which would give it to those potential users who valued it most highly.[70] Home users, for example, value gas highly for cooking and heat, while industrial users may be nearly indifferent to the choice among gas, coal, and petroleum. An auction system, by allocating the old gas on the basis of willingness to pay, would insure that it went to those who placed the highest value upon it. But an auction system would quickly drive the price of the "old" gas up to "new" gas price levels. In fact, the methods of rationing chosen by the Commission—allocating the cheaper gas on an historical basis (old customers before new ones) [71] or on the basis of an FPC determination that some *end* uses of gas were "inferior" to others [72]—do not seem to reflect an attempt to make careful distinctions among users according to their potential willingness to pay higher prices for the low-priced gas. These choices are important, since preferences made by the allocation system according to economically inefficient criteria are likely to spill over and affect other areas of economic activity; for example, insofar as historically-based differential prices at the wellhead are reflected in different pipeline resale prices, they may distort competition among industrial customers (*e.g.*, two chemical companies paying different prices for identical gas) or choices as to plant location.

Second, the competitive conditions of the unregulated gas production market suggest the strong possibility that, in a two-tier system where prices at both levels were set by regulatory action, the price of the higher tier would be set too low.[73] If so, then exploration and development of new gas would be discouraged, and there would be excess demand for the new gas as well as the old.[74] Here, again, if regulation-induced shortages occurred, additional economic inefficiencies would arise from any allocation system based other than on users' willingness to pay.

Third, this potential for economic harm from the two-tier system created by the inevitable excess demand for the lower-priced product and the probable regulation-induced shortage of the higher-priced product, was compounded by jurisdictional limitations on the FPC's power to regulate field market prices. Although the Commission could regulate producers' interstate sales, it could not regulate the prices at which they sold gas intrastate in the production region.[75] Intrastate sales were made primarily to industrial purchasers [76] who would seemingly be relatively indifferent as among various fuel sources available at equal prices. In times of shortage, the gas that these industries purchased would likely be diverted from retail distributors willing but unable under regulation to pay a higher price. Thus, both the certain scarce supply of old gas and the potential scarce supply of new gas likely would be disproportionately given over to certain industrial users by default, since other users who valued the gas more highly would not be allowed to bid up its price.

While the Commission may have intended the price of new gas to be set at market-clearing levels, the methods it used for setting new gas area prices made it highly likely that a significant gas shortage would arise by virtue of the new gas price—the "high" price—being set below the long term costs of natural gas production.[77] The basic method first used by the Commission to find a ceiling price for new gas-well gas was to determine by survey for given base years the recent cost of finding and producing new gas.[78] In both of the area rate cases completed in the 1960's, the final new gas price ceilings established on the basis of these estimates of

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recent costs turned out to be roughly equal to the interim prices set in the early 1960's.[79]

Given this recent cost survey method of setting the final ceiling prices, their similarity to the old interim prices is not at all surprising (even though one might have expected costs to rise during the 1960's), for the interim price ceilings themselves strongly biased the effort to determine the recent cost of new production. Producers unable to sell gas at more than the interim price levels most likely developed only those reserves having marginal costs lower than such prices. Companies with higher costs would not be producing, while those with cheap, lucky finds would still be in business. Thus it is not surprising that the recent costs of new reserves were slightly lower than the Commission's interim price ceilings. Taken together, the interim ceiling and later cost survey constituted simply two elements of a self-fulfilling prophecy; using recent costs to set future prices may, in reality, have been using interim prices to set permanent ones. In short, given the interim ceiling, a survey of the costs of producing new gas in the early 1960's could not tell the Commission with any assurance what price would be needed to elicit additional production for growing demand in the late 1960's and early 1970's.

Quite apart from the existence of interim ceilings, the probability that regulation would induce a natural gas shortage was increased by the specific calculation the Commission made to determine the recent costs of new gas production. If the Commission were not to discourage future production, it should have been certain that the ceiling prices it was setting were as high as prospective development and extraction costs. One indicator of such prospective outlays would be the cost curve derived from the historical marginal production costs in each drilling region of a production area during the test years. Even these historical marginal costs would of course understate future production outlays, because of increases in drilling and other expenses. But the Commission further compounded the possibility of understating prospective development and extraction outlays by *averaging* the marginal costs of recent production across all the drilling regions of a production area. Given a wasting resource from a fixed stock of uncertain size, it is highly probable that the costs of producing the very final units of recent output were greater than the average costs of finding and developing new reserves during the test years.[80] The higher-cost producers most likely included not only the unlucky or less skillful, but also those forced to search farther afield or deeper underground after having exhausted their more promising leaseholds. Averaging their costs in with the new gas production costs of the more fortunate or unusually skillful producers would understate the likely costs of future new gas production and would therefore increase the probability that exploration and development of marginal reserves would not take place.

The Commission tried to take these problems into account by adding an "allowance for growth" to the historical average costs of finding new gas. In the *Permian Basin* proceedings, for example, the Commission added 1.11 cents per Mcf to the ceiling price in recognition that producing enough new gas in the future to meet growing demands would probably require the exploitation of more expensive reserve sources.[81] But it did not determine the size of this premium by analyzing producers' probable marginal costs. Rather, an expert appearing for the gas distributing companies presented this figure as a judgmental observation, and experts for the gas producing companies in turn concluded judgmentally that the proper figure was 2.15 cents per Mcf.[82] The Commission simply chose between these two judgments, and, by acceptance of the distributors' estimate of the proper growth allowance, made it likely that the Commission's choice would be on the low side. To be sure, trying to determine the marginal costs of future gas production would have to involve *some* guesswork. But the need to guess inevitably introduces the risk of error—error difficult to correct once prices are set. The Commission's determination of the proper "allowance for growth" did not reflect any guidelines of its own concerning the impact of such factors as increases in drilling costs, decreases in the probability of finding gas, and changes in the rate of return needed to attract speculative capital into future gas production. Of course, as indicated earlier, these matters are highly speculative. It is therefore perhaps understandable that a Commission interested in regulating producers' prices would, when given only the alternative of accepting the producers' own figures, accept the growth figure offered by those interested in keeping producers' prices low.[83] But, nevertheless, the Commission's acceptance of the distributors' estimate of the premiums needed to encourage marginal production, along with its own calculation of the historical average costs of new production, created a considerable risk that the "new gas" price would be too low and would engender a gas shortage of some scope.

Faced with the extraordinary difficulty of determining the costs of "new gas" at levels of production that would clear the market and with a new-found shortage of gas production in the late 1960's, the Commission has more recently shown greater reliance on a process of direct negotiations to set area prices. In the original *Southern Louisiana* case, representatives of the producers, distributors, and other customers bargained out a "settlement" which was presented to the Commission for approval. The Commission [84] and the appeals court [85] took the negotiation under advisement, however, along with a great deal of information on historical costs, and decided to set price ceilings slightly below the settlement figures. When the gas shortage in the late 1960's led the Commission to reopen the *Southern Louisiana* proceedings, once again the parties negotiated a settlement. This time the Commission adopted the settlement figures as its own, holding that they constituted reasonable ceiling prices.[86]

To be sure, one undeniable advantage of setting prices through such negotiation is administrative simplicity. The Commission need not spend as much time gathering evidence, the number of warring parties is reduced, and it is less likely that a disappointed party will convince a court to overturn a Commission decision. But to set ceiling prices in reliance upon industry settlements comes close to abandoning the Commission's espoused regulatory goals—whether they be to control market power or to eliminate windfall profits—and comes even closer to admitting an inability to achieve them. Negotiation among interested parties can hardly control monopoly power, for it bears little resemblance to the bargaining among buyers and sellers that takes place in a competitive market. Rather than competing individually for purchases or sales, the parties bargain in blocs—the buyers together in one bloc bargaining with producers in the other bloc. Whether the negotiated price ends up higher than, lower than, or equal to the competitive market price will vary depending on the skill of particular bargainers and the bargaining atmosphere surrounding the negotiation. The parties are likely to be constrained in the bargaining by their knowledge that the Commission and the courts must approve the result and may produce little more than what they perceive their regulators as wanting.[87] For these same reasons, negotiation is unlikely to provide "accurate" two-tier prices in an effort to drive out producer rents.

In sum, the difficulty of designing a two-tier system for regulating field prices for natural gas made it unlikely from the outset that the Commission would set the "high" price for new gas at a market-clearing level if that was what it intended to do. However, it is also possible that the Commission in fact *wanted* to set the "high," new gas price below competitive rates. Much new gas-well gas production as well as old gas- and oil-well gas production probably returns rents to its producers.[88] If the Commission wanted to return these rents to users, while setting a *single* area price for all new gas-well gas, it *had* to set the price below the marginal cost of new production in that area. The Commission may have felt that any necessarily resulting shortage would not be serious and would be worth the benefits of lower prices to consumers who could obtain the gas that would be made available. If this was the Commission's reasoning, though, it did not expressly state it. Moreover, even if Commission policy could be attributed to such a purpose, the wisdom of that policy would still depend upon the precise extent and impact of the gas shortage created by it. It is to that question that we now turn.

III. THE EXTENT AND IMPACT OF THE NATURAL GAS SHORTAGE

The expectation that FPC regulation of gas production was likely to produce a substantial gas shortage has been proven accurate by subsequent events. Thus, pipeline buyers have reported to the Commission instances during the summer and winter of 1971–72 in which their contracts obliged them to deliver gas but they lacked the necessary supply.[89] The FPC staff has shown deliveries falling short of gas demanded by 3.6 percent in 1971 and by 5.1 percent in 1972, and has predicted that production will fall short of demand by 12.1 percent in 1975.[90] Moreover, those feeling the pinch have tended to blame FPC regulations for the shortage.[91] And the FPC has not only acknowledged the existence of a substantial shortage,[92] but has also suggested that regulated prices are a cause.[93]

Production "shortfalls" alone, however, do not accurately describe the extent of the gas shortage, because gas is purchased by and sold to pipeline companies before the time of its actual production. Gas delivered during any given year is "backed up" by considerable volumes of reserves which are originally committed in long term contracts to pipeline companies demanding a guarantee as to future supplies. Obviously, pipelines will demand more than a few years of reserve backup, for only with a fairly long term supply guarantee is establishing a pipeline worthwhile. More importantly, retail distributors and industrial consumers normally demand that pipelines themselves guarantee a specific rate of delivery over time and therefore demand substantial reserve backing as security against default by the pipelines on their promised deliveries.[94] Thus, an inability of transmission companies to acquire sufficient supplies to meet contract delivery requirements in any given year should signal the earlier existence of a deficiency in the volume of backup reserves committed at the time the original production contracts were undertaken. If this view is correct, a shortage in production levels in the 1970's would have been prefaced by a deficiency of reserve commitments made to back up new production undertaken in the early and mid-1960's. The extent of this predicted reserve shortage in the 1960's should be measurable as the difference between an "optimal" level of reserves which would have been demanded by pipeline companies to back up new production undertaken in that period and the level of reserves actually supplied by regulated producers and acquired by the pipelines.

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Rough calculations previously made by one of these authors in fact show the shortage of reserve inventory of natural gas during the 1960's to have been substantial.[95] This conclusion was reached by first determining an approximate "optimal" volume of gas reserves, in terms of years of backup supply, which would be dedicated to secure new production commitments undertaken in any single year. The FPC has considered the proper amount of reserves to be 20 times initial production, so that regulated pipeline demands for new reserves have been based on "the assumption that each new market commitment is backed by a 20 year gas supply."[96] Similarly, pipelines' actual demands for reserves from 1957 to 1954—before the Commission had much influence on the field markets—were on an average equivalent to a 20-year backup of production, with the lowest backing in any single year equal to 14.5 times new production.[97] It was therefore concluded that, on the most conservative of assumptions, a simple, rough estimate of demands for reserve inventory under ceiling prices could be obtained by multiplying total new production—including all new contracts plus any renewals of expiring contracts—by 14.5 to obtain the "lowest" demands for reserve backing in the unregulated market. Alternatively, on more liberal assumptions, total new production could be multiplied by the FPC's suggested reserve ratio. These calculations were done for the years 1964 through 1968 to determine the volume of natural gas which would have been demanded by pipelines as reserves to back up new production under "optimal" conditions for that period. These high and low "optimal" volumes were then compared to the actual new-reserve-to-new-production ratio for the same years. Taking the 5-year period as a whole, it was found that the total demand for reserves was 1.5 to 2.2 times higher than the actual reserves acquired under FPC price ceilings; therefore, *excess* demand for reserves was 50 percent to 120 percent of realized levels of commitments.

In an attempt to determine whether this reserve shortage was the result of field price regulation, we shall construct a model of supply and demand for new reserves, based upon market clearing conditions in the 1950's. These conditions will then be extrapolated into the 1960's in order to predict what supply and demand behavior would have been like during that decade under competitive conditions and whether FPC ceiling prices were too low to clear the market.[98] Then we shall proceed to determine who received gas and who suffered the shortage. It will be shown that, in fact, as suggested earlier the home consumer suffered the brunt of an FPC-created reserve shortage, while the unregulated industrial consumer received a disproportionate share of the gas that was available.[99]

A. A supply and demand analysis of the insufficiency of FPC ceiling prices

The proposed model of supply and demand in the field markets for natural gas in the 1960's tries to assess more accurately the extent to which field price regulation caused the gas shortage. The model tests the fairly plausible view that, without regulation, field prices for natural gas would have increased substantially, producing correlative increases in the supply of and decreases in the demand for natural gas reserves. These higher prices would have called forth enough new supply to fill at least part of what has been shown to be the excess demand for reserve inventories. And, by more carefully rationing the available supply, the higher prices would have eliminated whatever additional excess demand would have still remained.

The proposed model applies to gas which is supplied by pipeline to the East Coast and Midwest.[100] To test the model's accuracy, we first construct supply and demand schedules to characterize unregulated market behavior in the latter half of the 1950's and use these schedules to predict market-clearing prices in that period. This is done by fitting 1950's data to the proposed supply and demand relations to predict the amount of reserves added in year "t" in producing district "j" ($\triangle_{tj}R_{tj}$) and the average new contract price at the same time and place (P_{tj}). The values of $\triangle R_{tj}$ and P_{tj} that "clear" this supply-demand system for the 1950's describe with considerable accuracy both the actual prices at which natural gas was sold and the actual amount of new reserves added in the test areas during that period. The model is then applied to the 1960's by inserting 1961–68 data into the supply and demand equations and then solving the system for market-clearing values $\triangle R^*_{tj}$ and P^*_{tj}. The model's values for the 1960's are then compared to the actual reserves added and prices existing during that period. The comparison shows regulated prices to be less than P^*_{tj} and actual reserves supplied to be less than one-third of $\triangle R^*_{tj}$. Most of the difference can be attributed to the FPC's regulatory efforts.

1. The Supply Equations.—As previously indicated, the supply of natural gas is measured both by the volume of new reserves *and* by the level of production added from new contracts each year.[101] Looking first at the supply functions for new gas reserves, the volume of new reserves discovered and developed in any given year depends on geological and technical factors, as well as economic ones. Thus, the supply equations of the proposed model relate observable data to the supply of new reserves on the following assumptions.

First, the volume of gas added to known reserves in a district depends quite plainly on the extent of hydrocarbon deposits in that district; gas discovery, in other words, cannot occur where the deposits are not present. Because of the relative permanence of geological characteristics, the most concrete determinant of general hydrocarbon availability in a district is the long term pattern of reserve discoveries there. Thus, it may be said that the supply of new reserves in year "t" in district "j" ($\triangle R_{tj}$) is a function (f) of the geological characteristics of district "j" itself. This relationship can be expressed by the equation $\triangle R_{tj}=f(j)$.[102]

The second condition of new reserve supply is that inputs are required—principally drilling inputs—to bring unknown hydrocarbons to the point of being producible reserves. The only available data on such inputs are the number of gas development wells sunk in the 1950's and 1960's, by drilling district. To be sure, such data are not indicative of all necessary inputs, but the wells do reflect the amount of capital invested in a hydrocarbon field and do provide producers with additional knowledge of surrounding geological conditions. Thus, the supply of new reserves in year "t" in district "j" ($\triangle R_{tj}$) is also a function of the number of development wells sunk in the same time and place (W_{tj}). In sum, the equation $\triangle R_{tj}=f(j, W_{tj})$ can be taken to indicate, even if somewhat imperfectly, a number of important "engineering" factors in the supply of new reserves.

Third, the supply of newly discovered reserves also depends upon economic factors. This relationship can be most immediately seen as a condition of the number of development wells sunk in a drilling district. Thus, as prices for new gas reserves increase, it can be expected that more gas drilling will occur, and this additional drilling of regions likely to contain gas will increase the amount of new gas reserves discovered. If average new reserve contract prices in year "t" in district "j" (P_{tj}) are good surrogates for the prices forecast by the drilling companies before development begins, then the amount of actual drilling (W_{tj}) will be a function of these prices. In addition, as noted previously, gas reserves may be discovered incidentally in the search for oil.[103] Oil price increases are likely to produce more drilling in areas likely to contain hydrocarbon deposits, and such drilling may produce gas, as well as oil, finds. Therefore, the number of development wells sunk (W_{tj}) may be said to be also a function of the level of the crude oil price throughout the Southwest (op_t). Thus, the response of drilling activity, and indirectly of new reserve supply,[104] to economic factors can be expressed by the equation $W_{tj}=f(P_{tj}, op_t)$.

Finally, the analysis of drilling, as well as that of reserves, should recognize that geological factors, as represented by the long term pattern of drilling in a region, are important. Thus, the drilling equation we have developed thus far, $W_t=f(P_{tj}, op_t)$, should include the geological characteristic j as well.

In sum, the supply functions for new gas reserves in each drilling region "j" supplying the East Coast and Midwest markets in year "t" within the late 1950's can be taken to be:

$$\triangle R_{tj}=f(j,W_{jt}), \text{ where}$$
$$W_{tj}=f(P_{tj}, op_t, j).$$

Turning to the supply of new production, as opposed to new reserves, the proposed model is based on the assumption that the quantity of additional production from new contracts signed in year "t" for gas in district "j" (ΔQ_{tj}) depends upon three factors. First, the quantity of additional production obviously is a function of the volume of newly discovered reserves at the same time and place ($\triangle R_{tj}$). Second, production depends upon the cost of production itself. These costs may be roughly represented by the current rate of interest (i_t), since the interest rate may be assumed to be a measure of capital costs for drilling. As these costs increase, the production rate out of new reserves should decrease. Third, the quantity of additional production from new contracts signed each year is a function of short term consumer demand for immediate gas delivery. One of the factors influencing short term consumer demand can be represented by the all fuels retail price index (fp_t). This index will indicate not only whether the price of substitute fuels is rising, thereby making gas more desirable, but perhaps also whether personal consumption of fuel generally is on the rise, increasing the demand for gas as one among a number of alternative fuel sources. In short, additional gas production from new purchase contracts signed each year ($\triangle Q_{tj}$) is taken roughly to be a function of the availability of new reserves ($\triangle R_{tj}$), production costs (i_t), and consumer demand (fp_t), and can be represented by the equation $\triangle Q_{tj}=f(\triangle R_{tj}, i_t, fp_t)$.

2. The Demand Equation.—Demand or "willingness to pay" is represented by the prices bid by pipelines to purchase new gas reserves. These bids are determined primarily by pipeline costs and the pipelines' opportunities for resale. Thus, the proposed model is based on the assumption that average new contract prices for gas reserves of district "j" in year "t" (P_{tj}) depend upon pipeline costs and the demand for gas in final consumer markets.

The price a pipeline is willing to offer for newly discovered gas is in part a function of the pipeline's transport costs. These costs depend both upon the volume of new reserves discovered in a district and the distance between the field and the point of resale to retail distributors. As the volume of new reserve discoveries in a district ($\triangle R_{tj}$) increases, companies will be able to install larger scale gathering lines, thereby reducing unit transport costs. On the other hand, costs will rise as the number of miles between the field and the point of resale to retail distributors (M_j) increases.[105] Thus, the relation between field prices in district "j" in year "t" (P_{tj}) and pipeline transport costs can be expressed by the equation $P_{tj}=f(\Delta R_{tj}, M_j)$.

A more important determinant of the price pipelines will bid, however, is final consumer demand. As pointed out earlier,[106] the index of all fuel retail prices (fp_t) pro-

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vides a rough measure of such user demand for gas; the prices which pipelines are willing to pay for producer gas are likely to increase directly with increases in this index. On the other hand, user demand will be limited by the total size of the final user market, and measurement of demand can be made more accurate by considering the extent of this market. The size of the market can be initially estimated by the capital stock of all gas-burning furnaces in the country (K_t). Moreover, since there are limits to the level of resales by pipeline companies, the prices which these companies are willing to pay in in any year will depend on the sum total of *all* new reserves that year ($\Sigma_{\triangle}R_{tj}$). Thus, as the capital stock of gas burning furnaces (K_t) increases, so will the likely price bid by the pipelines; but as total new reserves offered in any year ($\Sigma_{\triangle}R_{tj}$) increases, the likely price bid will decrease. Therefore, the relation between average new contract prices (P_{tj}) and the demand and size of final markets can be expressed by the equation $P_{tj} = f(fp_t, \Sigma_{\triangle}R_{tj}, K_t)$.

In sum, putting together both the cost and user demand determinants of the prices pipelines are willing to pay, the proposed demand relation (for the same regions and time periods as for the supply functions) is: $P_{tj} = f(\triangle R_{tj}, M_j, fp_t, \Sigma_{\triangle}R_{tj}, K_t)$.

3. Application of the Model to the Field Market for Gas.—The four equations of the proposed model together make up an equilibrium system that describes well the actual prices and supplies of new reserves in the late 1950's. Data from the period 1955–60 were used to fit "least squares" equations[107] to the structural relations explained above for new reserves ($\triangle R_{tj}$), wells sunk (W_{tj}), new production ($\triangle Q_{tj}$), and average contract price (P_{tj}).[108] The closeness with which the fitted equations describe reality is indicated by the accuracy with which equilibrium in the four-equation system reproduced the actual volumes of new reserves supplied and prices paid during the period.[109] The difference between the "simulated" (four equation equilibrium) price and the actual annual average price in any given year was at most 1.6 cents per Mcf and the average difference over the entire 6-year period was only 0.7 cent per Mcf.[110] Similarly, while the volumes of actual new reserves exceeded simulated new reserves by approximately 3 trillion cubic feet in both 1955 and 1957, the average difference over the 6-year period was less than ½ trillion cubic feet (or less than 0.7 percent of total new additions to actual reserves).[111] The model thus suggests that markets "cleared"—or operated at equilibrium—in the 1950's before producer price regulation.[112]

In order to test whether the gas shortage in the following decade developed from price controls, the model was then applied to the 1960's. The four equations were used, along with 1961–68 figures for the "outside" or exogenous variables,[113] to find the values for $\triangle R^*_{tj}$, $\triangle Q^*_{tj}$, W^*_{tj}, and P^*_{tj} which "solve" the equations—*i.e.*, the values which "clear" the gas market as if there were no price ceilings. These "unregulated" values are compared with the actual values in Table I.

TABLE I.—PRICES AND PRODUCTION OF GAS FOR THE EAST COAST AND THE MIDWEST, 1961–68

Year	Average price (cents per thousand cubic feet)		New production (billion cubic feet)		New reserves (billion cubic feet)	
	Actual	Simulated	Actual	Simulated	Actual	Simulated
1961	17.7	20.0	292	817	5,567	12,480
1962	19.0	21.1	230	755	5,805	12,858
1963	16.5	22.4	447	688	4,884	13,077
1964	16.7	22.9	200	814	5,512	13,221
1965	17.4	24.1	348	750	6,015	13,621
1966	17.2	25.5	347	627	4,204	14,147
1967	17.4	26.7	575	520	3,693	15,026
1968	18.0	27.8	434	548	951	15,572
8 yrs.	17.5	23.8	2,873	5,519	36,631	110,002

The simulated or "unregulated" prices that would have cleared the reserve market were on the average 6 cents per Mcf higher than ceiling prices for the entire period, and more than 7 cents higher for the period following 1962, when the full effect of price ceilings seems to have taken hold in the test region. On the supply side, the higher prices—if they had been allowed—would have provided considerable incentive to add to the volume of new reserves. The level of simulated new reserves is more than three times the level of actual new reserves over both periods. Another indication of the impact of clearing prices on supply appears in the difference between actual and simulated new production. Actual new production is approximately one-half of simulated new production over the 8-year period. Given that higher unregulated prices would have brought forth a much higher level of new reserves, this higher level of simulated new production is not surprising. On the demand side, the higher simulated (market-clearing) price would have significantly reduced the amount of reserves sought. To be sure, the amounts which would actually have been demanded at various prices are not known, since only the new reserves both demanded *and* supplied are shown by the annual simulations. But that excess reserve demand would have been reduced is indicated by the fact that the total demand for new reserves proved to be elastic with respect to price.[114] Total new reserve demand was reduced by approximately 10 trillion cubic feet for each cent of price increase.[115]

As it was, a serious reserve shortage developed in the 1960's, which at that time revealed itself in the pipelines' reduction of their new-reserve-to-new-production ratio. This reduction in the security of service, shared by all those connected to interstate pipelines, was translated in the early 1970's into a more tangible actual production shortage; pipelines had to curtail deliveries in 1971 and 1972 because they could not take gas from their reserves fast enough to meet their contract commitments. This production shortage has been plainly visible. It followed directly from the earlier reserve shortage which in turn was a creature of FPC regulatory policy.

B. The impact of the shortage

At the same time that field price regulation has meant lower gas prices, it has also brought about a reserve—and now a production—shortage. Determining who has been helped and who has been hurt by this FPC regulatory policy is necessary in order to assess whether the lower prices were "worth" the shortage. Information is not yet available to allow a definitive finding on this issue. Nevertheless, there is enough evidence inferentially to support the view that the result of FPC policy in the 1960's was to deplete the gas reserves of interstate home consumers in favor of the demands of intrastate industrial customers to whom sales were unregulated.

First, the regulated pipelines—those selling interstate for resale to distributors for most home customers—did not obtain their proportionate share of new gas reserves in the late 1960's. In 1965 these lines possessed more than 70 percent of the nation's reserves. But between 1965 and 1971, the interstate pipelines obtained less than half the volume of the new reserves developed, and the overall percentage of reserves possessed by them fell to 67 percent.[116]

Second, as Table II shows, what variation there was in the division of total annual gas production between residential and industrial users indicates that over the course of the 1960's proportionately more went to industrial users. The percentage of gas sold by pipelines and distributors to residential users declined 1.6 percentage points between 1962 and 1968.[117] This decline was caused in large measure by a substantial increase in industrial sales by unregulated intrastate pipelines and by producers themselves. Between 1962 and 1968, total industrial consumption of natural gas increased 43.5 percent, while intrastate pipelines and distributors increased their industrial sales by almost 62 percent.[118] Moreover, of the increase in industrial consumption, more than half can be attributed to sales by intrastate pipelines and distributors, while less than 13 percent is accounted for by direct industrial sales of the interstate pipelines. The remaining 37 percent of the increase was the result of direct sales by the producers.

TABLE II.—NATURAL GAS SALES TO ULTIMATE USERS[1]

Class of service or seller	1962		1968		Percent increase
	Quantity (million Mcf)[2]	Percent of total	Quantity (million Mcf)[2]	Percent of total	
Sales by all pipelines and distributors:					
Residential and commercial	4,320	44.5	5,966	42.9	+38.2
Industrial and other	5,396	55.5	7,925	57.1	+46.9
Total	9,716	100.0	13,891	100.0	+43.0
Sales to industrial and other nonresidential consumers:					
Direct sales by interstate pipelines[3]	2,129	23.2	2,641	20.0	+24.0
Intrastate pipelines and distributors (estimate)[4]	3,267	35.5	5,284	40.0	+61.7
Producers[5]	3,809	41.3	5,284	40.0	+38.7
Total U.S. industrial consumption	9,205	100.0	13,209	100.0	+43.5

[1] Much of the data in the table is derived from American Gas Association, "Gas Facts 1971", at 82, 119 (1972).
[2] This figure was converted from million therms to million Mcf based on 1,031 Btu's per cubic foot of natural gas.
[3] See Federal Power Commission, "Statistics of Interstate Natural Gas Pipeline Companies 1962, at XXII (1963); Federal Power Commission, "Statistics of Interstate Natural Gas Pipeline Companies, 1968," at XV (1969).
[4] These figures are derived by subtracting "Direct sales by interstate pipelines" from the figures for "Industrial and other" sales by all pipelines and distributors.
[5] These figures are derived by subtracting "Direct sales by industrial and other" sales by all pipelines and distributors from the figures for "Total U.S. industrial consumption."

Third, that the reserve shortage hit most seriously the residential buyer supplied by a regulated pipeline becomes still more evident when certain particular gas regions are examined. The Permian Basin in West Texas, for example, accounted for about 2.5 percent of total U.S. gas reserves in the early 1960's. In the late 1960's, additional discoveries raised this figure to about 10.5 percent.[119] Six large interstate pipelines, two intrastate pipelines, and many direct industrial buyers bid for the new reserves.[120] From 1966 onwards, the intrastate lines and the direct industrial buyers obtained almost all of the uncommitted volumes available. In fact, interstate pipelines, which accounted for 80 percent of production from the new reserves in this area in 1966, accounted for only 9 percent in the first half of 1970.[121] The reason for the interstate pipelines' decline in reserve holdings is not difficult to find. Prices offered by intrastate buyers for the new gas in this area rose from 17 cents per Mcf in 1966 to 20.3 cents per Mcf in 1970, and toward the end of 1970, the intrastate pipelines bought more than 200 billion cubic feet of reserves at initial delivery prices of 26.5 cents per Mcf.[122] At the same time, prices paid by interstate pipelines could not exceed the regulatory ceiling and therefore remained between 16 and 17 cents per Mcf. The inescapable conclusion is that the interstate pipelines were simply outbid.

Footnotes at end of article.

In sum, as a result of regulation in the 1960's buyers for interstate consumption obtained fewer reserves than they wished. For the most part, those buyers were pipelines ultimately serving primarily residential consumers. The short reserve supplies were bid away from these buyers by intrastate gas users. This was a predictable result of FPC two-tier regulation of field gas markets in light of the Commission's jurisdictional limitations.

IV. THE COSTS OF REGULATION

Showing that ceiling prices created a substantial gas shortage and that this shortage was disproportionately borne by residential gas consumers is not enough by itself to condemn FPC regulatory policy. At the same time that FPC regulation of field markets created a shortage, it also reduced prices 6 cents per Mcf below what we have simulated market-clearing prices to be during the 1960's. To calculate the gains to consumers who actually received gas as a result of this regulatory policy, one might simply multiply average annual production of regulated gas from, say, 1962–68 (about 11 trillion cubic feet),[123] by 6 cents per Mcf and claim that regulation saved those consumers who received gas about $660 million annually. Of course, such a calculation contains heroic assumptions and oversimplifications. For one thing, it assumes that every cent of price reduction at the wellhead was passed through to ultimate consumers; in light of the fact that sales by retail distributors are intrastate and therefore subject only to state regulation, the assumption may not be valid.[124] For another thing, had producers received a higher price, at least some of their additional revenues would have been taxed away and, therefore, indirectly returned to consumers anyway. Nonetheless, even assuming that the entire 6 cents per Mcf was returned to consumers who actually received gas, we still doubt that this benefit outweighed the losses arising from regulation, even from the point of view of the consumer class itself.

In order to calculate the costs of wellhead price regulation to gas users, it must first be established that the behavior of pipelines in the field market is representative of consumers' interests. Table I [125] showed that the additional 6 cents per Mcf which pipelines would have paid for gas produced under unregulated conditions would have purchased a joint product: *both* additional production *and* additional reserves. These hypothesized purchases of additional supply by pipeline companies likely represent what the pipelines conceived to be final consumer demands for additional current deliveries and for additional insurance of future deliveries. Obviously, pipelines would not overstate demands for current production, since they clearly have no interest in purchasing gas which they cannot resell. Similarly, it is difficult to see why pipelines would deliberately overstate demand for reserves, given that the costs of dedicated reserves are not included in their rate base and demanding excessive reserves would increase contract prices and therefore ultimately reduce sales to consumers.[126]

If this assumption of the representative quality of the pipelines' field market demands is correct, then the cash returned to gas users by virtue of FPC regulation was probably less than the cash consumers were willing to give up for additional deliveries and reserve backing. First, the gains to those paying lower prices for gas they actually received must be offset by the losses to others who had to do without gas and find other sources of energy. Residential and commercial users unable to receive gas because distributors lacked supply—usually those consumers in new or growing population centers—were forced to use less desirable, or more expensive, fuels such as oil or electricity. The cost, in real terms, to these consumers of using such alternative energy sources can be roughly measured by the amount which they were willing to pay for additional gas. Therefore, the loss they suffered from regulation is the difference between what they *were willing to pay* for gas rather than go without it and *what they would have actually paid* under equilibrium conditions for the market-clearing level of gas deliveries. If this difference or "premium" which consumers suffering the shortage were willing to pay was on *average* 6 cents per Mcf, then the losses of those doing without gas were as great as the gains of others receiving gas at 6 cents per Mcf below market-clearing prices; this is so because the hypothesized *shortage* of new production (the difference between simulated and actual production out of new reserves in Table I) was approximately as large as *actual* new production.[127] In fact, it appears from the supply and demand model that consumers suffering that shortage would by 1967 or 1968 have been willing to pay an average premium of 6 cents per Mcf rather than do without gas entirely.[128] Therefore, the losses from the shortage (equal to what consumers in the aggregate were willing to pay to recover lost gas production) simply made too many consumers worse off to allow the conclusion to be drawn that reduction in prices was worth the shortage it created.[129]

Second, the argument that consumers who actually received gas obtained a 6 cents per Mcf saving as a result of FPC regulation is itself fallacious, because these consumers were, in fact, purchasing *less*—an inferior product—than they would have under unregulated conditions. As we have shown, the price which consumers pay for deliveries, when translated into the price pipelines pay for production at the wellhead, purchases not only current production, but also a reserve backing which provides a certain level of insurance of future deliveries. Since FPC price ceilings brought forth only a third of the new reserves which would have been developed under market-clearing conditions, those consumers who received gas at lower prices *gave up* a substantial amount of their guarantee of future service. To be sure, this loss was not observable by these consumers, since it took the form only of reduced backing for production which they were currently receiving. Nevertheless, it is likely that these reserves were worth a considerable amount to them. The man who makes a large investment in gas appliances, for example, obviously wants an assurance that he will not have to switch to oil or electricity for many years, if at all. Reserves promise him this and also provide him with security from possible temporary interruptions of service. On conservative assumptions, these buyers, as represented by the pipelines, wanted at least 14.5 years of reserve backup to provide them with a sufficient production guarantee.[130] Under unregulated conditions, this insurance would have been obtained by them; under FPC price ceilings, it was not.[131] The 6 additional cents per Mcf which consumers receiving gas would have had to pay in an unregulated market was, from the perspective of their interests, at least in part a premium for insurance which FPC price ceilings did not provide. For every 6 cents in cash which FPC regulation saved these consumers on actual deliveries, it took away reserves which they might well have desired at least as much as the money. In short, the extent to which FPC regulation actually helped even those receiving gas at lower prices is problematical; it simply gave them a short term windfall at the cost of long term insecurity.

These losses to both those who did not obtain gas and those who did, moreover, are not all the costs of the FPC's regulatory policy. For example, further costs probably resulted from the displacement of industry. Some industrial firms for whom energy costs were a large part of total costs moved to the producing states solely to obtain natural gas not available on the interstate market due to FPC price ceilings. Moreover, further distortion arose from competitors' paying different prices for their fuel sources, either because one had an intrastate gas supplier, or because of FPC policies for rationing the cheaper "old" gas. And the economic and administrative costs of litigation and delay from the price proceedings themselves have been substantial as well.[132]

Despite these strong indications of the failure of FPC regulation of field gas prices, some consumers' groups have argued that the Commission should deal with the problems that have arisen from its present regulatory efforts by introducing still more regulation. The Commission might, for example, seek to expand its jurisdiction over intrastate sales to end the "leakage of supply" to intrastate industrial users and then establish "end use" controls, specially allocating gas to particular individuals or classes of customers.[133] Such an approach, however, would not solve the problems raised here. Not only would it fail to reduce the aggregate shortage of gas, but it would require the Commission to determine on a larger scale than it now does which end uses of gas are "superior" and which "inferior." Such a task is difficult, to say the least, and there is little reason to believe that a Commission that was unable to set area prices in the field without creating massive shortages would find a "proper" solution to the still more complex problem of rationing on a grand scale. Once prices were abandoned as a measure of value, the number of claimants for special preferences, citing a variety of economic and social imperatives, would become large indeed. In all probability, the Commission would have to continue its past practices and simply arrange for a series of compromises among these various claimants. Such compromises would inevitably lead to continued excess demand for gas and to shortages in which, if the future resembles the past, those intended to benefit from gas regulation would still be injured.

Neither would it be completely satisfactory for the Commission to follow a partial policy of income redistribution by trying to squeeze rents only from old gas- and oil-well gas production while leaving new gas-well gas production unregulated.[134] To be sure, there would be little danger of shortage if the Commission set ceiling prices only on the production of gas *now* classified as "old," since there is *ex hypothesi* a fixed supply of these hydrocarbons. But such regulation would accomplish merely a temporary, minimal transfer of rents, because the supply of this "old" gas will run out in the next few years. In order to accomplish this temporary income transfer, the Commission would still have to solve the problems of determining the costs of producing old gas and of rationing the cheaper supplies. The administrative burden of solving these problems might not be worth the income redistribution which such a policy would bring about. On the other hand, if the Commission embarked upon a *permanent* policy of regulating "old" gas prices by continuously reclassifying further supplies as "old," it would not only have to develop a dynamic standard to separate "old" from "new" gas, but it would also be confronted with all the problems of the present regulatory system. Producers seeing that the prices of their new supplies would *eventually* be subject to ceilings would be likely to take these future price regulations into account. Therefore, while the prices of new reserves would not be directly regulated, further exploration and development would still be discouraged, and thus a shortage would still arise.

The alternative that we favor is eliminating field price regulation designed to trans-

Footnotes at end of article.

fer producer rents. If income is to be redistributed, rents can be transferred from producers to consumers without regulation. For example, tax policy can be used to accomplish the same objectives. Indeed, much of the alleged justification for the depletion allowance [135] in this area—the need to encourage exploration and development—would seemingly vanish if producer prices were set competitively. In contrast to the tax system, area price ceilings cannot help but be an indiscriminate method of income redistribution. While it takes *some* income from those producers realizing excess profits, its impact falls most heavily on those producers without excess profits—those right at the margin, perhaps forcing them out of the market entirely. In contrast, redistribution through taxation aims more directly at those producers with excessive incomes. While we are aware that redistribution through tax policy has many problems of its own, we doubt that they could be as serious as those that have accompanied the effort to control field prices. In short, it is difficult to see the virtue of a price control system, particularly when, as was proven during the 1960's, it is likely that those consumers the system is designed to benefit will not be benefited at all. With the example of producer price regulation in mind, one might well question the advisability of using microeconomic methods—such as regulation of the firm—solely to accomplish macroeconomic objectives—such as income redistribution.

To be sure, elimination of regulation intended to redistribute income would effectively mean deregulation of much of the field market for natural gas, since the market structure of most, if not all, producing regions is decentralized and competitive. Deregulation of this sort, however, would not deprive the Commission of all power over producer rates in those regions where producers do possess monopoly power. At the same time that the Commission would allow prices in competitive regions to approach market-clearing levels, it could selectively regulate prices in those few producer regions where market power turns out to be present by using the prices in the competitive areas as benchmarks.

Of course, one potential obstacle to this proposed regulatory policy is that a court might hold that for the Commission to allow market forces to determine producer prices would be inconsistent with the mandate of the Natural Gas Act to regulate "sale[s] in interstate commerce of natural gas. . . ." [136] To be sure, in the *CATCO* case,[137] the Court held that the Commission could not license a producer to sell gas without conditioning the license on the producer's promise to charge a reasonable price. But the Court's decision in that case was predicated on the inadequacy of the Commission's findings respecting the need to issue an unconditional license, and on the harms to consumers which would attend the inordinate delay before the Commission on its own could determine a just and reasonable rate. Certainly, the case cannot be taken as precedent for disturbing Commission judgment that market forces can ordinarily be relied upon to set just and reasonable rates and that any attempt to interfere with market forces to transfer rents would do the consumer more harm than good. A decision to "deregulate" producer prices as proposed would be a determination that selective rather than pervasive interference with field market transactions was the most appropriate way to regulate this portion of the natural gas industry. Such a determination would seemingly comply with the fundamental purposes of the Natural Gas Act, and, being based upon 15 years of experience with different methods of regulation, it would almost certainly be supported by substantial evidence.[138] Nothing in the *Phillips Petroleum* decision [139] *requires* the FPC to set prices; the decision simply gives the Commission jurisdiction to do so. As the U.S. Court of Appeals for the Fifth Circuit has recently stated: [140]

"[T]he decisions of the Supreme Court definitely indicate the Commission has a responsibility to take the steps necessary to assure that wellhead prices are in the public interest. The Commission does not have to employ the area rate method or for that matter regulate prices directly at all, but it has chosen to fulfill its duty in that manner here."

In sum, the arguments against the present system of gas field market regulation are compelling. Price control is not needed to check monopoly power, and efforts to control rents require impossible calculations of producer costs and lead to arbitrary allocation of cheap gas supplies. In practice, regulation has led to a virtually inevitable gas shortage. It has brought about a variety of economically wasteful results, and it has ended up by hurting those whom it was designed to benefit. Thus, less, not more, regulation is required.

FOOTNOTES

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[1] 347 U.S. 672 (1954).

[2] Prior to this decision, FPC regulation of the natural gas industry extended only to the regulation of prices for the transporting of gas across state lines for the purposes of resale.

[3] MacAvoy, *The Effectiveness of the Federal Power Commission*, I BELL J. OF ECON. & MANAGEMENT SCI. 271, 303 n. 22 (1970).

[4] *See* Table I, p. 975 *infra*.

[5] Although in debates over the wisdom of FPC regulatory policy the *Phillips* decision itself is often violently attacked, the Court's logic in that case was not wholly unreasonable, though neither was it totally satisfying. Whether the FPC should have jurisdiction over producer prices is not clear from the statutory language of the Natural Gas Act, 15 U.S.C. §§ 717–717w (1970). The Act states that [t]he provisions of this chapter shall apply to . . . the sale in interstate commerce of natural gas for resale . . . but shall not apply to . . . the production or gathering of natural gas.

15 U.S.C. § 717b (1970). To be sure, a field producer's sale to an interstate pipeline is "a sale in interstate commerce for resale." But whether the exemption for "production and gathering" applies to the physical production and gathering operations only *or* to those operations and also the *sale* of what what is gathered, is not clear.

While the legislative history of the Act has little to say about producer regulation, what is said seems to support the Court's decision. The House of Representatives Committee Report states that the words "production or gathering" are "not actually necessary, as the matters specified therein could not be said fairly to be covered by the language affirmatively stating the jurisdiction of the Commission. . . ." H.R. REP. No. 709, 75th Cong., 1st Sess. 3 (1937). *See generally* Note, *Legislative History of the Natural Gas Act*, 44 GEO. L.J. 695 (1956). This statement suggests that Congress did not mean to exempt from regulation sales by producers to pipelines, for such sales surely could be said "to be covered by the language affirmatively stating the jurisdiction of the Commission" over sales for resale in interstate commerce. Moreover, although the FPC consistently refused before 1954 to regulate producers, at their urging Congress passed a bill granting a clear producer exemption—a bill that President Truman vetoed. Thus the producers, the Congress, and the President arguably acted as if the producers might be regulated by existing law. For an excellent discussion of this point, and of producer price regulation generally, see Kitch, *Regulation in the Field Market for Natural Gas by the Federal Power Commission*, 11 J. LAW & ECON. 243, 254–55 (1968).

Despite this support for the Court's position, however, the *Phillips* decision can be criticized. The Court did not examine, more than superficially, the economic purposes that producer regulation might serve. Without such an examination, the Court could not tell what sense producer regulation made economically or whether it was consistent with a general regulatory policy which provides for the supervision of the prices of monopoly (or oligophy) gas transmission companies and of monopoly retail gas distributing companies. If producer regulation is not consistent with this general regulatory policy, then to assume a congressional intent to regulate producers in the face of ambiguous statutory language and a near-silent legislative history was not warranted, and produced bad law. To what extent the Court in 1954 could have been aware of the facts and arguments concerning the economic rationale for regulation, we leave to the reader to judge.

[6] N.Y. Times, April 19, 1973, at 1, col. 1; *see* note 134 *infra*.

[7] Southern Louisiana Area Rate Cases v. FPC, 428 F. 2d 407, 418 n. 10 (5th Cir.), *cert. denied*, 400 U.S. 950 (1970).

[8] Recent estimates place potential reserves in the U.S. at 1,227 trillion cubic feet in addition to the present proven reserve inventory of 275.1 trillion cubic feet. FEDERAL POWER COMMISSION, 1970 ANNUAL REPORT 52 (1971). Of course, much of the potential reserves exists in high-risk, high-cost areas. *Id.* at 52. But these figures for potential resources do not include the possibility of expansion by way of technological advances in obtaining gas from coal and in stimulating low-productivity gas reservoirs through the use of nuclear power. *Id.* at 53–54.

[9] *See* pp. 965–66.

[10] *See, e.g.*, Posner, *Taxation by Regulation*, 2 BELL J. OF ECON. & MANAGEMENT SCI. 22 (1971).

[11] For general background on the production of natural gas, see J. KORNFELD, NATURAL GAS ECONOMICS (1950); S. PIRSON, OIL RESERVOIR ENGINEERING (1959); L. UREN, PETROLEUM PRODUCTION ENGINEERING (1934).

[12] *See* Table II, p. 978 *infra*.

[13] *See* P. MACAVOY, PRICE FORMATION IN NATURAL GAS FIELDS chs. 5–7 (1962) [hereinafter cited as PRICE FORMATION].

[14] *See* pp. 954–57 *infra*.

[15] *See* C. HAWKINS, THE FIELD PRICE REGULATION OF NATURAL GAS 221 (1969) [hereinafter cited as HAWKINS].

[16] *See, e.g.*, Douglas, *The Case for the Consumer of Natural Gas*, 44 GEO. L.J. 566, 589 (1955) ("Competition is limited by the domination of supply and reserves by a very few major companies . . . .").

[17] Phillips Petroleum Co. v. Wisconsin, 347 U.S. 672, 685 (1954).

[18] Southern Lousiaina Area Rate Cases, 428 F.2d 407, 416, n.10 (5th Cir.), *cert. denied*, 400 U.S. 950 (1970).

[19] HAWKINS, 248.

[20] Permian Basin Area Rate Proceeding, 34 P.P.C. 159, 182 n.17 (1956), *aff'd in part and rev'd in part sub nom.* Skelly Oil Co. v. FPC, 375 F.2d (10th Cir. 1967), *aff'd in part and rev'd in part sub nom.* Permian Basin Area Rate Cases, 390 U.S. 747 (1968) (approving FPC decision in its entirety).

[21] P. MACAVOY, THE CRISIS OF THE REGULATORY COMMISSIONS 156 (1970), quoting Champlin Oil & Refining Co., Docket No. G–9277, at 458 (FPC 1969) (testimony of Professor M.A. Adelman).

[22] *See* McKie, *Market Structure and Uncertainty in Oil and Gas Exploration*, 74 QUARTERLY J. OF ECON. 453 (1960).

[23] *See* HAWKINS 227; pp. 966–67 *infra*.

[24] *See* PRICE FORMATION 29–31.

[25] *Cf.* Champlin Oil & Refining Co., Docket No. G–9277, at 489 (FPC 1969) (testimony of Professor A. E. Kahn).

[26] *See* PRICE FORMATION 93–242.

[27] *See, e.g.*, Dirlam, *Natural Gas: Cost, Conservation, and Pricing*, 48 AMERICAN ECON. REV. 491 (No. 2, 1958); Douglas, *supra* note 16; Kahn, *Economic Issues in Regulating the Field Price of Natural Gas*, 50 AMERICAN ECON. REV. 506 (No. 2, 1960).

[28] HAWKINS 223 (prices at the wellhead increased 83% during this period).

[29] *See* PRICE FORMATION 243–73.

[30] *See, e.g.*, Douglas, *supra* note 16; Spritzer, *Changing Elements in the Natural Gas Picture: Implications for the Regulatory Scheme*, in REGULATION OF THE NATURAL GAS PRODUCING INDUSTRY 118 (K. Brown ed. 1972).

[31] On this point, most of the economic theories of the regulated firm agree. *See, e.g.*, Averch & Johnson, *Behavior of the Firm Under Regulatory Constraint*, 52 AMERICAN ECON. REV. 1052 (No. I, 1962). *See also* Baumol & Klevorick, *Input Choices and Rate-of-Return Regulation: An Overview of the Discussion*, I BELL J. OF ECON. MANAGEMENT SCI. 162 (1970).

[32] *See* PRICE FORMATION 93–145.

[33] Those favoring regulation have also pointed to producer profits as evidence of market power. To be sure, profits would appear to have been higher here than in some industries. Economic experts appearing for the distributing companies in the Permian Basin Area proceedings reported average returns on capital between 12 and 18% for oil and gas companies at a time when the average return in manufacturing was less than 8%. But such comparisons are not enough to suggest the presence of monopoly pricing, due to three special features of returns in the gas producing industry. First, without regulation, marginal producers must earn a return on their capital at least equal to what they could earn by investing elsewhere. But lower costs on more fortunate discoveries in a world of uncertainty might earn much more, and this "rent" earned by unusually efficient or fortunate producers would create an upward bias in industry average profit rates. Such "rent" is more likely to be prevalent in natural gas production than in most other industries because of the characteristics of discovery of an uncertain resource. *See* p. 950 *infra*. Second, the Permian Basin figures reflect profits only of firms still in business, not of those that have failed. The uncertainty in exploring and developing gas suggests that risks of failure have been unusually high. *See* HAWKINS 222 (showing high percentage of exploratory wells which have been dry). Thus, measuring industry returns on the basis of those that are able to remain in it results in an upward bias. Third, profit figures in the Permian Basin proceedings overstated the true return to capital because of the accounting procedures used. The rate of return estimates were calculated simply by dividing total profits that producers reported they had received by the total capital that they reported they had invested. However, this method does not account for the extensive time lag in the industry before an investment begins to earn a return. The accounting return on a dollar invested must be far lower in real terms here than elsewhere simply because payment begins 5 years rather than 1 year, after the investment is made; the simple accounting profit rate must be adjusted to take the long lag between exploration and production into account. Producer witnesses in the Permian Basin case estimated that an "apparent yield" of 16 to 18% was due to the lag in production, equivalent to a "true yield" of about 10% Thus, not much can be concluded about market power from the profit figures alone.

[34] Of course, regulation designed to allocate resources efficiently and regulation directed at income redistribution are necessarily mutually exclusive policies. *See* p. 943 *supra*.

[35] *See, e.g.*, Kahn, *supra* note 27.

[36] *See* Tables I and II, pp. 975, 978 *infra*. *See also* HAWKINS 220.

[37] Rising trends in costs of inputs and falling trends in productivity per unit of drilling are reported in NATIONAL PETROLEUM COUNCIL, U.S. ENERGY OUTLOOK ch. 6 (2d Interim Report 1971).

[38] *See* p. 944 *supra*.

[39] *See* Southern Louisiana Area Rate Proceeding, 46 F.P.C. 86, 110–11 (1971).

[40] *See* Southern Louisiana Area Rate Cases v. FPC, 428 F.2d 407, 426 (5th Cir.), *cert. denied*, 400 U.S. 950 (1970).

[41] *See* pp. 958–59 *infra*.

[42] This pattern appeared in the first complete area rate decision. Permian Basin Area Rate Proceeding, 34 F.P.C. 159 (1956), *aff'd in part and rev'd in part sub nom.* Skelly Oil Co. v. FPC, 375 F.2d 6 (roth Cir. 1967), *affd in part and rev'd in part sub. nom.* Permian Basin Area Rate Cases, 390 U.S. 747 (1968) (approving FPC decision in its entirety).

[43] *See* 34 F.P.C. at 188.

[44] Additionally, economists favoring regulation upon whom the Commission has closely relied have often rested their case upon a belief that the supply of gas is inelastic—that price has little effect on outputs. *See, e.g.*, Kahn, *supra* note 27, at 508–09. If regulation-induced price changes would not affect output, then the only reason to set price ceilings would be to transfer rents.

[45] 347 U.S. 672 (1954).

[46] Soon after the *Phillips* decision, Congress passed a bill exempting field sales of natural gas from regulation. The bill was vetoed, however, by President Eisenhower, not because he favored regulation, but because he disapproved of certain producer lobbying tactics. *See* Kitch, *supra* note 5, at 256.

[47] HAWKINS 37.

[48] *Id.*

[49] *Id.* at 26.

[50] *Id.* at 78.

[51] SUBCOMMITTEE ON ADMINISTRATIVE PRACTICE AND PROCEDURE OF THE SENATE COMM. ON THE JUDICIARY, 86TH CONG., 2D SESS., REPORT ON THE REGULATORY AGENCIES TO THE PRESIDENT-ELECT 54 (Comm. Print 1960) (Landis report).

[52] Assume that to find and to produce a certain volume of gas and oil from a marginal well costs a certain producer $100,000. Assume further that of this cost, $70,000 is joint, $20,000 represents the ascertainable separate cost of extracting oil, and $10,000 the separate cost of extracting gas. The producer will develop this well and sell both gas and oil provided he can sell the oil for at least $20,000, the gas for at least $10,000, and the two together for at least $100,000. But he will not care whether the extra $70,000 comes entirely from gas sales, entirely from oil sales, or from some combination of the two. The source of the $70,000 will depend upon the relative strength of the demands of gas buyers and oil buyers for the producer's supplies—a factor which will depend upon supply and demand in each industry. *See, e.g.*, I. A. KAHN, THE ECONOMICS OF REGULATION 79–83 (1970).

[53] Thus, the agency regulating the producer described in note 52, *supra*, would permit the well owner to recover $100,000, allowing him to set whatever combination of gas and oil prices would be necessary to obtain the revenue. Similarly, the regulator would allow the owner of an intermarginal well with, say, joint costs of $40,000, separate gas costs of $5,000, and separate oil costs of $10,000 to set whatever prices would obtain a total of $55,000. Since in the latter case total production could be sold for $100,000 in an unregulated market, the producer would lose $45,000 in rent, and gas and oil consumers *together* would pay $45,000 less than the free market price.

[54] The problem of trying to regulate one industry without regulating the other becomes clear if one considers the following procedure. Suppose the Commission were to require producers to submit prices that covered the costs of producing gas only, but which included (1) the ascertainable separate costs of gas extraction, plus (2) joint costs only insofar as they would not be covered by revenues received from the sale of petroleum. Thus, for example, a firm with joint costs of $70,000, separate oil costs of $20,000, and separate gas costs of $10,000, would be allowed to earn up to $80,000 from gas sales which would be calculated as the sum of $10,000 plus the difference between oil revenues (less $20,000 for covering *separate* oil costs) and $70,000. For every dollar less that it earned from oil sales, the company would be allowed to earn a dollar more from gas sales.

Considering the Commission's inability to regulate liquid sales, such a system for regulating gas production prices would have obvious drawbacks. First, it would require information on petroleum sales of the sort that is required of regulated sales. To ask the company to provide estimates of future oil prices would be to ask for exceptionally costly and uncertain information. Second, the Commission would have to regulate the price of oil eventually if it were to squeeze rents out of gas production. Under such a system, the producer would be indifferent as to whether he earned a dollar of rent from an oil or a gas sale. It is possible that he would try to cover as many of the well's costs as possible from gas sales, for if the Commission forced him to charge a lower gas price, he would not know whether he could cover a well's remaining joint costs from oil sales until the oil was sold, perhaps sometime in the future. He must therefore decide to maintain gas prices that included rents and reduce his oil prices, as a strategy to increase total sales or, perhaps, in order to allocate his low-priced oil arbitrarily on the basis of personal favors or otherwise.

[55] *See generally* HAWKINS 44–74.

[56] If, for example, it costs $1.50 to produce a barrel of oil and $0.15 to produce an Mcf of gas, joint costs would be allocated according to the ratio: 10 × the number of barrels of oil/number of Mcf's of gas.

[57] Under this method, if a barrel of oil yielded one million BTU's and an Mcf of gas yielded ½ million, then a company's joint costs would be allocated according to the ratio: 2 × number of barrels of oil/ number of Mcf's of gas.

[58] Thus, if an oil BTU was worth four times a gas BTU, the ratio for allocating joint costs would be: 4 × number of barrels of oil/number of Mcf's of gas.

Note that this is a potentially circular method since "costs" are partly tied to existing prices. *See* HAWKINS: 46–47.

[59] *See* HAWKINS 78.

[60] FPC v. Hope Natural Gas C., 320 U.S. 591, 645 (1944).

[61] Since the number of joint wells has diminished to the point where gas output from them accounts for only about 25% of total gas production, *see* p. 944 *supra*, the problem of allocating joint costs became somewhat less important in the 1960's than it was in the 1950's. Nonetheless, joint expenditures were and are still sufficiently important to make a pricing system that allocates them via these accounting methods an exercise in the arbitrary.

[62] *See generally* W. SHARPE, PORTFOLIO AND CAPITAL MARKETS (1970).

[63] Because of special tax incentives, much new investment by gas production companies is financed out of internally generated funds.

See, e.g., INT. REV. CODE of 1954, §§ 611–13 (depletion allowance).

[64] *See* NATIONAL PETROLEUM COUNCIL, U.S. ENERGY OUTLOOK 115 (1972) (showing exploration, development, and overhead costs to be $6.4 billion of $8.9 billion total outlay).

[65] The five areas were (1) The Permian Basin (Texas and part of New Mexico); (2) Southern Louisiana (including the offshore area in the Gulf of Mexico); (3) Hugoton-Anadarko (part of Oklahoma and Kansas); (4) Texas Gulf Coast; and (5) Other Southwest (Mississippi, Arkansas, and parts of Alabama, Texas, and Oklahoma).

[66] 15 U.S.C. § 717d (1970).

[67] With regard to increases in existing contracts, proposed price increases would take effect subject to an obligation of the producer to refund any excess above the "reasonable rate" which the area rate proceeding was eventually to find. Thus, producers tended not to ask for increases above the interim ceiling rate. With regard to new supply contracts, the Commission used its licensing power over producer entry, 15 U.S.C. § 717 (1970), to withhold certificates allowing production to begin unless the producer agreed to sell the gas at the interim ceilings proposed by the Commission as (provisionally) reasonable. While the Commission did not rigidly adhere to these interim guidelines, its object was to hold new gas prices "in line" with those charged in the late 1950's and in 1960. *See generally* FPC, Statement of General Policy, No. 61–1, 24, F.P.C. 818 (1960).

[68] Permian Basin Area Rate Proceeding, 34 F.P.C. 159 (1965), *aff'd in part and rev'd in part sub nom*, Skelly Oil Co. 1. FPC, 375 F.2d 6 (10th Cir. 1967), *aff'd in part and rev'd in part sub nom*. Permian Basin Area Rate Cases, 390 U.S. 747 (1968) (approving FPC decision in its entirety); Southern Louisiana Area Rate Proceeding, 40 F.P.C. 530 (1968), *aff'd*, Southern Louisiana Area Rate Case, 428 F.2d 407 (5th Cir.), *cert. denied*, 400 U.S. 950 (1970). The latter case was reopened to raise the ceiling by 25%. Southern Louisiana Area Rate Proceeding, 46 F.P.C. 86 (1971); *see* p. 964 *infra*.

[69] See p. 951 *supra*.

[70] The English have solved this problem by making the gas distributor a single nationalized company, with both monopoly and monopsony power. It can thus offer differential prices to producers based upon their production costs, including prices equal to marginal costs for producers at the margin. It can then ration the cheaper gas by selling to those consumers who bid the most. To be sure, the nationalized distribution company earns large rents, but these rents are simply transferred over to the treasury. *See generally* Dam, *The Pricing of North Sea Gas in Britain*, 13 J. LAW & ECON. 11 (1970). Of course, allowing private pipeline or distributing companies in the United States to ration the cheaper "old" gas on the basis of consumers' willingness to pay would be undesirable, since producer rents would then be transferred to these private companies, rather than to consumers.

[71] The FPC has generally chosen to increase the reserve backing of existing pipeline customers when given the choice of certifying new pipeline construction with only marginal backing.

[72] *See, e.g.*, FPC v. Transcontinental Gas Pipe Line Corp., 365 U.S. 1 (1961) (upholding FPC decision to deny delivery of gas to utility company for use under boilers in place of coal, partially on ground that this was an "inferior" use); p. 984 *infra*.

[73] *See* pp. 948–49 *supra*.

[74] A deficiency in the supply of the new gas might still occur even if the Commission regulated the old gas only, so long as producers suspected that there would be *future* designations as "old" gas now "new." *See* pp. 984–85 *infra*.

[75] 15 U.S.C. § 717b (1970).

[76] *See* p. 997 & note 118 *infra*.

[77] Note that the discussion here is limited to the Commission's determination of prices for new *gas-well* gas, and that since no joint cost problem would be involved, it was unlikely the Commission would find the market price too low, as was the case in the former individual producer proceedings. *See* p. 957 *supra*.

[78] Thus in the Permian Basin Area Rate Proceeding, 34 F.P.C. 159 (1965), *aff'd in part and rev'd in part sub nom*. Skelly Oil Co. v. FPC, 375 F.2d 6 (10th Cir. 1967), *aff'd in part and rev'd in part sub nom*. Permian Basin Area Rate Cases, 390 U.S. 747 (1968) (approving FPC decision in its entirety), the Commission staff surveyed both major and minor producers to discover their annual total costs for producing new gas for the base year of 1960. Experts employed by the producers, and some employed by retail distributors, made similar surveys. Together they produced a range of estimates of exploration and development costs for each of several different years. See HAWKINS 91–107. Similarly, in the Southern Louisiana Area Rate Proceedings, 40 F.P.C. 530 (1968), *aff'd*, Southern Louisiana Area Rate Cases v. FPC, 428 F.2d 407 (5th Cir.), *cert denied*, 400 U.S. 950 (1970), such analyses were undertaken for the base year 1963.

[79] In Permian Basin Area Rate Proceeding, 34 F.P.C. 159 (1965), the Commission set a new gas ceiling price of approximately 16.5¢ per Mcf. In Southern Louisiana Area Rate proceeding, 40 F.P.C. 530 (1968), it set a new gas ceiling price of 20.0¢ per Mcf. The interim ceilings had been 16.0¢ and 21.0¢ respectively.

[80] *See generally* P. BRADLEY, THE COSTS OF PETROLEUM (1968).

[81] Permian Basin Area Rate Proceeding, 34 F.P.C. 159, 194 (1965).

[82] *See* HAWKINS 106–07.

[83] *Cf.* p. 948 *supra*.

[84] Southern Louisiana Area Rate Proceeding, 40 F.P.C. 530, 543 (1968).

[85] Southern Louisiana Area Rate Cases v. FPC, 428 F.2d 407, 419 (5th Cir.), *cert. denied*, 400 U.S. 950 (1970).

[86] Southern Louisiana Area Rate Proceeding, 46 F.P.C. 86, 110 (1971); *see* Hugoton-Anadarko Area Rate Proceeding, 44 F.P.C. 761, 769–72 (1970) (ceiling price based on settlement). *But see* Texas Gulf Coast Area Rate Proceedings, 45 F.P.C. 674 (1971) (ceiling price based on independent FPC determination).

[87] Thus, for example, in the first *Southern Louisiana* case, the industry probably surmised that the Commission was unlikely to approve any price out of line with past prices or that departed too radically from average historical new gas production costs. It is therefore not surprising that the settlement offered in that case came very close to the "interim" ceiling price. *See* Southern Louisiana Rrea Rate Proceeding, 40 F.P.C. 530, 630 (1968). Once the Commission reopened the proceeding, however, and thereby indicated its willingness to raise the ceiling price to alleviate the gas shortage, the settlement offer produced a price 20–25% higher than the price previously allowed. Southern Louisiana Area Rate Proceeding, 46 F.P.C. 86, 110 (1971).

[88] *See* p. 950 *supra*.

[89] *See Proceedings on Curtailment of Gas Deliveries of Interstate Pipelines Before the Federal Power Commission* (1972).

[90] FEDERAL POWER COMMISSION, BUREAU OF NATURAL GAS, NATIONAL GAS SUPPLY AND DEMAND 1971–1990, at 123 (1972).

[91] *See* MacAvoy, *The Regulation-Induced Shortage of Natural Gas*, 14 J. LAW & ECON. 167, 169–70 (1971) [hereinafter cited as *Regulation-Induced Shortage*].

[92] *See* NATURAL GAS SUPPLY AND DEMAND, *supra* note 90, at xi; FEDERAL POWER COMMISSION, BUREAU OF NATURAL GAS, THE GAS SUPPLIES OF INTERSTATE NATURAL GAS PIPELINE COMPANIES 1968, at 34–39 (1970).

[93] *See* Southern Louisiana Area Rate Proceeding, 46 F.P.C. 86, 110–11 (1971).

[94] In theory at least, this demand for reserves should be reflected in higher contract prices to the pipelines, because a longer waiting period for production imposes higher costs on the supplier. This cost increase was not reflected in significantly higher prices on longer term contracts, however, during the period just before area rate regulation. *See* PRICE FORMATION 262–65.

[95] *Regulation-Induced Shortage* 171–75.

[96] FEDERAL POWER COMMISSION, A STAFF REPORT ON NATIONAL GAS SUPPLY AND DEMAND 18 (1969). Note that 20 years of reserve backing will support only 12 years of delivery at the full initial production rate, because the rate of delivery out of a reserve must fall as gas pressure falls. *See* HAWKINS 42.

[97] *Regulation-Induced Shortage* 172.

[98] Obviously, the proposed model is fallible due to the many problems involved in acquiring data—problems that the Commission itself faced in trying to set prices. Yet we believe that such models should be used by policymakers as evidence that is probative, though not conclusive, of which policies ought to be followed.

[99] Ed.—Professor MacAvoy has previously published a supply and demand model intended to measure the extent to which field price regulation has caused the natural gas shortage. MacAvoy, *The Regulation-Induced Shortage of Natural Gas*, 14 J. LAW & ECON. 167 (1971). Since that time, his thoughts on the subject have somewhat modified, and the model presented herein is a considerably revised and updated version of that previously published and yields different results.

For those familiar with Professor MacAvoy's earlier model, the revised version presented here specifically differs in the following respects. First, the long term pattern of reserve discoveries and wells sunk in a drilling region is taken to be a better indicator of the geological conditions of that region than is the pattern of discoveries and drilling the year before the test year. Second, the level of the crude oil price index replaces that of the all fuels price retail price index as a condition of drilling activity. Third, the capital stock of gas burning furnaces is taken to be a closer measurement of the size of the final market for natural gas than changes in per capita income and population.

In addition, the data used to examine the relative effects of the gas shortage on industrial and residential users has been developed more fully and separates intrastate from interstate production insofar as it is possible to do so.

[100] The test field market is delimited by the pipelines taking gas for resale along the East Coast and in the Middle Atlantic states. The area roughly comprises Texas Railroad Commission Districts 1–7 and 10, Louisiana, Kansas, and Oklahoma.

[101] *See* p. 966 *supra*.

[102] The actual values of "j" are determined for purposes of the supply and demand equations by treating it as a "dummy" variable. *See* note 109 *infra*.

[103] *See* p. 944 *supra*.

[104] The effect of these economic factors on new reserve supply arises, of course, because $\triangle R_{tj}$ is partly a function of W_{tj}.

[105] A diagrammatic exposition of this argument is presented in PRICE FORMATION 37–41.

[106] P. 971 *supra*.

[107] A "least squares" equation is a common statistical method which minimizes the sum of the squared differences between the actual observations and the estimates provided by the fitted equation.

[108] The market-clearing solutions for the endogenous variables $\triangle R_{tj}$, $\triangle Q_{tj}$, W_{tj}, and P_{tj} depend on the outside or "exogenous" variables j, op_t $\triangle \Sigma R_{tj}$, K_t, fp_t, M_j, and i_t. Data series for each of these variables were constructed for the preregulatory period in

the eleven drilling regions that provided gas on contracts to pipelines serving the East Coast and Midwest. The data used in the calculations were all obtained from publicly available sources. For the variables $\triangle R_{tj}$, $\triangle Q_{tj}$, W_{tj}, P_{tj}, fp_t, M_j, and i_t, the sources used are summarized in *Regulation Induced Shortage* 197–99. Data for the variables K_t and op_t were obtained from U.S. DEP'T OF COMMERCE, CURRENT BUSINESS STATISTICS, as accumulated over the period 1954–68. For the method of estimating the value of the "dummy" variable j, see note 109 *infra*.

These data were used to fit the supply and demand relations by first stage least squares equations for each of the endogenous variables separately given the exogenous variables, and then the fitted values $\triangle \hat{R}_{tj}$, $\triangle \hat{Q}_{tj}$, $\hat{W}_{tj}$, and $\hat{P}_{tj}$ from the first stage were used to find the second stage least squares supply and demand equations. The fitted supply and demand equations were therefore four least squares regressions, one for the supply of new reserves, the second for the supply of wells, the third for new production, and the last for the demand for new reserves.

[109] The equations for the number of wells sunk and for the supply of new reserves for the 1955–60 period were as follows:

$$W_{tj} = \underset{(1.73)}{-648.60} + \underset{(1.75)}{11.46}\,\hat{P}_{tj} + \underset{(1.75)}{175.52}\,op_t + \sum_{1}^{10} a_i J_i; \qquad R^2 = 0.734$$

$$\Delta R_{tj} = \underset{(0.98)}{-5.41} + \underset{(0.98)}{2.45}\,\hat{W}_{tj} + \sum_{1}^{10} b_i J_i; \qquad R^2 = 0.831$$

The sets of variables $\Sigma a_i j_i$ and $\sum b_i j_i$ are district dummy variables taking the value "one" for observations from district j and "zero" otherwise. This method of treatment of the geological differences between districts follows from F. FISHER, SUPPLY COSTS IN THE U.S. PETROLEUM INDUSTRY (1964).

As these equations show, there were positive cumulative effects from well drilling, new gas contract prices, and the crude oil retail price index. The elasticity of reserve supply with respect to new contract gas prices was estimated to be equal to 0.51 at the average 1956 price and level of new reserves, so that a 10% price increase would lead to a general 5.1% increase in discovery of new reserves.

The equation for additional production was as follows:

$$\Delta Q_{tj} = \underset{(2.89)}{-34.33} + \underset{(2.89)}{0.015}\,\Delta\hat{R}_{tj} \underset{(-2.27)}{-27.49} i_t + \underset{(2.75)}{11.37} fp_t;$$

$$R^2 = 0.693$$

This shows a positive production-reserve relation, a negative production-interest relation, and a positive production-fuel price relation. The elasticity of production with respect to reserves was approximately 0.40, and was quasi-statistically significant. The elasticity with respect to interest rates was negative, and with respect to the fuel price index was positive. Both coefficients were quasi-significant and had the expected effect on production: the higher the capital (i_t), the lower the production rate; and the higher the price of alternative fuels (fp_t), the higher the gas production rate.

The demand equation was also estimated in the second stage of two stage least squares as follows:

$$P_{tj} = \underset{(8.43)}{12.22} + \underset{(-1.12)}{0.0012}\,\Delta R_{tj} \underset{(-1.95)}{-0.00094}\,\Sigma\Delta R_{tj} - 0.0013\,M_j + \underset{(0.99)}{0.088}\,fp_t + \underset{(5.02)}{0.00083}\,K_t; \qquad R^2 = 0.616$$

As the equation shows, there were positive coefficients for three variables and negative coefficients for two variables. The elasticity of gas prices with respect to the fuels price index was +0.02, and with respect to the "size" of the resale market (K_t) was +0.05. These values are low, indicating small responsiveness of bid prices to change in the values of these variables. However, the elasticity of demand was substantial; a small change in prices P_{tj} brought forth large changes in total new reserves demanded ($\Sigma\triangle R_{tj}$) so that this elasticity equalled at least —1.6. The other elasticities—for variables $\triangle R_{tj}$ and M_j differentiating the drilling regions—were as expected from the economics of pipeline costs and demand.

[110] The results for each of the test years in the late 1950's are as follows:

Average Price (cents per Mcf)

	Actual	Simulated
1955	15.5	16.6
1956	17.0	17.9
1957	18.1	18.4
1958	19.3	18.8
1959	19.1	19.7
1960	18.4	20.0
6-year	17.9	18.6

[111] The actual additions to reserves, and the simulated "unregulated" additions in the 1955–60 period, are as follows:

Reserves (billions cu. ft.)

	Actual	Simulated
1955	7,354	10,678
1956	14,439	10,935
1957	15,236	12,361
1958	13,604	12,578
1959	11,239	12,381
1960	10,036	12,481
6-year	71,908	71,414

The tendency seems to have been for more new reserves to have actually been provided in the earlier years than simulated by the model. This tendency was reversed in the later years. Anticipation of the approaching price controls—with consequent reductions in supply—could have had much to do with this trend.

[112] Three other equation sets were fitted to the data as well. One set used the pattern of reserve discoveries and drilling the year before the test year as an indictator of geological conditions; thus, lagged values of the dependent variables, *i.e.*, $R_{t-1,\,j}$ and $W_{t-1,\,j}$, were used in place of the district "dummy" variable "j." *See* note 109 *supra*. A second set was fitted in the logarithms of all variables, and the third was fitted in the logarithms of the demand variables only. Of the four systems, the one reported in the text and the previous footnotes simulates best the 1955–60 experience in reserves, production, and prices.

[113] *See* note 108 *supra*.

[114] *See* note 109 *supra*.

[115] It is interesting to use the data in Table I to try to compare roughly the extent of reserve backing for actual and simulated new production in the test region. Taking the 8-year period as a whole, simulated additional production is 5% of simulated new reserves, and during the period 1963–68, it is 5.2% of new reserves. This would seem to indicate approximately between 19 and 20 years reserve backing for new production under "unregulated" conditions. See pp. 996–67 *supra*.

However, this calculation really overstates the extent of reserve backing supplied to guarantee new production, because the production figures provided by the model are for *additional* production only—*i.e.*, the quantity of production in excess of production the previous year. The figures do not include the extent of new production in the test years which would have been supplied under "unregulated" conditions to *replace* production contracts expiring in those years. It has been previously estimated that such replacement demands equal 1/14 of *total* production in any one year, based upon the depletion rate of new reserves in 1947. *See Regulation-Induced Shortage* 173–74 & n. 15. Figures for the total production in the test region under "unregulated" conditions are not provided by the model, and therefore replacement production cannot be calculated from the data in Table I. To be sure, inclusion of replacement production would reduce the reserve-to-production ratio below the level of 20 years reserve backing for new production. But, since the model predicts conditions which would "clear" the "unregulated" market, the higher simulated prices would have reduced demand for new reserve backing down to the level of that supplied. And, given higher prices, replacement production is unlikely to be so high as to take reserve backing under "unregulated" conditions outside the range of 14.5 to 20 years considered "optimal" to guarantee future service. *See* pp. 966–67 *supra*.

The *actual* reserve backup provided for new production in the test years was far lower. For the 8-year period as a whole, actual *additional* productions was backed up by 12.8 years of reserves, and during the period 1963–68, reserve backup was only 10.7 years. Because of the necessity eventually to reduce the rate of production out of a reserve as a result of falling pressures, *see* note 96 *supra*, this means that reserves supplied during the latter period would support only about 6.4 years of production at the initial rate. And, of course, if the new-reserve-to-new-production ratio were decreased to reflect new *replacement* production, this figure would be even lower.

[116] *Hearings on Natural Gas Policy Issues Before the Senate Comm. on Interior & Insular Affairs*, 92d Cong., Sess., pt. I, at 192, 268, 270 (1972) Statement of FPC Chairman Nassikas).

[117] *See* P. BALESTRA, THE DEMAND FOR NATURAL GAS IN THE UNITED STATES: A DYNAMIC APPROACH FOR THE PRESIDENTIAL AND COMMERCIAL MARKET (1967). Balestra describes the period referred to in text as that in which gas sales were "reallocated" between classes of customers. He describes 1950–57 as an "innovating" period in which pipelines were built and service begun and 1957–62 as a "maturing" period in which more gas was sold to the same customers.

[118] The substantial increase in the category "Distributors and Intrastate Pipelines" came primarily from sales by unregulated transmission companies. This is demonstrated by data gathered by the authors which show that sales by regulated pipelines to distributors for resale to industry increased at a rate only slightly greater than the rate of increase for "Total U.S. Industrial Consumption." By compiling the interstate pipelines' Form 2 Reports to the FPC, state totals for all pipeline sales were obtained. The percentage of sales to industry in each state was obtained from BUREAU OF MINES, ANNUAL REPORTS ON GAS CONSUMPTION and applied to those state totals to produce the figures, by state, for pipeline sales to distributors for industry. These sales increased by 50% from 1962 to 1968, significantly below the 62% increase registered for total industrial sales by "Intrastate Pipelines and Distributors" given in Table II.

[119] *See* AMERICAN PETROLEUM INSTITUTE, AMERICAN GAS ASSOCIATION, PROVED RESERVES OF OIL AND NATURAL GAS IN THE U.S. (Annual Volumes 1965–70).

[120] PRICE FORMATION ch. 5.

[121] *Hearings, supra* note 116, at 295, 298 (testimony of J. C. Swidler, Chairman, N.Y. Public Service Commission).

[122] Reply Submittal of the Office of Economics, Federal Power Commission, Initial Rates for Future Sales of Natural Gas for All Areas, Docket No. R–389A, at 12, 19 (Oct. 1970).

[123] *Hearings*, supra note 116, at 163, 192, 270 (Statement of FPC Chairman Nassikas).

[124] *Cf.* HAWKINS 212.

[125] *See* p. 975 *supra*.

[126] *See* p. 948 *supra*.

[127] The discussion in text describes in layman's terms what the economist calls "consumers' surplus." Consumers' surplus is defined as the excess over the price paid which consumers are willing to pay for a given amount of a product rather than do

without it. *See e.g.*, G. STIGLER, THE THEORY OF PRICE 78 (3d ed. 1966). When a market is at equilibrium, the market-clearing price equals what consumers are willing to pay for the last or marginal unit of output. Since consumers would normally be willing to pay more for intramarginal units of output, the equilibrium price affords them a savings or "surplus" on these intramarginal units. This savings which gas consumers suffering the shortage would have had under unregulated conditions is a measure of the cost to them of the FPC policy. It can be represented diagrammatically as follows on p. 982, note 127 *infra*.

At the level of production supplied under price ceilings (Q_{fpc}), consumers, as represented by the pipelines, were willing to pay a price for gas not only above the FPC ceiling (P_{fpc}), but considerably above the market-clearing price (P_{market}) as well. Moreover, for each unit of additional production up to market-clearing levels (Q_{market}), consumers were willing to pay more than the market-clearing price. Thus, the area of the triangle ABF is equal to the difference between what consumers doing without gas were willing to pay for additional production (Q_{market}—Q_{fpc}) and what they would have actually had to pay for it under market-clearing conditions (equivalent to the rectangle BFHG). This surplus which consumers who actually did without gas would have obtained under hypothesized market-clearing conditions represents the losses to them from FPC price ceilings.

These losses to consumers doing without gas can be compared to the gains by consumers who obtained new gas production. These gains are represented by the area of the rectangle CBED. This area is the difference between the market-clearing and FPC price (P_{market}—P_{fpc}) multiplied by the quantity of new gas production they received (Q_{fpc}). Thus, if the area of triangle ABF is at least equal to the area of rectangle CBED, then the gains to those who received gas were offset by the losses by those who had to do without.

[128] In other words, the length of line AB was, in fact, at least twice the length of line BE by the last years of the test period. Since the shortage of new production by 1967–68 exceeded the actual supply of new production, line BF was greater than line CB. Thus, the area of the triangle ABF was at least equal to the area of the rectangle CBED.

[129] Of course, this is somewhat of an overstatement, since the model shows consumer losses being at least equal to consumer gains only with regard to *additional* production during the test years. In reality, the 6 cents per Mcf reduction in price brought about by FPC ceilings was a gain realized by consumers on other gas as well—*i.e.*, the amount produced under old contracts which would have sold for higher prices when "favored nation" clauses were triggered. *See* p. 946 *supra*. This amount is unknown.

[130] *See* p. 967 *supra*.

[131] *See* note 115 *supra*.

[132] *See, e.g.*, Gerwig, *Natural Gas Production: A Study of Costs of Regulation*, 5 J. LAW & ECON. 69 (1962).

[133] *See Hearings, supra* note 116, at 302 (testimony of J. C. Swidler).

[134] President Nixon's recent proposal, *see* p. 942 *supra*, seems to contemplate adoption of this alternative.

[135] INT. REV. CODE of 1954, §§ 611–14.

[136] 15 U.S.C. § 717(b) (1970); *see* note 5 *supra*.

[137] Atlantic Refining Co. v. Public Service Comm'n of New York, 360 U.S. 378 (1954).

[138] Courts will normally review administrative decisions to see if they are in compliance with law and are supported by substantial evidence on the whole record. *See* Universal Camera Corp. v. NLRB, 340 U.S. 474 (1951).

[139] *See* p. 941 and note 5 *supra*.

[140] Southern Louisiana Area Rate Cases, 428 F. 2d 407, 416 n.9 (5th Cir.), *cert. denied*, 400 U.S. 950 (1970). *See also* Permian Basin Area Rate Cases, 390 U.S. 747, 766–67 (1968) (one who would overturn FPC finding of fact bears heavy burden of proof); Wisconsin v. FPC, 373 U.S. 294, 309 (1963) ("[i]t has repeatedly been stated that no single method need be followed by the Commission in considering the justness and reasonableness of rates"); FPC v. Hope Natural Gas Co., 320 U.S. 591, (1944) ("Under the statutory standard of 'just and reasonable' it is the result reached not the method employed which is controlling.")

[From the CONGRESSIONAL RECORD, Jan. 18, 1973]

THE ENERGY CRISIS

Mr. BUCKLEY. Mr. President, as a participant in the Senate's national fuels and energy study, it has been my privilege to attend a series of hearings and briefings which has served to sharpen my own understanding of the scope and long-term implications of what has come to be called our "energy crisis."

The facts now publicly available ought to speak for themselves. We are faced with a chronic and growing shortage of environmentally compatible domestic fuels which for the next 10 to 15 years will make us uncomfortably dependent on foreign sources in order to meet up to 25 percent and more of our projected energy needs by the year 1985.

The economic and security implications of these facts are serious enough. But I fear that if the full dimensions of the energy crisis are not understood by the public, we may find ourselves making the wrong policy decisions. Only a fully informed public will assure full support for the measures best designed to meet the energy crisis and assure our country of continuing supplies of reasonably priced fuels on a basis that will not place a catastrophic strain on our balances of payments or jeopardize our national security.

We are beginning to experience actual shortages in gas deliveries in various parts of the country. For the first time in many decades, our oil fields are producing at 100 percent of capacity while we are running short of fuel oil in various parts of the country. Yet I suspect that too many Americans may be writing off current congressional concerns as "scare talk" designed to justify special-interest legislation at the expense of the consuming public. To speak candidly, Mr. President, I believe this reaction may be encouraged by the fact that the current energy study is being conducted under the auspices of the Interior Committee which is traditionally associated with oil- and gas-producing States.

Let us remember that for over a decade, the citizens of our Northeastern States—myself included—have felt that they have been required, through the imposition of oil import quotas, to pay excessively high prices for petroleum products in order to maintain an artificial level of prices for the benefit of producers in our Southern and Western States. They have felt, as I do, that the security considerations advanced as an excuse for the original imposition of quotas were spurious. I recognize that the situation we face today is materially different from that which existed a decade or so ago. It has now become far more difficult and costly to find new oil. We no longer have a standby production capacity, and recent developments on the international scene threaten to create a dependence on foreign sources of energy which could prove dangerous. Consequently, I am persuaded that some mechanism to encourage the rapid discovery of new indigenous reserves of oil and gas is justified until such time as we can develop the necessary cushion in our domestic energy resources.

It is not my purpose today, however, to discuss the security aspects of the energy crisis. Rather, I wish to address myself to an examination of the interests of my constituents as consumers of energy. In recent years, New Yorkers have had more than their share of brownouts and shortages. Today there are areas of New York State where for the first time natural gas is now being rationed among pipeline customers. It is clear that New Yorkers and all other American consumers of energy have an interest in the outcome of the current national fuels and energy study which is every bit as immediate and every bit as urgent as that of the energy-producing States.

One thing which I hope will emerge from this study is a better understanding of where the consumer's interest really lies; for it seems clear from the evidence to date that we are witnessing a classic example of the harm done to the ultimate interests of the consumer by an excessive zeal in attempting to protect him, through Government intervention, from the hazards of the marketplace.

Perhaps the most objective summary of the U.S. energy problem I have read was published in a recent issue of the very scholarly British Petroleum Press Service. From their vantage point 3,500 miles from our east coast, this is what the authors had to say:

"Natural gas is in many ways the key to the U.S. energy problem, creating an imbalance because of the interchangeability of fuels in four of the major energy markets and the ease by which they could convert to gas. Its rapid growth over the last twenty years or so has been stimulated by artificially low prices, controlled by the Federal Power Commission on behalf of Congress. This might have been justified at a time when natural gas was virtually a by-product of oil exploration and production but hardly when demand had risen so high that gas was supplying about one-third of the total energy market, second only to oil. The result of low prices has been to discourage exploration for new reserves, which have shrunk to only twelve years' supply at current production rates. . . ."

The article concludes that—

"Because of apparently unlimited supplies of indigenous fuels, energy in the U.S.A. has always been cheap: indeed, a major factor in the nation's economic growth and prosperity. More recently however it is apparent that energy has been too cheap, leading to a certain degree of waste but more importantly to a lack of incentive in developing new resources to meet the very demand that low prices have created. The U.S.A. has always been cheap: indeed, * * * a shortage of cheap energy, caused by price distortions and a lack of understanding that environmental improvements must ultimately be paid for by the consumer."

Clearly, an important contributor to our present energy crisis was the decision of the Federal Power Commission a decade or so ago to regulate the wellhead price of gas delivered to interstate pipelines. This interference with market forces resulted in a diversion of risk capital from exploration to other investment opportunities, and of newly discovered gas into intrastate uses. At the same time, it created a rapidly expanding market for gas which resulted in the displacement of a substantial part of the market for oil and coal. Oil and coal could not complete with the lower cost of regulated gas. On a B.t.u. basis, gas has been selling for about one-half the price of oil, despite its superiority as a fuel. Thus the regulation of the wellhead price of gas has not only resulted in the rapid depletion of existing reserves, it has diverted too much of our natural gas away from its best use, and has destroyed the incentive to develop new gas for delivery into interstate pipelines.

This contention is amply supported by the statistics. In 1971, for example, there were 437 exploratory wells completed as gas discoveries in the United States as against 822 such discoveries in 1956, the year the FPC first proposed to control wellhead prices for

gas. In 1971, 9.4 trillion cubic feet of gas were added to our national reserves as against 24.7 trillion cubic feet of gas in 1956.

The experience in the Permian Basin after 1965, when the FPC first moved to impose area controls on gas producers, offers a classic example of how FPC policies have served to channel new gas into intrastate markets with a consequent loss to interstate markets. Mr. President, I ask unanimous consent to have printed in the RECORD a table of figures showing how new gas found in the Permian Basin from 1966 through the first half of 1970 was committed.

There being no objection, the table was ordered to be printed in the RECORD, as follows:

NEW GAS COMMITMENTS IN THE PERMIAN BASIN, 1966–70

Year	Percent committed		Total commitments (BCF)
	Intrastate market	Interstate market	
1966	16.3	83.7	178.0
1967	21.8	78.2	77.2
1968	87.2	12.8	156.1
1969	83.3	16.7	175.8
1970 (6 mo)	90.9	9.1	113.4

Source: From FPC data.

Mr. BUCKLEY. Mr. President, what the figures tell us is that while, in 1966, 83.7 percent of new Permian Basin gas was sold to interstate pipelines, by the end of the first 6 months of 1970 the proportion of new gas being committed to interstate as opposed to intrastate markets had been reversed. In the first 6 months of 1970, 90.9 percent of new Permian Basin gas was being sold to intrastate consumers while only 9.1 percent was connected to interstate pipelines. Interestingly enough, the most dramatic change in the pattern of gas commitment took place in 1968 following a Supreme Court decision affirming the FPC's Permian Basin area rate decision.

In plain English what all these statistics add up to is that when gas producers compare their increasing costs of exploring for and producing new gas to the regulated price at which they are allowed by the FPC to sell it, they tend to conclude that the possible rewards simply do not justify the investment of risk funds to find new gas for commitment to the interstate market. One does not have to be a Ph. D. in economics to understand why, under existing policy, the domestic oil and gas industry has not been moving mountains for the privilege of providing east coast consumers with a premium fuel at regulated prices.

Let us examine some of the realities of present and future supply which have resulted from Federal regulation.

Since the FPC began regulating the wellhead price of gas in a widespread basis, we have witnessed a rapid depletion of existing reserves from a 20-year supply in 1963 to less than an 11-year supply in 1971. Since 1968, our Nation has consumed approximately twice as much natural gas as it had discovered and added to present reserves.

According to testimony given at the energy study hearings last week by Chairman John N. Nassikas of the Federal Power Commission, the FPC's Bureau of Natural Gas has projected, on the basis of current rates of discovery:

An annual gas short fall of domestic supplies to anticipated demand [that] will range from about 10 [trillion cubic feet] in 1980 to about 18 Tcf in 1990.

To meet this excess of demand over supply, we will have to rely on five principal supplemental sources of gas. These are, first, pipeline imports—largely from Canada, including Alaskan gas transported by pipeline through Canada; second liquefied natural gas imports; third, gas derived from coal; fourth, synthetic natural gas derived from liquid hydrocarbons; and fifth, natural gas discovered in the United States above and beyond the rates of discovery projected on the basis of current policy. According to Mr. Nassikas, the first three supplementary sources "could reduce the annual projected gas deficit to about 10 Tcf in 1980 and 18 Tcf by 1990." These deficits, it should be noted, amount to approximately 27 percent of the 1980 demand and 37 percent of the 1990 demand.

What, then, are the alternatives facing the consumer interested in long-term supplies of energy at the most reasonable cost? There are three major alternatives available within the time frame of the next 10 to 15 years:

First. We can adopt conservation measures that will force a reduction in projected demand to meet the projected supply. While I believe, Mr. President, that it is highly important that we develop effective measures to encourage the conservation of energy, I think most of our colleagues would agree that it would be politically and economically unrealistic to believe that we could enforce measures so stringent as to achieve really dramatic short-term reductions in demand.

Second. We can meet the excess demand for gas by redirecting that demand to alternative fuels, such as oil, coal, and uranium. Given the fact, however, that natural gas is expected to meet approximately one-third of our total energy needs, any major diversion of demand to these other fuels would only serve to aggravate the supply and environmental problems which will be associated with each of them well into the 1980's.

Third. This leaves us with the third major alternative. We can take steps designed to accelerate the development of the supplementary sources of gas which I have already listed; to wit, pipeline imports, LNG imports, gas from coal, gas from liquid hydrocarbons, and an acceleration of the rate of discovery of new natural gas. Although we will undoubtedly have to encourage less waste in our use of energy, and although we should encourage some shift from the use of gas to other fuels, our major hope lies in finding new sources of our most desirable fuel.

The next question to be asked is which of these supplementary sources offers the consumer the best hope of meeting his projected needs at the lowest cost? Let us examine each in turn; but, first, by way of a bench mark, let us recall the current costs of regulated natural gas. In 1970, the average wellhead price of gas subject to FPC regulation was about 18 cents per Mcf, and it is in the vicinity of 20 cents now. The transported city gate price of that gas at New York City is about 51 to 52 cents. By the time the gas reaches the individual household, about another $1.18 for distribution costs, and so forth, will have been added.

First. Pipeline imports: The quantity of Canadian gas was which will be available for importation into the United States is, of course, highly dependent on Canada's own energy policies and on the rate at which Canada's exportable reserves can be increased. These are not factors over which American policymakers have any direct control. With respect to Alaskan gas, even if huge reserves are discovered on the Arctic Slope, it will take years before a pipeline can be completed from the fields to the border between Canada and "the lower forty-eight"; and because of the enormous projected cost of such a pipeline—between $3 to $5 billion—it is estimated that the cost of delivering pipeline gas from the Alaskan Arctic to the U.S. border would range upwards from 90 cents to $1.40 per Mcf. Thus there is little reason to believe that we can improve on the FPC's admittedly optimistic estimate that by 1985, net pipeline imports could satisfy as much as 4.8 percent of projected demand; and to the extent that these imports consist of Alaskan gas, the price will be several times higher than the current city gate price for U.S. pipeline gas in New York City.

Second. LNG imports: The cost of delivering Algerian LNG to the East Coast has been estimated at from 84 to 91 cents per Mcf. The estimated cost to produce and deliver a thousand cubic feet of gas under the proposals now being explored with the U.S.S.R. range from $1.25 to $1.50—over two of three times the delivered price of domestic gas at New York City.

Third. Gas from coal: Based on an application filed with the FPC, the estimated cost of a commercial project to produce gas from coal mined in the four corners region of New Mexico, is $1.21 per Mcf.—a "wellhead" price over twice the delivered price of natural gas at New York City.

Fourth. Synthetic natural gas produced from liquid hydrocarbons: Based on applications filed with the FPC, the cost of synthetic gas is estimated to range from $1.10 to $1.80 per Mcf.—two to more than three times the delivered price of natural gas at New York City.

Fifth. Natural gas discovered in the United States above and beyond current rates of discovery: There is no doubt that the gas is there to be discovered. The U.S. Geological Survey estimates that 2,100 trillion cubic feet of natural gas, recoverable under present technology, remain to be discovered within the United States, including the Outer Continental Shelf. This represents almost a hundred year supply at the 1971 rate of consumption. Estimates may vary as to how much of this potential may be available at costs comparable to those of alternative fuels, but it is safe to conclude that much domestic gas remains to be discovered if the industry is allowed the incentives to go out and find it.

The question to be asked, therefore, is what action is best designed to stimulate a resumption of large scale exploration for new gas for interstate markets, and what will be the probable effect of this action on the consumer? Only when we have the answers can we make a judgment as to which of the supplemental sources of gas offers the consumer the best prospect for meeting his future demands at a reasonable price.

Economists have concluded that if the wellhead price of new domestic gas is deregulated, domestic exploration and development will experience a substantial surge. The extent to which new gas supplies, free from continued price regulation, would be elastic to price is subject to debate as is any economic assessment of the future. I am nevertheless confident that supply would be responsive to price. I am also confident that so long as new gas remains regulated at the well-head, as it is today, we may expect the supply-demand gap to continue to expand.

I take this position because I believe that our basic near- and intermediate-term efforts to provide gas for American consumers should be centered around stepped-up domestic production. It is the least costly of the alternatives.

These conclusions are supported by the testimony of administration witnesses at the energy study hearings last week, who clearly stated that potential U.S. gas reserves were sufficiently high to warrant stepped up production under economic conditions conducive to development. They are also supported by a growing host of academic economists, and the press. The Washington Post, Fortune, Barron's, the Wall Street Journal, bank studies and other analyses, not to mention the industry's own calculations, all point to the need to stimulate domestic gas production by freeing the wellhead prices of new gas.

Such a policy will serve an additional purpose, and that is to provide a disincentive to waste. It will favor residential and commercial over uses which may be less related to human needs. In other words, some industries now relying on low-cost natural gas will probably switch to other fuels, thereby conserving gas, once the price

of natural gas raises to a level at which other fuels such as oil and coal can compete with it.

But even though gas prices would rise under such a policy of deregulation, they would not rise as quickly as they would under a policy which discouraged conventional natural gas production and encouraged the development of the more costly supplemental sources.

Further, even with the freeing-up of new gas at the wellhead, the burden on consumers would not constitute a shock effect. Residential and commercial consumers in particular would be paying perhaps as little as 5 percent a year more for their gas. This is because the higher priced new gas would be rolled-in with the cheaper old gas that consumers are now burning, and which would continue to be produced under existing long-term contracts.

Based on all the facts, Mr. President, I think the conclusion is inescapable that the best interests of the energy consuming citizens of this country will best be served by freeing newly discovered gas to find its own level.

We have paid a very high price for our overzealous attempt to protect the consumer against the operations of the marketplace. I hope we will learn from this experience the ancient lesson that the one sure way to create a shortage in a given commodity is to try to hold its price below the level which justifies its production. There are certain economic laws which even the U.S. Congress cannot legislate out of existence.

Mr. BUCKLEY. Mr. President, in all sincerity I believe that this single action that this Congress can take in this session that would be best designed to alleviate our energy shortages is the adoption of this amendment. I have, as a member of the Committee on Interior and Insular Affairs, been privileged to listen to months of testimony from all parts of the economy, all knowledgeable sectors, on the questions of energy, and I have reached one conclusion: That the most significant bottleneck we have is the bottleneck on the incentives to find a new source of that energy that today supplies more than one-third of our total needs, namely, gas.

I believe that if we let economic forces go their natural course, we will do more to stimulate immediate research into such things as gas and other near-term alternatives than by any amount of Federal planning and Federal direction. I do not believe that we need more facts and more consideration, because the Interior Committee has gone into the subject exhaustively.

Mr. RANDOLPH. Mr. President, will the Senator yield at an appropriate time.

Mr. BUCKLEY. It is a question of time. As soon as I finish what I have to say, I will be pleased to yield.

Mr. President, there are 10 Members of this body who either are cosponsors of this amendment or have indicated that they will vote for it who are not here today, because of commitments they could not break. Under the circumstances, and in deference to the chairman of the committee, I hereby ask unanimous consent to withdraw my amendment.

The PRESIDING OFFICER. Is there objection? The Chair hears none. The amendment is withdrawn.

Mr. BUCKLEY. I yield to the Senator from West Virginia.

Mr. RANDOLPH. Mr. President, did I understand the Senator from New York is yielding to me for an observation?

Mr. BUCKLEY. That is correct.

Mr. RANDOLPH. How much time remains?

The PRESIDING OFFICER (Mr. BARTLETT). The Chair would observe that the Senator from West Virginia will have to ask unanimous consent to proceed, as the end of the time was triggered by the withdrawal of the amendment.

Mr. RANDOLPH. May I have 1 minute?

Mr. JACKSON. Mr. President, I ask unanimous consent that the Senator from West Virginia, notwithstanding the unanimous-consent agreement, may proceed for 2 minutes.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. RANDOLPH. Mr. President, I wish to express to my colleague from New York my appreciation. I know many of us share his position on natural gas, yet we disagree as to the timing; namely, the appropriateness of his measure as an amendment to the bill actually to be voted on at this time. Earlier I raised this point which perhaps has not been developed in the debate.

The Senator mentioned the uses for natural gas and the incentives needed to foster the stimulation of new supplies. I want the RECORD to indicate that there now exists technology by which old gas wells that have been plugged and are no longer productive can be reopened. Technologies are available now for fracturing wells that seem to be abandoned so that they can again be made productive. This must come into being.

There are Members of Congress, like me who are intensely interested along with the Senator from New York, in doing this job. We must see that a current program is brought into being, to do just this—to open the thousands of wells now nonproductive where the technology already exists to make natural gas available from these sources.

Does the Senator from New York agree?

Mr. BUCKLEY. I agree, if the price of that commodity is right.

Mr. RANDOLPH. Of course. The price should be right.

Mr. President, in a few minutes the Senate will vote. I express the hope that the Senate will make a commitment unanimously in this crucial hour of concern.

Mr. JACKSON. I want to commend the distinguished Senior Senator from Arizona (Mr. FANNIN) and all others members of the Interior Committee for their great assistance in developing S. 1283. Their efforts and cooperation have been invaluable, and future generations of Americans are in their debt.

Mr. FANNIN. Mr. President, the Senator from New York (Mr. BUCKLEY), is speaking on behalf of the million of citizens living in his State. He does not want them to freeze this winter for lack of natural gas. He has given careful study to his amendment. In fact, he was the first Senator in this body from a gas consuming State to recognize the necessity of deregulating new gas. As early as January of this year, following a year's careful research as a participant in the Senate's national fuels and energy study, the Senator from New York (Mr. BUCKLEY) in a major address delivered to this body urged his colleagues to deregulate new gas. Had his colleagues then listened to his wise and farsighted advice, we might not have been faced with a crisis this winter nearly as severe as the one we are facing. Had the Congress taken the action the Senator from New York called for regarding natural gas in January of this year, the Nation as a whole would be suffering much less in the way of a fuel shortage.

I know of what I speak because I too come from a consumer State.

I wish our chairman and floor leader (Mr. JACKSON) who also comes from a consumer State would begin to exhibit the wisdom that his colleague from New York was exhibited regarding natural gas policy. Our friend from Washington has exhibited great wisdom in dealing with long range supply problems as evidenced by this bill S. 1283, which he authored. I compliment him again for his work on this legislation. Several days ago I complimented him at length for his bipartisian work on this bill.

This legislation is evidence of the great work he can accomplish when he takes the time to study the facts.

We now hope, as he moves forward in his capacity as chairman of the Senate's national fuels and energy study to consider a recommendation on natural gas policy to the U.S. Senate, that he will set his agile mind to work by studying the facts and come to the same lucid and valid conclusions about the need to deregulate gas as has his fellow consumer State colleague from New York.

I believe that by exercising the type of reasoning, clear thinking, adherence to fact, and bipartisan leadership of which he is capable he cannot in all honesty and sincerity reach any conclusion other than to deregulate new gas. As the Senator from Washington states so often, "Let us be honest about this." When the Senator from Washington is honest about this, as I know he wants to be, I am confident that he will favor the deregulation of new gas. I know that he is capable of the clear vision in this matter that has already been ably exhibited today by his colleague from New York.

Mr. HANSEN. Mr. President, I rise to join my colleague from Arizona (Mr. FANNIN) in complimenting the Senator from New York (Mr. BUCKLEY). The Senator from New York was the first consumer State senator to recognize the need to deregulate natural gas. It was in the interest of the fuel consumers of his State and not the interest of oil and gas companies which lead him to the conclusion of the necessity to deregulate gas.

When the people of this country sit in cold homes, unemployed this winter my colleagues in opposition to the Buckley amendment should remember this occassion. They should remember that what the Senator from New York has advocated is in the best interest of their own constituents. They should realize that the Senator from New York is trying to insure that his people in New York and the people from other States will have an abundant supply of natural gas.

For this he deserves much credit and praise.

Mr. ROTH. Mr. President, today we are considering proposed legislation of utmost importance to the American people. The bill proposed by Senator JACKSON, S. 1283, calls for a massive energy research and development program to develop new alternative sources of energy and related technologies to protect our environment. I am voting in favor of S. 1283 because I believe it is absolutely essential to get a crash energy research effort off the ground, but I do so with grave reservations.

Congress should set up permanent and orderly governmental machinery to administer this research effort. Unfortunately, S. 1283 is designed as an interim measure. It would set up a new body—a management project—which would coordinate various research efforts now taking place in different Government agencies. I fear that the creation of such a new group would only add to the confusion and fragmentation of federally sponsored energy research programs and even set back what we all agree is vitally needed—a concerted energy research program. What we need is something more than an interim coordinating body—we need a permanent agency capable not just of coordinating but fully empowered to administer and implement a massive Government research and development program.

I strongly agree with the junior senator from Washington that we have to move forward as rapidly as possible. I have long felt that our energy problems have been neglected. As a Member of the House of Representatives in 1970, I introduced a bill to establish a National Commission on Fuels and Energy. At that time, I noted that there was general agreement among experts who had testified before a Senate subcommittee that we were facing "an energy crisis of unprecedented proportions." I urged that we must begin to "give serious consideration to setting up a mechanism for establishing a coordinated national energy and fuels policy."

Now, more than 3 years later, we have learned—and learned the hard way—how right those experts were. The time for study commissions has now passed; the time for prompt and decisive action is long overdue.

It is important, however, that in the current mood of crisis we set up effective and orderly machinery capable of administering what we all know is going to be a long-term effort. I believe that appropriate machinery has been created in S. 2744, which I am sponsoring, to set up on a permanent basis a Energy Research and Development Agency—ERDA—to oversee the entire Federal research and development effort. This Agency will bring together from the many different departments and agencies of the Federal Government, those parts which are actively engaged in energy and related environmental techonclogies, including the Office of Coal Research in the Department of Interior, the RANN program in the National Science Foundation, and the research divisions of the Environmental Protection Agency and the Atomic Energy Commission. This fusion of overlapping research efforts is crucial if waste is to be avoided. I think the American people want something more sophisticated than simply throwing money at a problem; they want to be sure that their money will be wisely spent.

I see two principal dangers inherent in passing S. 1283 as interim legislation. The first danger is that in having passed it, Congress will tend to sit back and assume that enough has been done to get a strong, aggressive energy research and development program off the ground when in fact we have just begun. Too often we have seen interim, temporary measures become permanent. The second danger if Congress adopts back-to-back research and development legislation, massive confusion is going to be created as the executive branch first attempts to conform to one congressional mandate and then must turn around to conform to another. It is important for Congress to decide what it wants—to decide it quickly—and then see to it that it is implemented in an effective and responsible manner.

There is no reason that we cannot. The Energy Reorganization Act, S. 2744, is currently under active consideration in the Committee on Government Operations and hearings on its counterpart in the House of Representatives have already been completed. If we act promptly, I can see no reason why this legislation could not be adopted next week.

In short, I believe Congress must act with what might be called "all deliberate speed" to establish a massive research and development program. There are many alternative sources of energy that we have neglected—solar power, geothermal power, the winds and tides, coal gasification, the extraction of oil from tar sands, and many others. But it is imperative that this program be started. Last spring I told a group of Delaware high school students at the annual Youth Leadership Conference which I sponsor, that we must begin to work now on alternative energy sources "in a very serious way." I added:

> What we need is a technological breakthrough, and our chances of getting such a break-through, in time to avoid a much more severe energy crunch, are greatly enhanced the sooner we get down to work.

That was more than half a year ago and yet there is still no concerted Federal energy research and development program. Each passing day is another day of delay in solving our energy and environmental problems.

Mr. DOLE. Mr. President, I wish to express my support for S. 1283, the National Energy Research and Development Policy Act. The bill establishes a governmental structure and outlines in general terms the policy decisions which must be made if we are to attain the goal outlined in the bill—developing within 10 years the option and the capability for the United States to become energy self-sufficient through relying on domestic energy resources by means which are socially and environmentally acceptable.

All of the capabilities and programs of the Federal Government are to be coordinated in achieving this end through the energy research management project headed by a chairman who will be assisted by the directors of the various Federal agencies who will and should have an input into the energy program. Departments represented in the management project include the Department of the Interior, the Atomic Energy Commission, the Environmental Protection Agency, the Federal Power Commission, the National Science Foundation, and others. The management project is charged with the responsibility of formulating a comprehensive energy research and development strategy, taking into consideration ongoing efforts and capabilities in the private sector. Research is to be focused not only on programs that would enable a more efficient use and conservation of available energy supplies, but also on programs to expand the energy supplies through both conventional and unconventional sources. The chairman of the energy management would also develop various forms of Federal assistance and participation to spur research in these areas within the private sector.

The program and procedures outlined in the bill provide adequate coordination to assure that all our capabilities are directed at and focused immediately on the energy problem. Yet, the system is also sufficiently flexible to permit consideration of the myriad of factors that have contributed to the current energy crisis, and the adoption of a variety of solutions which may be needed. It recognizes that the crisis is particularly a result of past Government policies, and the economic incentives can assist in increasing production of energy supplies. It recognizes that the solution lies in better application of existing technology and applied research in addition to critical research on the unconventional fuel resources and methods of utilizing them.

I feel it is important to emphasize the less obvious and less dramatic contributions research can have in meeting the energy crisis while we work toward the long-range goals. It appears that applied research can improve significantly our immediate fuel supplies and should not be overlooked merely because exotic long-range fuel sources are more obvious and have greater public appeal. Research can help us meet our immediate needs as well as our long-range goals in the production of energy sources. S. 1283 recognizes this fact, and I am hopeful that in the administration of the law due consideration is given this point.

The bill recognizes and directs that separate research strategies be developed to solve our immediate and long-term energy needs. Within 6 months the management project is to lay out a research strategy to help us meet our immediate and short-term energy needs. These research efforts will be directed at those projects that can increase our domestic energy supplies before the early 1980's. Included among those areas to be given priority consideration is research to demonstrate new and improved methods for the extraction of petroleum resources, including secondary and tertiary recovery of crude oil.

I feel this research is important and could contribute greatly to increased domestic production of petroleum. Expanded utilization of secondary and ter-

tiary recovery could increase domestic oil production almost immediately. It is estimated that only 20 percent of the domestic oil reserves which have been discovered have actually been removed for utilization. This means that 80 percent of the reserves remain underground. We know they are there, but it is either economically not feasible to bring them to the surface or else we are not yet able to apply the necessary technology. Research will help us improve methods of recovering this oil, and economic incentives can make it profitable for such recovery operations to be utilized.

If we can just begin recovering from the ground 40 percent rather than 20 percent of the oil we discover it would have a tremendous impact on domestic production, and I am told that impact could be felt within 6 months from the time the additional recovery operations begin to be implemented on a large scale. The wells are already drilled, the casing is set, the transmission lines are in place; all we need to do is provide the technological know-how and the economic incentives to get the recovery operations underway.

In Kansas alone, the impact of secondary and tertiary recovery operations would be almost unbelievable. Many of the older fields across the State could be revived. A large quantity of oil located in the southeastern part of the State could most likely be recovered through tertiary recovery operations. This oil lies at depths often less than 1,000 feet and is available in abundant quantities, however, in the past it could not be economically recovered from the land due to its high viscosity which prohibited recovery from primary and secondary operations.

Kansas could produce large quantities of oil through these additional recovery methods. The impact on the fuel crisis would be significant and the economic impact on the State of Kansas would also be considerable. I, therefore, am hopeful that research on secondary and tertiary recovery can begin immediately and intend to pursue the problem of adequate economic incentives in my capacity as the ranking minority member of the Finance Energy Subcommittee.

Of course, our domestic fossil fuel resources are limited, and in order to meet our long-range needs we must begin now to research and develop new energy sources. The bill provides the development of research strategy and priorities designed to achieve solutions to the energy supply problem during the last two decades in the 20th century. Potential energy resources which are to be researched for utilization during this time period include geothermal energy, solar energy, nuclear energy, among others. Research on these unconventional sources of energy could make it possible for items which we now do not even consider as possible fuel sources, to produce a significant portion of our energy needs 20 years from now. Two items of this nature which at my request are specifically mentioned in the bill are the utilization of grain alcohol made from wheat as a fuel additive and the use of methane obtained from feed lot wastes as an energy source.

Mr. President, the guidelines for energy research set out in the bill will enable an expansion of existing fuel supplies, the development of new fuel sources, and the conservation of energy in our everyday activities. Achievements on all three ends of the spectrum will blunt the immediate impact of the energy crisis and provide assurances of energy independence for the future. These are important goals, and I feel that S. 1283 provides a sound framework for our effort to solve all aspects of the energy crisis.

Mr. MONDALE. Mr. President, I rise to support S. 1283, as a vital measure in the movement to give us the capability to choose American energy self-sufficiency.

Recent events have clearly illustrated the powerful part that energy can play in influencing the economies and foreign policies of many nations. It is imperative that we in the United States take every step necessary to insure that our economy will remain strong and our foreign policy will remain independent—and that no foreign government can ever hope to either destroy our economy or purchase our foreign policy by use of its energy resources.

S. 1283, of which I am a cosponsor, is important in helping us reach that goal. I wish to commend the distinguished Senator from Washington (Mr. JACKSON) for his vital work on this measure. It will provide us with the statement of goals for our energy research and development effort which has been lacking thus far. It will give us coordination of these research and development efforts and help us in our search for both near-term and long-term solutions to our energy problems.

These problems are bad today, and they will continue to get worse. Before the Arab embargo of oil began, we were importing over one-third of our petroleum needs from abroad. Much of that was from secure sources such as Canada and Venezuela. But increasingly, Middle Eastern imports were coming to play an ever more important role. With those exports now cut off, we have been forced to take stock of our position and move to implement measures to meet the severe anticipated shortages over the near term.

But our thinking cannot focus entirely on the next year or two. Instead, it must bring to bear the abilities of American science and technology to create the new energy sources for the next decades—sources which we can control and which cannot be used as weapons against us.

Whether we wish to achieve total energy self-sufficiency remains to be seen. It will be costly and may involve difficult international implications. But we must have the capacity to choose self-sufficiency if we desire it. And S. 1283 will move us further down this road over the years ahead.

The Nixon administration has failed to develop a constructive and comprehensive energy research and development strategy. Current research and development programs are scattered throughout the Federal Government, with little overall direction. We are without a comprehensive strategy for attacking energy research and development problems. And funding for energy R. & D. has been too little and too late.

S. 1283 gives both strategy and funding to this effort. In particular, I am very pleased that the bill as reported contains a greatly increased emphasis on energy conservation research and development.

On September 20, I introduced S. 2462, the Energy Conservation Research and Development Act of 1973, along with the distinguished Senators from Washington (Mr. MAGNUSON and Mr. JACKSON). This legislation authorized creation of an independent corporation to undertake and to direct a major effort to develop new technologies to help us conserve our energy resources. The substance of this legislation was offered in committee by the distinguished Senator from Colorado (Mr. HASKELL), to whom I am greatly indebted, and whose efforts are in large measure responsible for the increased role for energy conservation R. & D. in the committee-reported bill. Although the basic thrust of S. 1283 no longer emphasizes the concept of the independent corporation I am pleased to see the emphasis contained within the bill on energy conservation activities.

In particular, the bill directs the Chairman of the Management Project to recommend as part of his research strategy and priorities for the immediate and short-term "new and innovative energy conservation technologies." In addition, the Council on Environmental Quality is directed to carry out a continuing analysis of the conduct of the energy research and development. And, as part of that direction, the CEQ must give prominent attention to "the adequacy of attention to energy conservation methods." Finally, the CEQ is allocated 1 percent of the moneys appropriated for R. & D. activities for this oversight function.

We all now know that energy conservation is indeed a real necessity. However, what is needed along with an ethic of energy conservation is a vastly expanded conservation research and development effort to make energy conservation a full-fledged partner in the energy research and development field.

The potential for savings of energy resources through energy conservation is vast. A recent staff study undertaken by the Office of Emergency Preparedness stated:

> Energy conservation measures can reduce U.S. energy demand by 1980 by as much as the equivalent of 7.3 million barrels per day of oil (equal to about two-thirds of projected oil imports for that year).

There are many promising areas for energy conservation research and development. Among them are the following:

First, improvement in materials for and design of, buildings to conserve energy resources;

Second, urban area design which serves to reduce community energy needs;

Third, improvement in design of transportation vehicles and the power systems therefor, with emphasis on small cars and alternatives to the internal combustion engine;

Fourth, improvement in design of transportation systems so as to minimize transportation energy demands, consistent with goals of clean air and convenience in transportation services;

Fifth, improvement in the energy-utilization efficiency of industrial processes, with particular emphasis on those industries heavily dependent on use of energy resources for processing;

Sixth, research into decentralized energy systems for residential, commercial, and industrial uses, such as fuel cells, total energy systems, district heating systems, fuel from organic waste, and solar space conditioning;

Seventh, research on regulatory and taxation policies that would have the effect of curbing energy demand; and

Eighth, research on increasing the efficiency of electrical appliances, with particular emphasis on air-conditioning systems.

These are but some of the areas in which work is desperately needed, and which hopefully, will be accelerated by this bill.

Continued attention will be required, however, to insure that the more glamorous—and equally needed—technologies in the area of energy supply do not diminish the importance of the role for energy conservation research and development. In the past, energy conservation research and development has often been regarded as the poor stepchild in the general area of energy research and development. For example, in the President's fiscal year 1974 budget, only $9.2 million out of a total of $886 million was allocated to conservation R. & D. And in the recent Presidential request for $115 million in additional money, only $6.3 million of that amount would go to conservation R. & D.

We urgently need a comprehensive and well-managed energy research and development effort. S. 1283 will help greatly in achieving this end. But we must remember in this process that new technologies for conservation may in the long term be just as important as new technologies for improving supplies. I am pleased that the committee bill reflects the concern with this problem incorporated in S. 2462, and I trust the Senate will act quickly on this important measure.

Mr. FANNIN. Mr. President, I ask unanimous consent to have printed in the RECORD a statement by the distinguished Senator from Kentucky.

The PRESIDING OFFICER. Without objection, it is so ordered.

STATEMENT BY SENATOR COOK

This Nation needs natural gas.

It needs this natural gas now, and it needs it in volumes which are sufficiently large to meet the requirements of the people of this land to heat their homes, cook their food, operate their commercial establishments, and build their industry.

I would hope that throughout this debate we would keep this one thought uppermost in our minds. We need natural gas.

This shortage of natural gas is not a situation which may happen six months from now, but rather one which is happening today. If anyone of my colleagues does not believe that this shortage is real, I wish that he could have been in my office when 28 members of the community of Somerset, Ky., met with me to express their very real concern for the threatened loss of 3,000 jobs in their community which will materialize this fall if more natural gas is not made available now.

The tragedy here is that we have seen this problem coming for several years. We proposed legislation, held our hearings and came up with a dry hole.

When the Natural Gas Act was passed by Congress in 1936, it provided that the regulation imposed thereby would not relate to the producer of natural gas for sale in interstate commerce. In 1954, in a five-to-four decision, the Supreme Court ruled otherwise, and since that time an effort has been made by the Federal Power Commission to regulate the wellhead price of natural gas. In spite of the continuing efforts of that commission to regulate this wellhead price, the experiment has not been successful, and we have certainly had adequate time in nineteen years to see if such regulation would work.

When announcing my co-sponsorship in the 92nd Congress of S. 2467, the so-called sanctity of contract legislation, I questioned the logic of regulating and restricting the gas industry to a greater degree than we have other segments of the energy family. It did not seem reasonable to me then, nor does it seem reasonable to me now, to restrict natural gas from seeking its price in the marketplace in the same manner in which we permit oil or coal to seek their price levels.

Federal regulation of natural gas has resulted in maintaining the price of natural gas at an artificially low level. While the prices of other and less desirable fuels have increased with the price of other commodities, the price of gas has remained low: And, as a result, the demand skyrocketed and it has been used in the past and is being used today for many purposes that could have been satisfied with coal and other fuels. Likewise, the low price has discouraged the exploration for and development of new reserves since the cost of searching for such gas, particularly in offshore areas, has skyrocketed over the past many years.

History may well record that our own greatest contribution to our own energy crisis may have been our creation of this artificial price for natural gas.

If we can believe even our most pessimistic natural resource surveys, well hidden under the surface of our continent as well as our outer continental shelf are significant volumes of potential energy. If this is true, and I believe sincerely that it is true, then it's fair to ask why we don't explore for and produce this valuable natural resource. If I could answer this question with one word that word would be incentive.

The growth and power of this Nation's economy is founded in free enterprise. My son Webb mows a neighbor's lawn because he gets a couple of bucks for it. He's spurred on to find another lawn by the promise of additional dollars. I don't think this enthusiasm would continue if he were prevented from charging his customers enough to make the mowing worth his while. Webb's situation is not unlike the one in which the natural gas industry finds itself today. I believe that we must increase the incentive to explore for and produce more gas.

Others argue that incentive is not the real answer. One thing for certain, the issue is highly emotional. Nobody is neutral. Everyone has strong views.

There are those who seem to think the shortage is caused by the oil industry. Others place the whole blame on the Federal Power Commission. The truth probably lies somewhere in between.

I also have some firm views. I know, for example, that before the Federal Power Commission began regulating wellhead prices, drilling activity was on the upswing, the industry was finding more gas than the Nation was consuming, and there were adequate supplies for anyone fortunate enough to be close to an interstate pipeline.

Since the Federal Power Commission began setting wellhead prices, drilling has been depressed, we have consumed more gas than we have found and many consumers—including some in my own State—are having their natural gas service cut back.

One point on which most seem to agree is that the natural gas shortage is very genuine, but it is probably more severe than most Americans realize. I am also convinced that many of our other fuel problems—including shortages of propane and heating oil—are directly related to the shortages of natural gas. When people have their natural gas service restricted—which is becoming increasingly prevalent—they turn to propane and then to heating oil, thus causing a domino effect right down the line.

We must come to grips with the natural gas problem. We face the spectre of increasing dependence on foreign supplies and gloomy prospects of fuel shortages at home. We see plans for foreign gas coming into the United States at $1.25 Mcf and more. Yet we seem to be unable to decide whether the well-head rate for natural gas produced right here in our own country should be $.24 or $.26 Mcf.

The shame is that even as the Nation is threatened to go cold—and I don't think that statement is a bit too strong—people are still trying to find someone to blame.

Regardless of who else must share the blame, much of it belongs right here in Congress. We have too long condoned a regulatory process which just does not work. It must be measured by the record it has made. That record indicates the consumer and the country have not been served adequately.

We must take decisive action to remedy the situation. The dosage must be strong, it must be the right kind, and it must be given quickly. In the case of our total energy problem we are at one minute before midnight.

Mr. Chairman, my operating philosophy is quite simple. When something doesn't work, you don't expand it or extend it. You change it. I think this is what we must do in the case of well-head prices.

There are those who would characterize such action as being anti-consumer. As the ranking minority member of the consumer subcommittee of the Commerce committee, I have a particular responsibility to the consumer and I believe that price incentives would be in the consumer's interest. As we deny the consumer the product he needs we reduce his standard of living. As we curtail his industrial expansion we create economic loss. To me the reduction in living standards and the economic loss resultant from such curtailment is anti-consumer.

But it is important to weigh very carefully the impact that these increases will have on the consumer.

In August of this year The Foster Associates released a study concluding that if the field price of all natural gas *not* under contract immediately rose to 55 cents per thousand cubic feet, the average householder would pay only $8.30 more per year for his

supply starting next January 1. This would be an increase of only 5.3 per cent on an average yearly bill of $155.73. By 1980, the price increase would amount to $33.06 annually. (The average price of natural gas now sold in interstate commerce is about 21 cents per thousand cubic feet.)

The study shows that price increases to the householder would be gradual and minor for two reasons:

—Most of the gas now being sold is under fixed price contracts, generally for periods of twenty years.

—Only seventeen per cent of the consumer's bill consists of the field price of natural gas. The rest goes to pipe line companies and local distributors.

The study also lists the increases the consumer might expect if the field price went to other assumed levels, either higher or lower than 55 cents per thousand cubic feet.

I am concerned that we solve the natural gas shortage. And I think this can best be done by relying more heavily on the forces of the private market system, than by relying on the forces of the regulatory process. I urge that the amendment be adopted.

Mr. BELLMON. Mr. President, while I recognize the weaknesses inherent in S. 1283, I am so concerned about the seriousness of the long-range energy supply situation this country faces, I feel I have no choice but to vote for this legislation. While, in my opinion, the bill is perhaps hopelessly encumbered with obstructions to effective action in the research and development field, it may prove helpful in some areas, and there is a possibility that the bill can be amended and improved, as weaknesses are proven.

Yesterday, I offered a series of amendments which were intended to streamline this bill and to provide for a direct line of decisionmaking. Because of the haste with which this legislation was brought to the floor, there was not adequate time to fully advise the Members of the Senate of what I was trying to do. Had there been more time to inform the Members, I feel that many who opposed my amendments would have seen merit in what I was trying to do. I am looking forward to the opportunity to make these changes in the future.

Also, yesterday, Mr. President, during the debate on my amendment No. 772, the Senator from the State of Washington characterized my amendment as a "giveaway" and indeed, as the "most incredible amendment that I have ever seen presented during my service in the Congress, House or Senate, regarding the public lands of the United States." I feel that I cannot allow that statement to go unchallenged.

One of my basic concerns with the committee bill is that it fails to meet the very problem which the committee bill recognizes in section 101(c) when it provides "The responsibilities of the Federal Government for conducting and assisting energy research, development, and demonstration projects are fragmented among many agencies and departments and have not been planned and managed in a rational and coordinated manner." It is to that "fragmentation" that my amendment addressed itself. For while the committee bill talks in terms of a $20,000,000,000 effort, and while it authorizes contracts to be entered into for demonstration projects which run into the millions, it fails to answer the question—What happens if the best qualified applicant gets a contract to construct a plant in the area of oil shale, geothermal steam, coal gasification, but is unable to obtain the land to construct, say, his geothermal or oil shale facilities or to obtain the mineral interest necessary in connection therewith? The committee amendment is silent on this point. My amendment was intended to make sure that a person who obtained a contract would not be in the situation of "all dressed up but no place to go."

Mr. President, let us look at my amendment No. 772. It states that—at the request of the chairman, the Secretary of the Interior or other appropriate head of a Federal agency shall, notwithstanding any other provision of law, make available, by lease or otherwise—that is to say, Mr. President, that the Secretary could use a contractual arrangement, he could use easements or any other type of agreement—such lands or interests therein, or mineral interests, or both, of the United States as may be necessary to enable any such person, corporation, or legal entity to carry out a contract entered into pursuant to subsection (a) of this section or other provision of this act.

Mr. President, that language merely says that the chairman—who, by the way, is appointed by the President, serves at his pleasure, is subject to Senate confirmation and is guided by representatives from the Department of the Interior, Commissioner of the Atomic Energy Commission, Commissioner of the Federal Power Commission, Director of the National Science Foundation, assistant Administrator of the Environmental Protection Agency and numerous others—may request the Secretary of the Interior to make available lands and interests, such as in the case of oil shale, geothermal steam, necessary to carry out any contract for research and development or pilot projects and, under subsection (a) of my amendment, commercial development in those areas where the technology is such that we can now proceed.

Mr. President, I think that the misconception of the distinguished Senator from Washington was caused because he stopped reading at this point because the very next sentence in my amendment states: "Such lands or interests may—please note, Mr. President, the discretionary 'may'—notwithstanding any other provision of law, be made available by lease or otherwise on a negotiable basis." It does not say that the Secretary can not require competitive bidding; it does not preclude him from using the terms of the mineral leasing laws. It states only that he must make the necessary lands and interests—such as oil shale lands—available if required in carrying out any such contract but he can, in his discretion, use a negotiated purchase rather than competitive leasing. Even now, under the Mineral Leasing Act, competitive bidding is not required in those lands which have not been proved. It makes no sense to me, Mr. President, to take the position that you are going to provide a contract to the best qualified applicant and then tell him to get the necessary land or other interest to locate his geothermal steam facilities in any way that he can.

That is what my amendment was intended to do and that is what, in my opinion, it does.

Mr. President, the Senate Interior Committee is to be commended for the rapidity with which we are belatedly considering energy-related legislation. However, in my opinion, we will not have met our responsibility until we take effective action to increase the supply. While it is necessary to provide for the allocation of limited quantities of fuel now available, and while it is essential to provide for research and development to provide for long-range needs, it is equally necessary and even more essential to provide the incentives and the material so that the private sector can go about the business of developing the abundant energy resources with which this country is blessed. Until and unless the Congress deals with the problems of supply, we will not have met our responsibility in the energy area.

Mr. FANNIN. Mr. President, we have an energy crisis and we are doing very little legislatively about it to increase the supplies. Committees involved in this legislation have an obligation to act and to do so at the earliest time possible consistent with proper considerations on the subject of increasing fuel supplies especially natural gas.

We have other committees that are obligated to consider the other subjects such as taxes, depletion allowances, antitrust or excess profits which may or may not need attention.

If we continue to vacillate we are going to worry ourselves into energy bankruptcy because our oil companies have increased profits which may or not be justifiable.

I am not defending the oil companies if they are making inequitable profits. The Senators today have used many figures but they have not given, to my knowledge, what return on the companies' investment is involved in those figures.

They have not mentioned the tremendous investments that will be needed if we are to develop offshore drilling, investments for instance in prospective drilling in waters in the Gulf of Alaska.

They have not mentioned that the oil companies have averaged over $4 billion a year outlays for exploration and development for the past 20 years.

They have not mentioned that during the past 20 years the rate of return of U.S. oil companies has been 10.2 percent compared to 10.8 percent for all manufacturing companies.

We are talking about running out of energy.

A major contributor to the national energy crisis has been the dramatic shortfall of natural gas supply. Oil, largely imported oil, has been called upon to fill the gap caused by the short-

age of natural gas. The Arab cutoff of oil has limited the possibility of oil continuing to fill the gas gap. The question then becomes one of finding the best means to rapidly increase the supply of natural gas so as to reduce or eliminate the present gap.

In order to find such a means one must ask, what caused the natural gas shortage? The experts—including academic economists, the Federal Power Commission, and the natural gas industry—are in near unanimous agreement that the principal cause of the gas shortage has been the wellhead price regulation of natural gas producers selling to interstate pipelines, instituted by the FPC in the early 1960's pursuant to the U.S. Supreme Court decision in the Phillips case. Such regulation resulted in expanded consumer demand for "bargain rate" natural gas while dramatically dampening producers' efforts to find new gas supplies.

The following statistical information illustrates the results of wellhead price regulation of natural gas producers.

EXPLORATION EFFORTS TO FIND NEW GAS

The table below shows the decline of exploratory geophysical crew months worked; acres leased; and wildcat wells drilled. As can be seen, the 8,923 crew months worked in 1952 dropped to 2,760 in the succeeding 20 years. The 16,207 wildcat—exploratory—wells drilled in 1956 dropped to 7,587 by 1971.

EXPLORATION (GEOPHYSICAL CREW ACTIVITY, ACREAGE UNDER LEASE, WILDCAT WELLS DRILLED)

Year	Crew months worked	Total acres leased Jan. 1 (thousands)	Wildcat wells: Total	Wildcat wells: Dry	Wildcat wells: Percent dry
1952	8,923	273,067	12,425	10,090	81.2
1953	8,675	(1)	13,313	10,633	79.9
1954	7,969	315,568	13,100	10,389	79.3
1955	8,240	N.A.	14,942	11,832	79.2
1956	7,857	383,863	16,207	13,118	80.9
1957	7,242	(1)	14,714	11,904	80.9
1958	5,731	371,146	13,199	10,632	80.6
1959	5,696	382,607	13,191	10,577	80.2
1960	5,217	424,251	11,704	9,515	81.3
1961	5,024	416,871	10,992	9,022	82.1
1962	4,231	408,870	10,797	8,815	81.6
1963	4,174	387,457	10,664	8,686	81.5
1964	4,406	372,408	10,747	8,951	83.3
1965	4,471	375,306	9,466	8,005	84.6
1966	3,835	350,895	10,313	8,705	84.4
1967	3,496	333,858	8,878	7,360	82.9
1968	3,390	325,106	8,806	7,439	84.5
1969	3,259	332,005	9,701	8,001	82.5
1970	2,521	343,213	7,693	6,422	83.5
1971	2,760	332,647	6,922	5,834	84.3
1972	(1)	350,725	7,587	6,293	82.9

[1] Not available.

The result of the declining search for new gas is illustrated by the fact that in 1956 24.8 trillion cubic feet of new gas reserves were discovered while in 1969 the new discoveries dropped to 8.5 trillion cubic feet.

CONSUMPTION OF NATURAL GAS RELATIVE TO RESERVES

Following the Phillips decision the relationship of reserves to production—consumption—changed noticeably for the worse and has been getting worse nearly every year since then. In 1953 23.1 times as much gas reserves existed as was produced and consumed. In 1972, for example, natural gas reserves to production ratio had dropped to 11.5.

By analogy, we are drawing gas out of our bank account at a much faster rate than we are adding to it.

The table below illustrates this trend.

PROVED RESERVES (LIQUID HYDROCARBONS AND NATURAL GAS)

Jan. 1	Liquid hydrocarbons (million barrels): Crude oil	Liquid hydrocarbons (million barrels): Gas liquids	Liquid hydrocarbons (million barrels): Total liquids	Natural gas (trillion cubic feet)	Reserve/production ratio: Crude oil	Reserve/production ratio: Total liquid	Reserve/production ratio: Natural gas
1953	27,961	4,997	32,958	198.6	12.4	13.1	23.1
1954	28,945	5,438	34,383	210.3	12.5	13.2	22.9
1955	29,561	5,244	34,805	210.6	13.1	13.6	22.5
1956	30,012	5,439	35,451	222.5	12.4	12.8	22.1
1957	30,435	5,902	36,337	236.5	11.9	12.5	21.8
1958	30,300	5,687	35,987	245.2	11.8	12.4	21.4
1959	30,536	6,204	36,740	252.8	12.9	13.5	22.1
1960	31,719	6,522	38,241	261.2	12.8	13.3	21.1
1961	31,613	6,816	38,429	262.3	12.8	13.2	20.1
1962	31,786	7,049	38,835	266.3	12.6	13.0	19.9
1963	31,389	7,312	38,701	272.3	12.3	12.8	20.0
1964	30,970	7,674	38,644	276.2	11.9	12.4	19.0
1965	30,991	7,747	38,738	281.3	11.7	12.2	18.3
1966	31,352	8,024	39,376	286.5	11.7	12.1	17.6
1967	31,452	8,329	39,781	289.3	11.0	11.5	16.5
1968	31,377	8,614	39,991	292.9	10.3	10.9	15.9
1969	30,707	8,598	39,305	287.4	9.8	10.3	14.8
1970	29,632	8,143	37,775	275.1	9.3	9.6	13.3
1971 [1]	29,401	7,703	37,104	264.7	8.8	9.1	12.1
1972 [1]	28,463	7,304	35,767	252.8	8.7	8.9	11.5

[1] Excludes 9,600,000,000 barrels of crude oil and 26,000,000,000,000 cubic feet of natural gas added for Alaskan North Slope.

The Federal Power Commission conducted a study which projects the natural gas shortfall if present trends continue. The FPC's demand and supply projections indicate that such shortages will increase in volume and become more widespread. The FPC's Bureau of Natural Gas projects that demand for gas will exceed supply by 3.6 Tcf in 1973, 9.5, 13.7, and 17.1 Tcf in 1980, 1985, and 1990, respectively, despite the addition of gas supplements (22 Tcf is presently consumed nationwide). The FPC's projections are based on more moderate growth rates than were experienced in previous years.

To close this gap, an annual "finding rate"—annual additions to reserves—of approximately 37 Tcf would be required starting in 1973. This level of development represents a sustained level of annual new additions to reserves equal to that attained in 1970 when 26 Tcf of Alaskan gas were added to the reserve inventory. Put another way, the annual finding rate would have to equal one and one-half times the all time record for annual U.S.-non-Alaskan-reserve additions that was reached in 1956 of 24.7 Tcf, at the same time that supplemental sources are developed.

A graphic representation of this analysis follows:

TABLE 1.—U.S. GAS SUPPLY DEMAND BALANCE ACTUAL 1966-70; PROJECTED 1971-90

[All volumes in trillions of cubic feet at 14.73 psia and 60 ° Fahrenheit]

Year	Annual demand [1]	Net pipeline imports	LNG imports	Gas from coal	Gas from Alaska	Gas from liquid hydrocarbons	Domestic production	Annual consumption	Unsatisfied demand	Reserve	Year-end Reserves	R/P Ratio
1966	17.9	0.4					17.5	17.9	0	19.2	286.4	16.4
1967	18.8	.5					18.4	18.3	0	21.1	289.3	15.8
1968	19.9	.6	(2)				19.3	19.9	0	12.0	282.1	14.6
1969	21.3	.7	(2)				20.6	21.3	0	8.3	269.9	13.1
1970	22.6	.8	(2)				21.8	22.6	0	11.1	259.6	11.9

Footnotes at end of table.

TABLE 1.—U.S. GAS SUPPLY DEMAND BALANCE ACTUAL 1966–70; PROJECTED 1971–90—Continued

[All volumes in trillions of cubic feet at 14.73 psia and 60° Fahrenheit]

Year	Annual demand [1]	Net pipeline imports	LNG imports	Gas from coal	Gas from Alaska	Gas from liquid hydrocarbons	Domestic production	Annual consumption	Unsatisfied demand	Reserve	Year-end Reserves	R/P Ratio
1971	24.6	.9	[2]				22.8	23.7	.9	12.0	248.8	10.4
1972	26.1	1.0	[2]			[3]	23.8	24.8	1.3	13.6	233.0	10.0
1973	27.7	1.1	[2]			[3]	24.7	26.8	1.9	24.6	223.3	9.2
1974	28.3	1.1	[2]			[3]	24.8	25.9	2.9	15.0	219.6	8.8
1975	29.8	1.2	.3			[3]	24.7	26.2	3.6	16.0	303.7	8.4
1980	34.5	1.6	2.0	.3	.7	[3]	20.4	26.0	9.5	17.0	186.1	9.1
1985	39.3	1.9	3.0	1.4	1.3	[3]	18.5	26.1	13.7	17.0	175.4	9.5
1990	46.4	1.0	4.0	3.3	2.3	[3]	17.6	29.3	17.1	17.0	170.4	9.9
1971 to 1990 total	707.6	31.1	38.0	17.3	20.6	[3]	414.2	526.2	186.4	325.0		

[1] Consignees 48 States.
[2] Very small volume.
[3] Insufficient data for quantitative projection. Unsatisfied demand will be reduced by the amount of gas produced.

The "unsatisfied demand" has been filled largely by oil. Inasmuch as domestic oil production has leveled out at approximately 11 million barrels a day and total U.S. consumption is in excess of 17 million barrels a day, the difference has been made up by imports. The imports have been used to satisfy normal increases in demand for oil as well as increases in demand attributable to filling the unsatisfied demand in natural gas. The committee staff paper, prepared by Miss Starratt, contains estimates that unsatisfied natural gas demand by 1975 in oil equivalent will range from 2.3 to 5.5 million barrels a day.

U.S. oil imports in 1970 of crude and product averaged 3.4 million barrels a day. By the first quarter of 1973 oil imports had nearly doubled to 6.2 million barrels a day of crude and product, or 35 percent of total U.S. oil supply.

The Arab oil cutoff of crude and product, according to a November 15 National Petroleum Council report, amounts to 2 million barrels a day of crude and product, and the cutoff will be increased to 3 million barrels a day. The report states that—

On a conservative basis, the effect of a 2-million-barrel-per-day cutoff has been estimated to cause an annual loss of 48 billion dollars to the U.S. economy as measured by the Gross National Product. This slowdown in the economy would cause unemployment to increase from the current 4.5 to 5.0 percent level to over 6 percent. The projected 3-million-barrel-per-day cutoff would have an even greater impact and could push unemployment up to the 7.5 to 8.0 range.

IMPLICATIONS FOR NATURAL GAS SUPPLY

The upshot of the above detailed developments is that efforts must be made as soon as possible to encourage the development of domestic supplies of energy, particularly natural gas.

Thus, the question is what is the best means to rapidly increase the supply of natural gas.

Only deregulation of new gas only, is unsusceptible to reasonable criticisms.

It is also the option which is most favored by qualified academic economists who have no personal financial stake in its implementation.

It is the option preferred by Federal agencies responsible for energy policy.

It is the option which has precedent which has succeeded.

It is the only option which would eliminate uncertainty and regulatory delays.

It is an option likely to achieve a balance of supply and demand.

It is an option which can—based upon actual precedent—guarantee a significant increase of supply while affecting residential and commercial consumers with only gradual increases in gas bills.

It is an option which can promote an effective and workable industrial switch to other fuels than gas.

Mr. METCALF. Mr. President, as this debate on a long-term program for research and development of energy sources goes forward many people including President Nixon are trying to become a part of the act.

On the other hand there are pioneers in the field who have urged action to resolve the pending energy crisis for more than a decade. Such a one is Senator JENNINGS RANDOLPH of West Virginia. Senator RANDOLPH's contribution to our national understanding of the need for a national energy policy is no better epitomized than in an editorial from the Wheeling News-Register of Wheeling, W. Va. It is entitled "Senator Randolph the 'Prophet'." The chronicle of Senator RANDOLPH's efforts to alert the Nation is one that should be a part of this debate.

I add my personal congratulations to my colleague from West Virginia, and ask unanimous consent that the editorial from the Wheeling News-Register above mentioned be printed at this point in the RECORD as a part of my remarks.

There being no objection, the editorial was ordered to be printed in the RECORD, as follows:

SENATOR RANDOLPH THE "PROPHET"

No more prophetic statement relating to the current energy crisis ever was uttered than that by West Virginia's perceptive United States Senator Jennings Randolph on June 12, 1961.

Testifying before the Senate Interior Committee on that date, Senator Randolph spoke these words:

"Every year that passes, in which we become more and more dependent on foreign oil to buttress our national economy and security, perhaps is one year nearer disaster. What makes this all the more tragic is that it is unnecessary. The United States of America, the richest country the world has ever known, is, by its own complacency, gradually placing itself at the mercy of those it should most diligently guard against. By neglecting to apprise ourselves of the true, unbiased, realistic picture of our own energy wealth and stability, we are gambling with our country's future.

"This nation has a foreign policy—a defense policy—a farm policy—and the beginnings of a transportation policy. All are necessary and of first importance. But not one of them is so basic to our national security and economy as would be a national policy in respect of those energy fuels that make all of them possible and without which, or lacking an abundant available supply of which, would render all other national policies impotent and would disarrange our country industrially, economically, and militarily."

Imagine that—12 years before the Nation suddenly discovered that it was faced with a critical energy problem, Senator Randolph spelled it all out. In fact even earlier on August 18, 1959 Senator Randolph introduced a resolution in the Senate calling for the creation of a Joint Committee on a National Fuels Policy. Ever since, he has persisted in trying to arouse successive administrations to the need for an overall energy policy to head off a fuel crunch which now has arrived.

It must be galling to Senator Randolph to hear the many warning statements by the "Johnnies-come-lately" to the energy scene these days, including President Nixon's attempt to blame the Congress for not facing up to the problem earlier.

As we noted last week it was the Nixon Administration that opposed Senator Randolph's move in July 1970 to create a National Commission on Fuels and Energy.

It is time that we heeded the advice of Sen. Randolph and set about formulating and establishing specific national energy goals and policy objectives. Whatever policy we have at the moment is the sum total of the product of more than 40 federal departments, agencies and regulatory commissions.

We find it difficult to forget the repeated denials by the Nixon Administration and the major oil companies that a petroleum shortage was looming, denials repudiated by last winter's mini-crisis in heating oil.

Then, last spring, the administration and the industry reluctantly acknowledged that further shortages might be expected, but shrugged these off as potentially no worse than a one or two per cent inconvenience.

It is not too late now for a full and frank disclosure of the facts surrounding our current energy predicament. Regardless of where President Nixon wants to assign blame we insist that the record show the efforts made by West Virginia's U.S. Senator Randolph to head off the troubles with which the nation now is confronted.

Mr. METCALF. Mr. President, next I want to pay tribute to a man, not a Member of Congress, who repeatedly warned the United States about its lack of an energy policy. That man is Adm. Hyman G. Rickover.

Mr. President, on December 3 Vice Adm. Hyman G. Rickover was officially promoted to full admiral. This honor was an appropriate recognition by Congress of Admiral Rickover's unique contribution of nuclear powered submarines to the Nation. I emphasize Congress recognition, for, as was the case in his

promotion to rear admiral and vice admiral, it was through the efforts of Congress, not the Navy, that Admiral Rickover was given his promotion to full admiral.

On many occasions, his views have been ignored by the Pentagon brass. Fortunately, Congress has recognized Admiral Rickover's great foresight. Were it not for his persistence we would not have our nuclear Navy.

For years, the admiral has contributed his insight to another subject of national importance: Energy. As long ago as 1957, Admiral Rickover counseled energy conservation and warned us of the energy crisis that would come if we did not prepare for the future. For years he has advocated utility rate restructure, to encourage conservation of energy rather than its waste by large customers whose low rates are subsidized by high rates paid by low-income residential users and small business firms.

Unfortunately, few people paid attention to these warnings, or appreciated the admiral's vision of the energy problems. An excellent editorial in the Miami Herald and two articles by Bill Anderson in the Chicago Tribune recently appeared on this subject. I ask unanimous consent to print in the RECORD the editorial, "Admiral Rickover Was Right—Again," and the two articles, "Energy Woe May Create a 'New' United States," and "Rickover Scores as Energy Prophet."

There being no objection, the material was ordered to be printed in the RECORD, as follows:

[From the Miami Herald, Nov. 22, 1973]

ADMIRAL RICKOVER WAS RIGHT—AGAIN

The other day the Navy raised to the rank of full admiral crusty old Hyman G. Rickover, father to the same Navy's reluctant midwifery of the atomic submarine. We don't think that the ultimate in shoulder boards could rest on a finer American—and prophet.

Just as Admiral Rickover foresaw the future of national preservation underseas, so did he see the future above them which has come suddenly and shockingly. More than any man, perhaps, he foresaw the energy crisis.

In 1957, recalls Bill Anderson in The Chicago Tribune, the admiral put the matter to Congress in the framework of his own interest:

"High energy consumption has always been a prerequisite of political power. The tendency is for political power to be concentrated in an ever smaller number of countries. Ultimately, the nation which controls the largest energy resources will become dominant. If we give thought to the problem of energy resources we will become dominant. If we conserve what we have and prepare well for necessary future changes, we shall insure this dominant position for our country."

Once again, and for many years, the prophet was without honor in his own country. It is good that Admiral Rickover is still around, amply honored at last. Only last June he was pouring out advice to Congress again, and in specific terms. Those terms are in part today the basis of energy conservation bills before Congress.

[From the Chicago Tribune, Nov. 27, 1973]

ENERGY WOE MAY CREATE A "NEW" UNITED STATES

(By Bill Anderson)

WASHINGTON.—As bad as the energy crisis may be, it could be a lot more serious. And, in the long term, a reduction in the huge amounts of fossil energy used by most Americans could not only change lifestyles, but aim the thrust of the nation and its economics in a new direction.

For many months now, one of the sources of this column on the energy question has been Adm. Hyman G. Rickover, a scientist and energy expert perhaps without peer. We recall a conversation with him last May, when he asked the question, "Is life today 24 times as good as it was in 1920?"

What he was getting at was the fact that Americans today use at least 24 times the amount of electrical energy that we did 53 years ago.

And he points out that "the next American baby will make 500 times more claims on the earth's resources than any child born in India, Chad, or Mongolia. This kind of progress demands little imagination and its likely outcome [if continued] may be a return to a more primitive time."

For perspective, we should report that Rickover was born to working parents 73 years ago and to this day is proud of the fact that he held down two or three jobs at a time to earn an education.

One of these jobs was as a Western Union messenger boy. He used human energy to get from place to place—a practice he still follows by walking whenever possible, shunning the free government cars driven by chauffeurs.

Rickover's own research further shows that since the beginning of the industrial revolution, the use of man's own energy—especially in the United States—has dropped from about 95 per cent of all energy put forth for all things to roughly one per cent. It is almost accurate to conclude that Americans now work 95 per cent less than our ancestors did.

The admiral's reaction is: "The American public has been brainwashed during recent decades into the belief that progress means introducing into our lives everything we know how to produce—an endless variety of food additives, ever more powerful automobiles, higher and higher buildings serviced by high-speed elevators, a senseless consumption of electricity to create a more artificial life."

In testimony to Congress last June, Rickover predicted: "Fortunately, the future will not be a magnified form of the present, for the simple reason that the absurdities of current trends are generating forces which will soon change the course of technological societies. Beyond certain limits of complexity, which may have already been reached, societies become increasingly vulnerable to accidents as well as sabotage."

He adds that "other self-limiting factors inherent in the technological enterprise are shortages of natural resources." As an example, Rickover notes there is now such a high use of copper, once thought to be abundant, that the element is rapidly approaching the status of a precious metal.

"Land is the ultimate source not only of our material wealth—plant, animal, and mineral—but of our human and spiritual wealth, too." Rickover said. "For men and women, as much as plants and animals, are the creatures of their environment and depend on its quality for the full development of their faculties and potentials. If that environment is unsatisfactory, is cramped, ugly, and debasing, it will affect their character and limit their spiritual and mental growth."

In sum, this is the admiral's view: "We have the responsibility to use our technology to preserve the environment, not to exploit it; we must change our objective from a material to a spiritual one. The increasing number of protests against present social trends is a warning that electronic gadgets, plastic knickknacks, and processed foodstuffs do not compensate for the degradation of nature into wastelands, of bright atmospheres into murky skies, of free behavior into regimented life. . . .

"In our times the most effective manifestation of the counterculture may be the widespread feeling in the establishment itself that the time has come to challenge the rationality of endless economic growth and to formulate new social and technological policies."

[From the Chicago Tribune, Nov. 20, 1973]

RICKOVER SCORES AS ENERGY PROPHET

(By Bill Anderson)

WASHINGTON.—Now that the mass media have discovered the energy crisis, the subject has become as dear to politicians and commenators as motherhood. The cold weather will make even more strange bedfellows as the cries increase for smaller cars, mass transit systems, and lower temperatures to save oil.

Yet as far as Hyman G. Rickover is concerned, this is not only old stuff, but too little and perhaps even a bit too late for a world that has long been wasting and spending energy at rates it cannot afford—energy it cannot replace.

As readers of this column may remember Rickover has long been on record in warning citizens that drastic measures were needed to head off this current crisis and to prepare the nation for even leaner years ahead. For those who do not know Rickover, he is a blunt-talking admiral still on active duty at 72, and he is recognized by many as one of the world's foremost energy experts.

Ironically, while he is admired and respected by members of both political parties [and often hated in the Navy], Rickover has been largely ignored by official Washington in the field of energy. For example, we find Rickover on record before the Congress 16 years ago, saying:

"High energy consumption has always been a prerequisite of political power. The tendency is for political power to be concentrated in an ever smaller number of countries. Ultimately, the nation which controls the largest energy resources will become dominant. If we give thought to the problem of energy resources, if we act wisely and in time to conserve what we have and prepare well for necessary future changes, we shall insure this dominant position for our own country."

Diplomats tend to agree that Rickover's logic simply underscores the struggle for Middle East oil and the complications that have arisen as American allies in the North Atlantic Treaty Organization scramble to preserve their fuel supplies. His thoughts of 1957 are the heart of today's almost frantic moves toward national "self-sufficiency" in the area of energy.

The big problem with Rickover's thinking, as seen by some politicians, is that he has been too forthright [and right] in most of his predictions. "Hyman was exactly correct when he once told Congress he couldn't be elected dogcatcher," said one senator [and a friend].

In other words, Rickover makes waves when he proposes ways and means to live with the shortages. In his recommendations to Congress last June, Rickover's short list of things to do were:

"Take action to discontinue exporting energy resources we now possess."

"Change the price structure [presently] used by utilities wherein the unit cost decreases as consumption increases. We should be encouraging conservation, not consumption."

"Tax automobiles on the basis of weight and engine displacement, and possibly on the basis of fuel consumption, with maximum allowable limits on these factors."

"Prohibit utilities from either deducting for tax purposes or passing on to the con-

sumer any expense incurred in efforts to expand their markets."

"Recognize that population expansion is inescapably part of the growth in energy demand, and consider providing tax incentives for smaller family sizes. This, like most other unpopular problems, will not just go away if it is not faced."

Many other Rickover recommendations are in the field of conservation. These include such things as more walking, more wearing of sweaters.

Rickover correctly points out that 210 million Americans, about 6 per cent of the people on this earth, already use about 40 per cent of the energy consumed each year. Our air conditioners alone consume more electrical energy than is used for all purposes by 200 million Chinese, he says.

In essence, Rickover also says that there is no reason Americans can't actually use less and enjoy life more. He says there is a "senseless consumption of electricity to create a more artificial life." But just to keep pace, Rickover also urges more research and development. The nuclear expert says he believes solar energy is an interesting alternative potential "for the simple reason that the sun's energy is the only essentially limitless resource available to us."

Mr. ROBERT C. BYRD. Mr. President, I support S. 1283, the National Energy Research and Development Policy Act of 1973. This is legislation, I believe, that can do a great deal to help us solve the energy problems that confront us.

I do not know, and no one else knows at this point, whether our Nation can become self-sufficient in energy, or how long it will take if we find that we can reach that desirable goal. But this bill, I believe, can do what now needs to be done to move us in the direction that we must go.

The conservation of energy is of critical importance to the Nation, but finding new sources of energy—sources over which our own country can exercise control—is of even greater importance. I believe the American people will go along with all reasonable proposals for saving energy. But, in view of the administration's indecisiveness, it is up to the Congress to provide the leadership and the programs that can bring about the increased supplies and the improved sources of energy that America's economy demands.

Others have noted, and I will not dwell on the point, that it has been amply demonstrated before that, when our country undertakes a concerted effort to solve a particular problem or to reach a particular goal, we generally succeed. In World War II, when our supplies of natural rubber were cut off, we undertook an all-out effort to produce synthetic rubber for tires and other purposes that freed us from dependence upon the natural product. In that same era, our scientists in an intensive, concerted effort unlocked the secret of producing an atomic bomb. And, more recently, our successful moon landings demonstrated once again that America can meet challenges through comprehensive, adequately funded efforts.

S. 1283, I think, provides the framework for the research and development effort that we must make if we are even to approach self-sufficiency in energy. This bill is needed, because we must make a comprehensive, coordinated, adequately funded national effort to undo the damage that our lack of planning and effort in the past have caused.

As desirable as are energy R. & D. programs in the private sector, only the Federal Government can really bring to bear the overall attack on the problem that is needed. Some excellent progress has already been made by private enterprise—in a number of instances working with agencies of Government—in energy research and development. But what is needed now is the total team effort that Americans working together are capable of undertaking. Joint action by Government and industry is needed.

The team effort can be achieved, I believe, through the provisions of the bill that would be set up, an energy research management project to bring together, as a unit, representatives of the Department of the Interior, the Atomic Energy Commission, the Federal Power Commission, the National Science Foundation, the Environmental Protection Agency, the National Aeronautics and Space Administration, the National Bureau of Standards, and other appropriate agencies of the Federal Government. This approach, it seems to me, is sound. The Congress, of course, will retain its oversight function.

Admittedly, this so-called crash program will be costly. But I consider it a cost that our Nation can avoid only at the risk of becoming a second-rate economic and military power. Had the voices of those of us in the Congress who anticipated the energy crisis been heeded in earlier years, we probably could have avoided a good portion of the cost, as well as the emergency nature, of the measures we are now considering. It is unfortunate that emergencies have historically so often been necessary to bring needed action.

Mr. President, if our Nation is to continue to grow and to prosper economically, we have need of all the energy we can produce. I believe that this bill is broad enough in its concept to enable us to move forward aggressively on a number of fronts as we seek to meet and overcome the energy crisis.

We need to push forward on one front especially—that involving coal. The production of coal is of vital interest to my State of West Virginia, but my interest in this matter is far from being merely parochial. Many other States in our Union also have large coal resources. The United States may have as much as half of the world's deposits of coal—enough of this versatile substance to supply our energy needs for several hundred years to come.

As a nation, we have been shortsighted in the extreme in neglecting the development of the technologies needed to extract from the coal seams beneath our hills, valleys, and plains the enormous energy and raw material potential they contain. My interest in the matter over the last two decades has been based on the fact that our country is blessed with coal reserves so extensive that research and development in this one area alone could go a long way toward solving our energy problems.

But S. 1283 goes well beyond proposals for better utilization of our coal reserves. It would establish development corporations to demonstrate technologies for shale oil development, advanced power cycle development, and geothermal steam development; and it would authorize the Secretary of the Interior to make mineral resources of the public lands available for these development corporations.

All in all, I find this measure to be a comprehensive one providing for many avenues of attack on our energy problems, and I commend the Committee on Interior and Insular Affairs, and its distinguished chairman, Senator JACKSON, for the dedicated and arduous work they have so obviously put into the task of bringing this bill to the floor.

Let me make one final comment with respect to S. 1283. We in the Congress have a responsibility for providing the mechanism needed for energy research and development aimed at making this country eventually self-sufficient. But we also have an additional responsibility. We must seek to provide for our country's energy needs while at the same time providing for the protection of its environment. An excellent start has been made toward cleaning up our air and water. Some temporary relaxation—and I stress the word temporary—will obviously be necessary in these programs as we seek to deal with the immediately critical aspects of our fuel shortages. But, for the long term, our goal and our guiding principle must be that we meet our energy requirements through environmentally acceptable means. This bill takes note of that necessity, I am glad to say.

Mr. FANNIN. Mr. President, the research and development legislation we have discussed here today will provide a major boost for solar energy development.

Two of the most knowledgeable persons in this field are Drs. Aden and Marjorie Meinel of the Optical Sciences Center at the University of Arizona in Tucson.

Arizona's most abundant resource is sunshine, and if we can develop solar energy our State will be a national goldmine.

The Meinels are exceptional scientists, and they have carried on their work even when there has been insufficient funds. They were advocates of solar energy before it was made glamorous in the space program and before it was made so necessary as a result of the energy crisis.

Mr. President, 2 weeks ago the Meinels filed a report concerning the status of solar research. This report puts the main thrust on using solar energy for heating rather than electrical power. The Meinels believe that a crash industrial effort could enable solar heating to replace a significant part of the load on natural gas and oil for commercial buildings within 2 years. I ask unanimous consent that this interesting and informative report be reprinted in the RECORD.

There being no objection, the report was ordered to be printed in the RECORD, as follows:

SOLAR THERMAL APPLICATION STUDY: STATUS, ECONOMICS, AND PRIORITIES

(By Aden B. Meinel and Marjorie P. Meinel)

RECOMMENDATIONS

This statement summarizes our studies of photothermal power generation and other applications for solar heat. It represents a considerable change from early thoughts on the subject stated in articles and presenta-

tions by Aden and Marjorie Meinel in 1970–72. These changes are due to research progress and to recent events on the energy scene.

The priorities we recommend below refer to *industrialization* thrust, not necessarily to the research and development thrust.

Priority 1. Solar heating to replace natural gas and oil for heating: first for federal, state and commercial business buildings; subsequently for industry and lastly for homes; to reduce but not fully eliminate oil and gas demand by these customers. There are important practical and economic reasons for this order of use.

Priority 2. Solar heating and cooling for new construction of commercial buildings and homes; later for conversion of existing air conditioning units when appropriate for the customer.

Priority 3. Solar thermal electric power units for community-sized systems using low temperature technology, 300–400° F. Industrial evolution will lead to larger units and/or higher temperatures in a natural way as the industry matures.

Aden B. Meinel, Marjorie P. Meinel, Optical Sciences Center, University of Arizona, Tucson, Az 85721.

Robert E. Gerlach, Helio Associates, Inc., 8230 E. Broadway, Tucson, Az 85710.

James L. Knickerbocker, Tucson Gas & Electric Co., Tucson, Az 85701.

Due to the shortness of time for the preparation of this summary statement the recommendations herein represent the opinions of the authors and not necessarily those of the several organizations shown.

Our research was originally directed to large-scale solar electrical power production. We have recognized that current events have focussed attention on what solar energy can do to substitute for oil and natural gas in the immediate future. Our recommendations reflect this changing emphasis.

In the discussion below we re-trace our study of power generation and its extension into a gas augmentation program applicable to Arizona.

PROBLEM IDENTIFICATION

The major barriers to early utilization of solar photothermal heat and power by utilities are *cost* and the *interruptible* nature of the energy source.

The principal problems ahead are not in the area of science or technological innovation. Enough is now at hand to proceed. The problem is the industrialization of available technology and the economics that will follow industrialization. The National Science Foundation has set the scene for industrialization, but such a role seems to call for management by an action-oriented energy agency.

PROGRESS REVIEW

We have explored several approaches to solar thermal conversion. The first was via concentrating mirror or lens devices to produce temperatures in the range generally used for electrical power production (1000° F). We find that none offers a cost lower than 2000–3000 $/kwe.

Our experiments also show that concentrating devices are operationally limited by their intrinsic sensitivity to atmospheric haze and clouds. Projections based on total solar availability of 300 days in Arizona must be scaled down to under 200 days since only optically clear days can be used effectively. This larger number of interruptions for weather significantly reduces the desirability of solar power from mirror devices.

We cannot recommend any of the concentrating solar collector designs we have seen to date (with the possible exception of one) for further intensive development to the demonstration power unit phase.

We feel more optimistic in regard to power generation from lower temperature collecting devices (300–400° F). These temperatures can be obtained from advanced flat plate collectors using selective absorbing surfaces and selective windows. Such collectors require no sun tracking and utilize flux from cloudy and diffuse as well as clear skies. Their capital construction cost appears to be potentially between 500 and 1000 $/kwe. A prototype unit of this type might be funded by local utilities without waiting for a federal program to evolve.

We recommend intensive effort toward a low-temperature electrical power test bed to utilize the NSF-sponsored selective coating developments at the University of Arizona and Helio Associates. We do not share the NSF reservations (pre-crisis) about the timeliness of a test bed of this type. We think that answers from a test bed of sufficient size for credibility are urgently needed. Our reasons for optimism about this test bed are as follows:

(1) Stable selective coatings in flat plate collectors offer 40–60% energy extraction at 340°F. This temperature can use pressurized water as the heat transfer medium and provide inexpensive energy storage.

(2) Several western utilities under the lead of San Diego Power & Light Co. have developed an isobutane turbine system to use 340°F. geothermal waters. This application has encountered difficulty with the deposition of geothermal minerals in the heat exchanger. The entire turbine development, however, could be used unchanged with solar-heated water. This proposal maximizes current investments in development to facilitate an early test bed or demonstration unit in the 100 kwe to 10 Mwe range.

The first phase of the above solar demonstration system would be without a turbine subsystem, simply dumping the collected energy from storage through a dummy load. A budget prepared by Helio Associates for a 160 kwe unit, based on a conservative schedule to be utility funded, was 4.0 million dollars over 3 years. This program could be compressed into 2 years but at an increased cost due to parallel schedules.

We recommend early attention to the need for and design of an integrated manufacturing facility for solar power units. Such a specialized facility will be needed to effect maximum early cost reductions from those for the prototype systems.

The collector field has been clearly identified as the most expensive subsystem. Collectors must be manufactured and field installed at a cost between 1 and 3 $/ft^2. Another way of stating cost targets is that they must be produced and installed for approximately 1.00 $/lb. By way of comparison, the advertised sale cost of a Chevrolet Chevelle by dealers in Tucson is currently 0.74 $/lb. We think that a solar collector is a simpler device than an automobile and that a cost of less than 1.00 $/lb (1973) is a reasonable goal for U.S. industry.

SCALE OF APPLICATION

Solar photothermal power units appear feasible over a considerable range of size. Very small units (single family) are uneconomical and pose certain maintenance problems. Very large units (1000 Mwe class) are inefficient because of heat losses in transporting heat to a central location. Moreover, a large unit represents an immense investment. The associated risks with an early technology also argue strongly against large central power stations early in the history of solar power.

We recommend that early commercial solar power units be in the "community" or "sub-station" size range of 10 to 100 Mwe. The time scale for development can be reasonably short and the investment risk modest. Total-energy packages for shopping center and industrial plants as small as 1 Mwe may represent an easier avenue for penetration of the market for power.

PROGRAM ACCELERATION

We think that the development of the first 10 Mwe solar power unit can be compressed within a 5-year program. This accelerated program will depend on simultaneous parallel efforts in key program elements at corresponding costs. We will be glad to detail our program schedule at the appropriate time. We hesitate to quote a cost until the program has been better defined.

ECONOMICS

The cost of the first 10 commercial solar thermal power units will be higher than for fossil or nuclear power units, probably between 1000 and 2000 $/kwe. Co-mingling this expensive power within a region will not cause a significant cost increase to the consumer. Utilities will nevertheless be slow to act without significant fiscal encouragement from federal levels through direct participation or via indirect avenues.

It is too soon to pretend that costs can be estimated for solar thermal power. We agree with the analyses by ORNL, Aerospace Corp., Boeing and others that mirror and lens devices (including our early designs) are too expensive to warrant heavy expenditures. We think that flat plate collectors and development of manufacturing methods do warrant early and significant expenditures on test beds and demonstration units.

PRIORITIES

Thus far we have reviewed our studies in regard to power production. In the assignment of priorities for scarce federal resources one must look at the broader picture. We have in fact been examining how our technology can be applied to more immediate needs. In the section below we outline our recent studies in the context of the Arizona natural gas situation.

Arizona faces a critical shortage of natural gas and is apparently denied propane and/or naphtha as alternatives. It is clear that simple augmentation of natural gas is needed as soon as possible. We have started evaluation of a "Gas Augmentation Program" (GAP) with TGE to place simple solar collectors on commercial buildings to supply 50 to 80% of the space heating and hot water demand. The goal is a significant reduction in natural gas use in the area served within 2 years. The technology required to meet this simple need is at hand, but industrialization is the bottleneck.

Tucson does not have a power shortage, having large coal plants at hand in the 4-Corners area. As a consequence, refrigeration does not need immediate replacement by solar energy units since over 90% of the city load is via compressor refrigeration units. We do not need to wait for full "climate conditioning" units to be developed to address a need in Arizona. Space conditioning packages can affect the new construction market, but our studies identify conversions from natural gas to be an area where the earliest impact from solar energy can be felt. Since most commercial buildings have flat roofs there will be no visual impact from the installation of solar heating collectors. Home applications are not as simple.

Based upon the present thinking of TGE and Helio Associates the priority thrust of available local funding is in the GAP program, with the solar thermal electric program being of second priority. This does not mean that the 340°F. power test bed will be placed on the shelf until the GAP program is engineered and into production since resources will probably be found for *both* programs.

We have summarized our recommendations on national priorities regarding solar thermal applications at the front of this report. Priority 1 is for the gas and natural gas heating augmentation effort and uses the lowest technology. Priority 2 is for climate conditioning packages. We would be personally inclined to place low temperature power technology in this second position, but feel that since climate conditioning requires somewhat lower technology than power units it perhaps belongs in second position. Priority 3 is for community-sized power units using low-temperature technology.

SOLAR THERMAL POWER PROGRAM OPTIONS

Major program elements	Normal schedule [1] status at 5 yr.	Accelerated schedule [2] status at 5 yr.	Crash schedule [3] status at 5 yr.
1. Prototype collector with thermal storage (design, build, test).	Completed	Completed	Completed.
2. 100 Kw_e test bed, without turbine subsystem (design, build, test).	do	do	Do.
3. Manufacturing facility (design, construct, operate)	Design complete, construction started	Construction completed in production	Construction completed, in production.
4. 1 Mw_e pilot plant. (design, construct, operate)	Design complete, preliminary construction started.	Construction completed, initial operation	Omitted.
5. 10 Mw_e demonstration plant (substation prototype)	Preliminary design, no construction	Construction started	Construction completed, test operation started.
6. 100 Mw_e operational plant (central power unit)	No start	Preliminary design	Final design.

[1] Normal schedule: Low risk, sequential development.
[2] Accelerated schedule: Moderate risk, parallel development.
[3] Crash schedule: Larger calculated risks, intensive parallel development, some steps omitted.

ENERGY R. & D. BILL VITAL TO SECURITY AND PROSPERITY OF AMERICA

Mr. HUMPHREY. Mr. President, the legislation before us today, the "National Energy Research and Development Policy Act of 1973," is as important to the prosperity of our people and security and independence of our Nation as any legislation I can recall during my service in the Senate. I am pleased to have been an initial sponsor of this vital legislation.

It is only in recent months that most Americans have come to realize what energy shortage really means. It translates quite directly into higher unemployment, increased inflation, reduced production, shortsighted environmental policies, and reduced independence in foreign policy.

Obviously, a major research and development effort to provide our Nation with the capability of self-reliance for our energy needs is essential. We cannot allow the fate of our country to be placed in the hands of any other nation.

As chairman of the Consumer Economics Subcommittee of the Joint Economic Committee, I have held a series of hearings, beginning last May, on the "energy crisis" and steps that can be taken to alleviate it.

During the many hours of expert testimony on this problem, one theme was repeated over and over again. It was that regardless of what efforts we make today to deal with the immediate "energy crisis," we will be in an energy-scarce world for years to come. Therefore, the experts agree, a major research and development effort to provide for the long-term needs of our Nation must be mounted at once.

But energy self-sufficiency will require more than the appropriation of dollars and the creation of an organizational focus, although these are essential. To reach this long-term goal, the imagination of our people must be sparked and the creative genius of America mobilized. This is the real challenge of the energy crisis, the challenge to the will and talent of a great nation.

The bill we see today is the first and most significant response to this long-term challenge. Senator JACKSON and the other members of the Interior Committee deserve the gratitude of our Nation. They have acted swiftly and well to achieve our long-term goal of energy self-sufficiency.

The "National Energy Research and Development Policy Act of 1973" achieves two vital objectives. First, it authorizes a substantial increase, $800 million more each year and $20 billion total in the next 10 years, to provide our Nation with the capability of meeting all of its energy needs itself.

Second, it provides an organizational focus for all energy research and development and requires the preparation of a detailed energy research and development strategy for approval by the Congress in a realistic time frame.

Of course, this legislation was not intended to and does not establish levels of effort for alternative sources of energy. In the first instance, the "Energy Research Management Project" will be responsible for advising the Congress on the appropriate levels of effort in each case. However, I would like to make it clear that I for one will be giving their program recommendation very close scrutiny to assure that all potential sources of energy are being adequately funded, given their unique potentials.

This gross allocation of resources between energy alternatives is a policy question that the Congress can and must make after receiving the best technical advice possible. Concerns for the environment, cost of energy, foreign policy flexibility, employment generation, and the like are intimately tied to these basic allocation decisions. I will be watching them very closely.

DEREGULATION AND THE PROFITS OF OIL

Mr. McGOVERN. Mr. President, a generation ago, my predecessor in this body rose to tell of an attempt to influence his vote on legislation which would deregulate the price of natural gas at the wellhead.

The late Francis Case, a man of unimpeachable integrity, with his disclosure of a proffered campaign contribution, set in motion the forces that led to the ignominious end of an all-out campaign by the oil companies to deregulate natural gas prices.

In reading the remarks of my distinguished predecessor, I am moved by the integrity of this public servant. He was not of my party, and we may have disagreed on some issues. But no one who knew Francis Case, and no one who now reads his remarks of February 3, 1956, can dispute his integrity.

Senator Case described to the Senate how an individual who was not a South Dakotan, and whom he had not met, delivered to a friend of the Senator's an envelope containing 25 $100 bills, and said, "It's for his campaign."

Upon investigation, Senator Case said, he learned that the gentleman had been in his office some weeks before, and had told his staff of his interest in the enactment of deregulation.

My predecessor ordered that campaign contribution returned, and announced that he would vote against deregulation, not on the merits of the bill, but because advocacy of deregulation "is that of doing something so valuable to those interested in natural gas that they advance huge sums of money as a down payment, so to speak, on the profits they expect to harvest."

The issue before the Senate in 1956 is before us again today. And this time the administration is fully behind the deregulation of gas prices. The administration position may be sincere. But the uncomfortable fact remains that the oil interests gave hundreds of thousands of dollars to the Nixon campaign.

We know that deregulation is a major objective of this administration. And we know that, scarcely over a year ago, their campaign received over $1.5 million in contributions from executives of the petroleum industry, and at least three illegal contributions from big oil corporations themselves.

Mr. President, it raises again, as it did in 1956, this question: Why is deregulation so valuable to these companies as to justify such huge down payments?

The answer, I submit, is the enormity of profit which would be brought about by deregulation. And the windfall would go to companies whose profits are already swollen by the energy crisis.

The 31 largest oil companies, in the first 9 months of 1973, saw their profits increase by 47 percent over the comparable period in 1972. For the third quarter alone, their profits increased 63 percent over the same quarter a year ago.

There can be no argument with the fact that these companies would benefit handsomely from deregulation. The only argument is over whether consumers would benefit from increased gas supplies which deregulation allegedly would stimulate, and how the increased gas prices which follow would affect the consumer.

The administration, the giant oil companies, and the advocates of this legislation make a case for deregulation that is fragile, at best, but at worst almost unbelievable.

We should examine some of their arguments.

First, advocates of deregulation maintain that alleged "heavy-handed" price regulation has discouraged exploration for new gas, causing the present supply pinch in which we are found.

The fact is that this so-called "heavy-handed" regulation has allowed the oil and gas companies a price which covers whatever production costs they can demonstrate, including dry-hole costs, plus a profit of 15 percent. Mr. President, there are a number of small businessmen in South Dakota who would be delighted to expand their businesses if a Federal agency were to guarantee them a 15 percent profit.

Rather than blaming regulation for the present shortage of gas supply, I

think we should look for the answer, as does the Bureau of Economics of the Federal Power Commission, in the anticipation of higher prices which deregulation would bring.

In addition, it defies logic to claim that regulation has caused shortages of natural gas when the prices of gasoline, home-heating oil, and diesel fuel have been exempt from regulation, and these too are now in short supply.

Second, advocates of deregulation claim that their approach would bring about exploration, increasing the supply of natural gas.

It is a claim, and no more. Higher prices, even vastly higher prices, cannot guarantee that there will be incentive for investment in gas exploration until the price rises high enough to provide a return greater than what might be provided by an alternative investment, say, in coal, uranium, or foreign exploration and refining.

No, Mr. President, there is not a shred of assurance in this amendment that it will provide a single additional cubic foot to provide the gas needed to heat our homes, move our industrial machine, and dry our crops.

The only assurance in this amendment is that the consumer price for natural gas will rise.

Third, the advocate claims that the price rise will be in pennies. I maintain that the price increase would be billions.

The American Petroleum Institute recently provided Members of Congress with summaries of a 150-page study by Foster Associates, Inc., a consulting firm, which held that the impact of deregulation on consumer prices would be minor.

I asked the Library of Congress to analyze that study, and I received that analysis some time ago. The Library of Congress finds serious fault with the industry study. Even by accepting, for purposes of argument, the assumption in the study that gas prices would rise from its present 25 cents per thousand cubic feet to 55 cents, the cost to the consumer would be more than $2 billion next year alone.

And it is easy to debunk the assumption that wellhead prices would rise only to 55 cents per million cubic feet. Buyers today are willing to pay to $1.25 per million cubic feet for synthetic and imported natural gas. It follows logically that wholesale gas prices could increase 5 times, and the added cost to the consumer could easily be $6 billion or $7 billion.

Potential increased profits of this magnitude seem to me to answer the question which Senator Case raised in 1956. For an investment of a few suitcases of $100 bills, a return in the billions, to say the least, is better than buying savings bonds.

There are alternatives which are far better for the consumer and the Nation. The Committee on Commerce, under the able leadership of Senator MAGNUSON and Senator STEVENSON, is exploring them on an accelerated schedule. Senator STEVENSON has proposed the best alternative—streamlining the regulatory system, and creating a Federal corporation to explore for and develop oil and gas reserves on the federally owned lands. These approaches hold the promise of stimulating the increased gas supplies the consumer requires, without extracting painful tribute.

Mr. President, I urge the Senate to reject the amendment, get on with the pending business, and allow the Committee on Commerce to proceed on a course which will be fair to all.

I ask unanimous consent to insert in the RECORD at this point the remarks of Senator CASE on the Senate floor on February 3, 1956, and a copy of my letter to the Library of Congress requesting an analysis of the Foster Associates study, and the reply which the Library provided to me.

There being no objection, the material was ordered to be printed in the RECORD, as follows:

[From the Congressional Record, Feb. 3, 1956]

Mr. CASE of South Dakota. Mr. President, I rise to make a difficult speech. I had not expected to take part in the debate on the pending measure, the so-called natural-gas bill. I know very little about the economics in the collection and distribution of natural gas. I speak, therefore, only because one phase of the matter before us has presented itself to me in an unsought and now unavoidable manner.

By far, the overwhelming sentiment of the people of my State, as expressed in telegrams and letters during the past several weeks favors the passage of this bill. In the folders on my desk, 94 telegrams urge me to vote for the bill; only 11 telegrams oppose it. Of the letters received from South Dakota sources, 45 favor the bill, while 30 oppose it. Editorials in the State newspapers, both daily and weekly, are predominantly for the bill.

Among the senders of the telegrams are many of my very closest personal friends. Among the writers of the letters and resolutions are many officials and quasi-public bodies. A decent respect for these people who have expressed themselves in good faith on the evidence before them compels me to state in as clear a way as I can the reason or reasons why I cannot vote for the bill as it stands before the Senate today.

About a week ago, as I was signing out the day's mail, and talking at the same time to a couple of visitors, a long distance telephone call came in. I took it at once with the visitors present since it was after 5 o'clock, and I did not want to be late for other engagements by asking that the operator call back.

The voice at the other end of the line was that of a friend of mine in a South Dakota city who said that a caller had left an envelope with him that was to be given to me—a contribution for my forthcoming campaign. My friend said that he had opened the envelope and found it to contain hundred dollar bills, 25 of them in fact. He said, "What shall I do with it?"

I was a bit startled. That would be the largest single contribution I could remember for any campaign of mine. But, the visitors were present; I was short on time; so I suggested he might turn it over to another friend in the same city, who, it so happened, within the past month had been receiving a few voluntary contributions to help with the preliminary costs of my campaign for reelection. But I asked, "What did you say was in the envelope?" and, "Who did you say left it?"

My friend said the envelope had been left by a man who had been in Washington to see me recently. He gave his last name. It did not register with me at once, but with the visitors present and with time short, I did not prolong the conversation.

But once the visitors had left, I asked my secretary who was folding the mail that night, if she could remember any caller by the name given. She did not. Next day, I asked others in the office. None remembered him, but my legislative clerk was away all last week attending the funeral of her mother. So that morning, I telephoned my friend who had been receiving campaign contributions and told him that if an envelope with currency was turned over to him not to deposit the funds and not to mingle them with any other funds but to hold them in a safe until we learned more about them.

When my legislative clerk returned this week, she vaguely recalled that someone by the name mentioned had been in one day when I was at committee or otherwise tied up and that she had talked with him briefly. She thought he had made some inquiry about the natural-gas bill. Then it seemed to me that I recalled having received a letter earlier in which this man's name had been mentioned by a South Dakota correspondent.

We did not find the letter for a couple days because it was received early in December and had been put in the storeroom files for last year. The letter stated that "the other day a gentleman by the name of ——— from ——— another State—stopped in my office during which time we were visiting relative to the Harris bill which is coming up in the next session."

The visitor had inquired of my correspondent about my probable stand on the bill and my friend wrote to inquire. He stated his own opinion that a "lot of controls should come out of Washington and go to the States instead of more controls going to Washington."

My letter in reply said:

"Generally speaking, I think the purpose of the Harris bill is desirable, and unless it has some complicated issues, I would expect to vote for it when it comes up in the Senate. However, I should like to retain freedom of action should it appear upon analysis that it would have issues that would conflict with what I understand to be its main purpose in maintaining State control for intra-State development."

My legislative clerk has been unable to recall that when this visitor of a similar name did call that any specific question was asked as to my stand. She thinks he probably gained the impression that the correspondence coming to my office was predominantly in favor of the bill and that as far as anyone knew, I was likely to vote for the bill but that the letters we had written refrained from any final commitment, one way or the other. That is true. I refrained from making any final commitment, one way or the other.

I then asked a friend here in Washington from this man's State if he knew a person by that name. He did. He was an attorney by occupation. At once, I deduced that he was representing clients. I have not tried to find out if he is registered as a lobbyist.

As soon as it was thus determined that the out-of-state person who had left the envelope in South Dakota was interested in the passage of the pending bill, I knew of course that I could have nothing to do with its contents. No one need pin any halos on me for such a conclusion.

I knew that if the contribution were listed and reported that a contribution of that size would stick out like a sore thumb among the $5, $10, and $25 run of contributions in any list of mine. Reported, it would be instant meat for a columnist whose name I do not need to mention.

And, were I to take advantage of the fact that the contribution was in currency and not report it, I would be the prisoner for the rest of my legislative career of a man whom I had never met, whose restraint, if we wanted a vote some future day, no one was guaranteeing.

And, if no exposure ever took place, Mr. President, I come from a State which still cherishes a remark once made by a distinguished predecessor, Hon. William J. Bulow, who once in this Chamber, when he had to oppose a bill many friends wanted, said, "I have to walk with my conscience to the end of my days."

So pin no halos on me. With the identity of interests established, I promptly sent a telegram to the friend who was holding the envelope and told him that we could not accept the funds, and that if the real donor was not identifiable and return was impractical, I suggested they be turned over to the South Dakota Children's Home Society and that an appropriate receipt be taken.

I presume that some people may think the incident might well end at this point. Someone offered us a campaign contribution; handy as it would have been, we decline it. That is that. So what? I am free to vote on the bill as I please. Free to vote for free enterprise. Free to vote against more regulation and redtape. Free, Mr. President, except for one thing—and that is what this experience reveals as to the nature of the problem before us.

Consider for a moment, as I have had to consider for the past few days, what this experience reveals as to the interest which somebody somewhere has in the outcome of this legislation and the course that has been followed to influence one vote.

It is idle to pretend that there is nothing to it when a lawyer from another State whom I had never known would contact a mutual friend in my State and ask him about my stand back in December and then that this lawyer should come to Washington and identify himself as knowing my friend in South Dakota, and, failing to see me because I was tied up when he came, should visit with my legislative clerk about the pending bill and endeavor to get some idea of my probable attitude; and then should return to the West and go to South Dakota and there leave an envelope with 25 hundred dollar bills in it with this friend and say, "It's for his campaign."

It is idle to pretend, Mr. President, that there are not substantial profits in this bill for some person or persons to put up the money to employ the lawyer on that kind of enterprise. Bear in mind that I am not yet a party candidate; I have not been renominated. It is not a matter of establishing a majority in the Senate for a political party—it can only be an interest in what my vote might mean in the immediate future or present.

In the matter before us, one of the issues is the charge that the passage of this bill will be immensely profitable to the owners of gas reserves. I have heard it said, if my memory is correct, that the estimates of the windfall of increased values may be 1, 2, or 3 billions of dollars for the several trillion cubic feet of gas in proven reserves. We have heard it said that the consumers of natural gas over a period of years may pay these billions in additional charges. It has also been alleged that this bill will place a floor under the price of natural gas when it enters the interstate pipelines that will, in turn, shore up the price of competitive fuels, all adding to the ultimate costs paid by the consumer public, thereby adding greatly to the assets and profits of all who own the fuel reserves.

Mr. President, I have been impressed at times during the debate by many of the arguments advanced for the bill—the encouragement to exploration and development that it would give; the minimizing of Federal regulation; and the avoidance of governmental intrusion into borderline interstate and intrastate cases.

I do not accept the argument on federalism advanced by the able Senator from Oregon [Mr. MORSE]. I do not think we should assert Federal control over every facet of commerce simply because the Constitution gave Congress the power to do so.

I do not object to the public's paying a fair price for its natural gas, a price that will compensate the producer and the distributor, a price that will, coupled with the existing 27½ percent depletion allowance, afford abundant encouragement for exploration and development.

The point at which I object, however, Mr. President, is that of doing something so valuable to those interested in natural gas that they advance huge sums of money as a down payment, so to speak, on the profits they expect to harvest.

The other day, the distinguished Senator from Missouri [Mr. HENNINGS] said on this floor:

"The concentrated money power of the great oil companies, wielded today to influence the decision of national Government by contributions to both parties in many parts of the United States is a menace to the proper functioning of free government within this country."

Free government, Mr. President, requires freedom for those who write the laws. If we pass a law that creates a huge endowment of future profits for holders of gas reserves, we might be mortgaging the issues of the future. Unrelated legislation could be influenced by the unregulated profits derived from monopoly prices paid by the captive customers at the end of the delivery line.

I see on the floor the distinguished Senator from Tennessee [Mr. GORE]. He will now understand why I asked him, at the conclusion of his remarks, for a clear definitive statement as to his conclusion on the question whether the consumer was a captive at the end of the delivery line.

Mr. President, the creation of a class who can seek to affect the choice of many States' representation in the Congress is a far greater danger to the country than a temporary shortage of gas. The people in the gas and oil business whom I have met are good, decent people. They are convinced that their ideas of good government are sound as any citizen's might be. None of them has ever told me I should vote so and so. But when the passage of a bill becomes so alluring that dollars are advanced to potential candidates even before primaries are held the warning signals go up, Mr. President.

I repeat, Mr. President, warning signals go up.

Government cannot remain free if those who write the laws are obligated to those who will get the extraordinary profits from laws enacted.

Mr. President, the incident that forced me to my personal position on this bill of course was individual to me. I specifically disclaim any suggestion that any other Member of Congress is in a similar situation. The House voted on this matter a year ago when party primaries were not imminent. Many Senators long ago publicly announced their stands. I respect them and whatever reasons led them to their position.

Had this incident not happened, I suppose that I would have followed the course recommended by the overwhelming majority of telegrams and letters from my State and voted for the bill. I want to see the oil and gas potentials of my State developed. The principle of maintaining free enterprise appeals to me. I do not like to see the long hand of the Federal Government reach down to primary production, but, Mr. President, I cannot vote to place upon the freedom of political thought chains that would be bought and paid for by the very people placed under bondage, not even if they ask for it, not when in my own experience there is this evidence of the way things can work.

So, Mr. President, I cannot vote for the bill as it stands before us. In the light of evidence personal to me that the bill has prospects of unusual monetary profit to some, and that with that profit would go the means for a continuing effort to influence the course of government for private gain, I must vote to maintain in people's Government the opportunity to control the profits from a monopoly product.

SEPTEMBER 5, 1973.

Mr. LESTER S. JAYSON,
Director, Congressional Research Service, Library of Congress, Washington, D.C.

DEAR MR. JAYSON: The American Petroleum Institute has furnished me and, apparently, other members of Congress with the enclosed news release which makes the statement that deregulation of natural gas prices at the wellhead would have a minor impact on consumers.

I would like to have your analysis of the claims made in the API statement, including, but not limited to, answers to those questions:

(1) Are the figures accurate, and is the methodology of this study based on valid assumptions?

(2) If the figures cited in the 5th paragraph are accurate ($8.30 more per year in 1974 and $33.06 more per year by 1980), what would be the total cost to all U.S. consumers of deregulation in 1974 and 1980?

(3) On what basis can an estimate of 55 cents per mcf be used in estimating wellhead prices if deregulation were permitted? Is there a more reasonable or accurate estimate?

(4) Are natural gas producers not presently compensated, under FIE ceiling prices in area rate cases, for all costs including exploratory costs, plus a fixed rate of return on investment? What is the rate of return? Would not the present area rate regulatory procedure provide a mechanism for full recovery of increased costs of exploration, plus a reasonable profit?

(5) Is the present lack of Federal regulation of wellhead prices for natural gas sold in intrastate commerce resulting in higher intrastate gas prices and causing more gas to flow in intrastate, rather than regulated interstate, commerce? Would Federal regulation of intrastate natural gas prices at the wellhead have the effect of making more gas available in interstate markets?

(6) What can you tell me about Foster Associates, the firm which did API's study? Which officers and directors of the firm are affiliated with the petroleum industry, and in what capacities? Has Foster Associates done previous work for the petroleum industry? Does the firm do work for other than petroleum industry interests? Please cite examples for the last two questions.

In addition to these questions and other information you may develop in analyzing the study, I would appreciate it if you would furnish me any other studies which the Congressional Research Service has made of the effect of deregulation of natural gas prices.

Thank you for your cooperation.

Sincerely,

GEORGE MCGOVERN.

CONGRESSIONAL RESEARCH SERVICE,
Washington, D.C., Oct. 5, 1973.

To: The Honorable GEORGE MCGOVERN
From: John W. Jimison, Analyst Environmental Policy Division
Subject: Natural Gas Deregulation

This memo is written in response to your letter of September 5th to Mr. Lester S. Jayson, in which you requested that CRS analyze a study reported in an American Petroleum Institute press release concerning the economic effect of natural gas deregulation.

The study was performed by Foster Associates (a local consulting firm particularly experienced in natural gas matters, and the publishers of an authoritative newsletter for natural gas producers) for the American Petroleum Institute, which is the trade association of the major petroleum companies, all of whom are natural gas producers.

The analysis which follows will attempt to address the questions in your letter as they were asked. It is my own, and is based on my knowledge of the natural gas market and industry, on the Foster Associates

Study itself, and on other studies and documents dealing with natural gas deregulation.

* * * * *

The study shows that price increases to the householder would be gradual and minor for two reasons:

Most of the gas now being sold is under fixed price contracts, generally for periods of 20 years.

Only 17 per cent of the consumer's bill consists of the field price of natural gas. The rest goes to pipe line companies and local distributors.

The study also lists the increases the consumer might expect if the field price went to other assumed levels, either higher or lower than 55 cents per thousand cubic feet.

Under these various assumed levels, the increase in the householder's yearly bill would range from 4.2 per cent to 7.6 per cent. Also included in the study are data on the consumer impact at various assumed field price levels of alternate approaches, such as deregulation of only new gas sales and the deregulation of new gas sale prices coupled with a phaseout of controls over flowing gas.

According to the study, only 12 per cent of the natural gas now under contract is covered by contracts which permit price escalation to whatever may be the ultimate market price. By 1980, 27 per cent of the gas under pre-1973 contracts will be covered by such contracts.

The study cites data compiled by the U.S. Bureau of Labor Statistics showing that as of December, 1972, the cost of natural gas service for the average moderate income family accounted for only 1.20 per cent of total family expenses. By contrast, 2.10 per cent was spent on tobacco, 2.46 on alcoholic beverages and 1.33 per cent on household supplies.

The study points out that the price of natural gas to the residential consumer increased only 19 per cent between 1960 and 1972. By comparison, the overall Consumer Price Index during the same period rose 41 per cent.

At the same time, the study shows, the cost of drilling wells—a financially risky enterprise—rose from $171.60 per foot in 1961 to $27.63 in 1971, an increase of 57 per cent.

"This combination of artificially low prices and sharply rising producer costs," API President Ikard noted, "has resulted in a sharp decline in exploratory drilling. As a result, natural gas reserves have dwindled at a time when the number of housholds which use natural gas has increased by 30 per cent, and consumption per customer has risen 25 per cent."

The study contains no estimates of how much consumer costs would increase if Congress does not end government price-fixing on natural gas, but the study emphasizes that continued price-fixing "would have its own 'costs'."

It said that if present controlled price levels continue in the field "we may anticipate a continued decline in exploration and drilling for new gas supplies and a further dwindling of new supply additions to replace existing depleting reservoirs."

(From The Library of Congress, Congressional Research Service, Washington, D.C.)

ANALYSIS OF THE AMERICAN PETROLEUM-INSTITUTE-FOSTER ASSOCIATES STUDY OF THE IMPACT OF DEREGULATION ON NATURAL GAS PRICES

(By John W. Jimison, Analyst in Environmental Policy, Environmental Policy Division)

For the purposes of preparing this analysis, I have accepted at face value the raw data concerning the sizes and provisions of natural gas contracts presently in effect as reported by Foster Associates. I have also accepted as accurate their mathematical computations.

Finally, this analysis is not to be construed as representing any opinion of the Congressional Research Service or the Library of Congress on the issue of the propriety of regulation of natural gas or any other issue.

I am available to answer any questions or help further at 426–5872.

Question 1: Are the figures accurate, and is the methodology of this study based on valid assumptions?

The Foster Associates study is in large part an attempt to anticipate the impact on the average residential consumer of partial or total deregulation of natural gas prices. Foster has studied and summarized the provisions of contracts representing 70% of the current sales of natural gas in interstate commerce to determine the price effect of letting these sales be made according to their contractual terms, instead of at the price set by the Federal Power Commission. Foster has also estimated for a range of possible prices the quantity of new gas sales, and calculated the retail price effect of total and partial deregulation at each of these prices for a period of years ending with 1979.

The study represents a meticulous effort to determine precisely future effects which may not be amenable to precise determination. A great deal of useful work has gone into its preparation, and many of the results are both reliable and valuable to an understanding of the future natural gas market. Important factors are left unconsidered, however, and their absence in the calculations made by Foster Associates reduces the reliability of the final results.

As is necessarily the case with any predictive study of this sort, a number of assumptions must be made about future events and trends which could affect the accuracy of the specific predictions. The following are assumptions, stated and unstated, that have been made by the Foster Associates study. For each of them I will attempt to comment on its importance to the conclusions of the study, and the effect that would result if the assumption is not correct.

ASSUMPTIONS MADE IN THE FOSTER ASSOCIATES STUDY

A. That "total production (of natural gas at the wellhead) would be fairly stable through 1976, increasing thereafter by approximately two percent annually."

This supply assumption is maintained throughout the report. It is not varied up or down as a function of higher or lower prices, or recent or prospective changes in FPC price policies, or of changes in demand for gas. It is the supply factor used for all the postulated prices of gas if deregulation is permitted 45¢, 55¢, 65¢ or 75¢ per Mcf.

To change the supply projection for each of the several hypothetical prices would complicate the study somewhat. Yet ostensibly the actual supply situation would be different, depending on the price structure. The report itself presents evidence and concludes that gas supplies are price-responsive. To use a uniform supply projection throughout the study is inconsistent with this conclusion.

The basis of this uniform supply estimate is presented in Table 5 of Appendix A of the report (copy attached). The volumes of gas estimated to be delivered under existing contracts are accurately determinable from FPC files and must be accepted as reliable. It is the volume of gas estimated to be deliverable under new contracts that is the crux of the overall supply projection. By the end of the period under consideration, 1973–1979, 6,125 out of 14,333 billion cubic feet, or 42.7% are estimated to be the result of new contracts, i.e., contracts written after 1973. The basis for this calculation of new supplies is not given; apparently this total was arbitrarily arrived at. These projected volumes are multiplied in the study by the various projected unit prices after deregulation. The results are added to the revenues under existing contracts in formulating the total revenues to producers and, when the share paid by residential consumers is divided by the total number of residential customers, the price impact on them. To the extent that these figures for additional gas are inaccurate, the specific results of the study are inaccurate. Moreover, even if the general trend of new supplies closely parallels the projection of the estimate, it would presumably do so only for one of the price estimates used, and should be higher or lower for the higher and lower price estimates, respectively.

To base the study on a fixed supply projection regardless of gas price contradicts the supply-eliciting function of price which the report supports. Although the price and consumer impact estimates for succeeding years of current contracts may be assumed to be relatively accurate, the average future prices and consumer impacts under the deregulation assumptions may be unrealistic.

B. That under deregulation prices will reach and maintain a given level between 45¢ and 75¢.

For each of the assumed market price levels after deregulation the report projects revenues from deregulated existing contracts and individual consumer impacts for each of seven years. However, these projections are predicated on the deregulated gas price immediately attaining the given price level and subsequently remaining at that price through the remainder of the decade. This appears to be an unreasonable assumption.

The essence of an unregulated market is that price rises and falls as it mediates between supply and demand over time. All observers have forecast an increase in demand for gas that will outrun the supply projection employed by Foster Associates. Thus there will be a constant upward pressure on the gas prices. In addition, alternative fuels to gas such as distillate fuel oil and residual oil are in short supply. It seems probable that the upward spiral of fuel prices will lead to prices much in excess of 45 to 75c per Mcf. Already pipeline companies have begun to construct synthetic natural gas plants using naphtha for feedstock and are arranging to import liquified natural gas at prices to distributors of about $1.25 per Mcf. There is no reason to believe the beleaguered pipeline industry would be unwilling to bid as much for natural gas.

The Foster Associates report itself anticipates that costs of gas production will continue to rise substantially. To the extent that covering production costs is a determinant of prices, this will also add to the likelihood of prices higher than 75c per Mcf.

A realistic appraisal of the new gas market after deregulation necessarily should include a projection of rising prices. To predicate the precise price estimation of the future upon the gas market immediately reaching and then holding a price-plateau for six years is to build in a substantial margin of error that will increase toward the later projected years.

C. That the current area rates as set by the Federal Power Commission will not be revised upward.

The Foster Associates study anticipates the total revenues to producers by deregulation for their current contracts by analysing the provisions of current contracts and estimating how much the price of gas already flowing will increase. More than one-fourth of the gas sales are made under contracts providing for fixed prices with so-called "area rate clauses" which permit the price to rise if the area rate rises. The study anticipates no revenue to producers for the next six years from these contracts above what they are presently receiving under existing FPC ceilings.

Yet these ceilings are quite likely to be raised, and large sums of additional revenue

will probably flow to producers from these contracts.

Already the FPC has begun to grant permission to producers to sell gas into interstate commerce at prices of 45¢ per Mcf. Yet current area rate ceilings are about 20¢ per Mcf less than that.

The FPC has proposed nationwide area rate determinations for both old and new gas, and has seen the raising of area rates as an appropriate means of putting into producers' hands promptly extra capital for additional exploration and production. It seems unlikely that the FPC would refuse to permit prices under these contracts to reach the levels that prices under other contracts have reached. Certainly those producers selling gas under such contracts would petition the FPC to amend the area rates to conform more closely with the market prices, and their arguments would be difficult to counter once deregulation makes the free market the arbiter of gas prices. Hence the conclusion of the Foster Associates report that additional producer revenues from this source will not be forthcoming appears to underestimate the probable situation.

D. That present contracts between pipelines and producers will not be renegotiated.

There is a substantial possibility that, in the event of deregulation of natural gas, many present contracts between producers and pipelines would be rescinded and renegotiated. The Foster Associates study assumes that no additional revenues will flow to producers after deregulation due to higher prices for gas flowing under contracts with fixed prices where the contract price is no higher than the FPC ceiling.

These contracts cover about one-third of the gas entering interstate commerce. The pipeline companies purchasing this gas apparently would be under no legal obligations to revise contractual terms to raise gas prices.

Neither, however, would there be regulatory obstacles to such a renegotiation if total deregulation were achieved. Moreover, given the present mimimal bargaining position of the pipeline during the current shortage, and their great need for additional supplies to service present and future customers, pipelines which have offered new gas on condition that old contracts be renegotiated might quickly capitulate. In the event of total deregulation, therefore, it seems unrealistic to assume that old contracts made under regulated prices would not be revised to reflect the market prices, even in the absence of clauses specifically requiring such amendments. This point is made by Mr. Lee White, former FPC Chairman, in a recent statement (enclosed). Such renegotiation of existing contracts could have an enormous impact on natural gas revenues received by producers, and hence on the individual consumer's own price.

E. That the total number of consumers will not increase.

There has been a regular growth of the number of residential customers served by the gas utility industry. Also, during the past two years of increasing gas shortages, the number of residential customers has increased. Yet the Foster Associates study apparently assumes no growth beyond the 1972 total of 39.4 million gas consumers. As the total number of customers grows, so does demand, forcing prices higher if supply cannot keep step. However, when the total revenue of producers is divided by a larger number of consumers, the price impact per residential user is lower. Although the failure of the study to assume further growth in the gas utility residential market may not cause an underestimation of the consumer costs of deregulation, it further jeopardizes the accuracy of the projected residential price figures.

F. That the relationship of the residential price of gas to the commercial and industrial prices of gas will change.

The price per unit of natural gas paid by industrial customers has consistently been less than half the price paid by residential consumers. Table I demonstrates the average nationwide price advantage enjoyed by industrial customers, due to rate schedules set to encourage large scale use:

TABLE I.—*Price per million Btu's*

(In cents)

Year:	Residential	Industrial
1969	101.3	35.8
1970	105.8	37.7
1971	111.8	41.3
1972	118.5	44.9

Prices for both groups of consumers are rising, reflecting a 14.9% rise in average wellhead prices over this period. Residential customer prices rose 15.3%, industrial customer prices, 20.2%. The disparity between the price structures is narrowing gradually. Industrial gas prices represented about 35.3% of residential prices in 1969; 35.6% in 1970; 36.9% in 1971; and 37.8% in 1972.

It seems clear that recent increments in gas prices due to wellhead price rises have been passed on to customers largely in proportion to current prices. Yet the Foster Associates study apparently calculates the price impact on the consumer under the assumption that the extra cost per unit of gas at the wellhead after deregulation would be passed through in equal amounts per unit of gas. Hence, if the average price of gas were to increase from 25c to 35c per Mcf, the study assumes that industrial prices per Mcf would rise from perhaps 45c to 55c, and residential prices would rise from perhaps $1.20 to $1.30. A more realistic assumption given a 10c per Mcf price rise at the wellhead would be an industrial price rise from 45c to 50c and a residential price rise from $1.20 to $1.35.

If, as has been done in the past, producer price increases are passed on in proportion to the current price differential between industrial and residential consumers, and are not added directly to each unit of gas wherever sold, the consumer price impact of deregulation could be half again as much as the Foster Associates estimate.

This effect would be aggravated by the continued bulk sales of gas to industrial customers by the pipelines themselves at prices lower on the average than those of the utility sales prices to industry employed above. These so-called "direct-sales" are made under long term contracts which may or may not contain clauses for the adjustment of selling prices to reflect purchase price of gas.

G. That the present relative distribution of natural gas to residential, industrial and commercial consumers will be maintained.

Residential consumers in the United States purchase less than half the natural gas sold. The bulk of it is sold to industrial and commercial customers. The Foster Associates study apparently assumes that residential customers will continue to purchase the same percentage of gas they do at present.

In 1971, residential consumers purchased 30.2% of the gas sold by distributors in the United States, and 25.3% of all natural gas delivered to consumers. The percentage sold by distributors to consumers has declined from 34.3% in 1960, 33.3% in 1965, and 30.6% in 1970. If this declining trend continues, residential consumers will pay a smaller share of rising overall producer revenues.

The likelihood is, however, that the trend will be gradually reversed. The present shortage of natural gas has forced the FPC to implement priorities of service which dictate those classes of customers cut off first in the event of a shortage. Since residential consumers are the highest priority class, the percentage of all gas that they use rises in a time of shortages.

Continuing shortages of natural gas are widely anticipated. Until the absolute supply of gas increases, therefore, the percentage of residential use will never be lower.

Moreover, since there is projected the construction of many additional housing units in the next several years, and since gas is the most efficient fuel for most residential heating and appliance uses, it seems likely that, in view of an overall energy shortage, new residential gas consumers will be allowed to acquire service when new industrial and commercial users may not. This would tend to increase the residential share of all gas purchased.

To the extent that the residential share of gas consumption increases, residential consumers will pay a larger share of the overall revenues to gas producers, and a larger share of the increment owing to any deregulation of prices. Hence it is a deficiency not to anticipate, in calculating the price impact of derregulation on the ultimate residential consumer, the likelihood of a change in the share of the gas market residential consumption represents.

In conclusion, the above unstated or stated assumptions apparently made by Foster Associates in order to determine the prices per Mcf after deregulation and the consumer impact of deregulation may have distorted the results of the study. Since most of these assumptions lead to a tendency to understate the impact of deregulation on the residential consumer, it is reasonable to expect that the actual consumer price impact would be somewhat higher than estimated by Foster Associates.

As was noted above, the mathematical calculations of the study have not been checked, and the formulae used in deriving them is not divulged by the report. A reasonable approximation of the basic formula for calculating individual consumer impact might be:

$$\text{Individual consumer impact} = \frac{[A_1(P_1 - P_x)] + [A_2(P_2 - P_y)]}{R}$$

Where P_1 = price of deregulated gas from pre-1974 contracts during any given year N;

Where P_2 = price of post-1973 deregulated gas during year N;

Where P_x = price of pre-1974 gas under current regulated contracts during year N;

Where P_y = price of post-1973 gas under continued regulation during year N;

Where A_1 = amount of pre-1974 gas produced for residential consumption during year N;

Where A_2 = amount of post-1973 gas produced for residential consumption during year N; and

Where R = the total number of residential consumers of gas.

The above-discussed assumptions of the Foster Associates report suggest that factors other than P_x and P_y may not be precisely known, which would lead inevitably to imprecision. Given such impossibility of precision in the estimation of its basic constituents, the impact on consumer prices cannot be precisely determined by use of the overall formula.

Hence, the answer to the first question is that the methodology employed by the study does not appear to include all likely situations and that the resulting figures may, therefore, be unrepresentative of the actual trends to be expected.

Question 2: If the figures cited in the 5th paragraph (of the API news release) are accurate ($8.30 more per year in 1974 and $33.06 more per year by 1980), what would be the total cost to all U.S. consumers of deregulation in 1974 and 1980?

The cited figures come from Table 9–B of Appendix A, and assumes a 55¢ per Mcf market price with 1¢ per year escalations. Under these conditions, the study reports (Table 2–B, Appendix A) that flowing gas deregulation alone will result in a 1974 revenue increase to producers of $629.3 million, and a 1980 addition to income of $879.1

million. To this must be added the amounts which will accrue to producers from any production of new gas under market prices. Although no projections of new gas total revenues are provided, the study's projection of new supply (Table 5, Appendix A) can be used along with its formula of 55¢ plus one cent per year to calculate revenues. The 1974 total bill for *all* consumers (not only residential consumers) for new gas alone would be $580 million. By 1980, new gas under the study's assumptions would cost the consumer $3.5 billion per year. Since there are no projections for the revenue from sales of old gas without deregulation or for new gas without deregulation, it is not possible to determine, using the study's own assumptions, what the total gas cost to the consumer or the total increment between regulated and deregulated costs to the consumer for either year. If one takes the total gas sold under existing contracts for both years, however, and calculates its value a liberal average of 22.5¢ per Mcf, the total gas sales in 1974 would be $4.15 billion. For 1979 the annual market would be $6.24 billion.

If one assumes as the study does that the same amount of new and old gas would be produced if there were no regulation and if FPC new gas ceilings remained at present area levels (about 26¢/Mcf) one can calculate the total cost of gas under the present regulatory controls at roughly $2.03 billion for 1974 and $3.47 billion by 1980. Subtracting the total cost without deregulation from the total cost with deregulation, therefore, yields the extra cost of gas attributable to deregulation in each year: $2.12 billion in 1974, and $2.77 billion for the year 1979. Once again, however, this assumes that the study's supply estimate will hold true regardless of field price or regulatory events.

Overall, the Foster Associates study is a useful first conceptual step in understanding the price impact of deregulation. Any statement, however, that the price results predicted in the study have been computed with cognizance of all major market factors, and can thus be seen as precise and reliable, is erroneous. It is not realistic to use the results of this study as firm evidence that deregulation of natural gas prices will have only minimal effect on consumer prices. Too many important factors and possible events are left unconsidered.

Question 3: On what basis can an estimate of 55¢ per Mcf be used in estimating wellhead prices if deregulation were permitted? Is there a more reasonable or accurate estimate?

As is mentioned above, the study assumes deregulation prices over a range of 45¢ to 75¢ per Mcf. As is also noted above, the actual price of new gas if deregulation were achieved would be at least 45¢ and possibly much higher than 75¢.

During the natural gas shortage, buyers will be willing to pay as much for natural gas as is necessary to obtain it, limited by the prices of available alternate fuels. At present and for the forseeable future, there will be shortages of fuel oils, the primary alternate fuel to natural gas, and coal will neither be available in adequate quantity or quality due to freight car shortages and sulfur contents. Moreover, the cost of switching to an alternate fuel would add to the buyers willingness to pay more for gas. In some cases gas is indispensable.

One Mcf of gas contains about one million Btu's of heat energy and costs 20.5¢ at the wellhead at present FPC prices. The equivalent amount of crude oil sells at present for approximately 67¢ per million Btu and the equivalent amount of coal is 29¢, based on $4.00 per barrel for oil and $7.66 per ton for coal. Thus in a free market, prices would be expected to rise at least until the average rolled-in cost of gas equalled that of coal. To achieve an immediate average price rise of 8.5¢ per million Btu's of gas would require, under the formula employed by the study, (.6¢ in the average price for each 5¢ in the market price) a price rise of 70¢, so that new gas prices might reach levels between 90¢ and $1.00 in 1974. To assign any likely market price, however, is highly speculative.

Question 4: Are natural gas producers not presently compensated, under FPC ceiling prices in area rate cases, for all costs including exploratory costs, plus a fixed rate of return on investment? What is the rate of return? Would not the present area rate regulatory procedure provide a mechanism for full recovery of increased costs of exploration, plus a reasonable profit?

The Area Rate method of regulation, begun by the FPC in 1960, attempted to assign average costs per unit of gas for the producing companies in various regions of the country. To these averages, which included allowance for exploratory expenses, dry hole costs, and all other calculated costs, were added a rate of return originally set at 12 percent of total cost but raised in later decisions to 15 percent. The total amount became the regulated price of gas.

Several problems were raised regarding area rates. Producers complained that the prices were set on historical cost evidence and that the proceeding was very slow; by the time the rate had been calculated, costs of production had risen enough to render it too low. Thus the area rates lagged behind the rate necessary to actually cover current cost and to allow the rate of return stipulated. In addition, since the chance of a successful well was only one in ten on the average for wildcat exploratory wells, and the rates took this success ratio into account, a company that failed to achieve a successful well every ten tries would not recover its drilling costs. This made it riskier for the smaller companies to drill: they could not count on reaching the average success ratio.

The area rate prices were tried to the cost of drilling, yet the demand for gas is tied to other factors such as the availability of alternate fuels and their prices. Hence the demand became greater in the late sixties than the supply the cost-based area rates could elicit, because the prices of other fuels rose greatly in the free market. Moreover, it was argued that the rates of return available to investors in other enterprises were higher.

The costs of gas production are rising per foot of well drilled, both as a result of common inflationary pressures and as a result of the necessity to drill deeper and in more inaccessible places such as the offshore continental shelves. Because of larger finds of gas at these levels, however, the cost per unit of gas has stayed about the same. When deciding to drill, gas producers claim that they consider primarily the cost per foot because they can not accurately anticipate the extent of the gas reserves to be discovered, if any. Area rates, based on the cost per unit of gas, thus according to the industry, did not provide the incentive to explore for additional gas supplies.

The basic problem appears to be that exploratory decisions are based on price, not the demand for gas. Producers will not supply enough gas to meet the interstate demand on the hope that their higher costs will be used to calculate a high enough price, after a lengthy area rate proceeding, to allow them what they deem a fair rate of return. They desire to obtain a price that will cover their cost and return them a profit immediately.

In conclusion, while area rates may be adequate to calculate retrospectively a price for gas covering the average producer's costs and allowing him a reasonable return, they may not sufficiently account for the peculiar circumstances of the gas industry to be relied on to encourage prospective exploration and production sufficient to meet all demand.

Question 5: Is the present lack of Federal regulation of wellhead prices for natural gas sold in interstate commerce resulting in higher intrastate gas prices and causing more gas to flow in intrastate, rather than regulated interstate, commerce? Would Federal regulation of intrastate natural gas prices at the wellhead have the effect of making more gas available in interstate markets?

Intrastate gas prices are considerably higher at present than interstate gas prices, averaging as much as 50¢ per Mcf for new gas. New gas discoveries onshore have been flowing almost exclusively into intrastate commerce for the last two or three years. Offshore gas is automatically governed by FPC regulation and is sold interstate.

Federal regulation of intrastate gas production would neutralize the ability of intrastate gas buyers to outbid interstate buyers, but only newly discovered reserves would be affected. To the extent that lower prices discourage exploration, intrastate exploration would be reduced and the amount of new gas dedicated from intrastate wells would be smaller overall, although more of it would enter interstate commerce.

One significant change that would occur as a result of the extension of FPC authority to the intrastate market would be the imposition on intrastate sales for resale of the FPC's curtailment priorities. The producing states have attracted great concentrations of industries with the promise of low-priced fuel. In Louisiana and Texas and other major producing states, which consume at least a third of all the gas produced each year, more than 80% is consumed by large industries. The FPC's curtailment policies would require cut off of deliveries to these industries, mostly low-priority uses according to the FPC, before cutting off higher priority users in non-producing states. Hence, paradoxically, a prolonged or serious gas shortage could have a more severe effect on the producing state economies than on the economies of states less dependent on gas. Equitable distribution of the available gas regardless of its origin may be thought the best policy in the event of a shortage, however.

Question 6: What can you tell me about Foster Associates, the firm which did API's study? Which officers and directors of the firm are affiliated with the petroleum industry, and in what capacities? Has Foster Associates done previous work for the petroleum industry? Does the firm do work for other than petroleum industry interests? Please cite examples for the last two questions.

I have requested and received from Foster Associates their descriptive pamphlet as well as a listing of their personnel and previous activities and clients. Copies of these materials are attached. I have also enclosed a number of press releases referring to the study.

REPRESENTATIVE CLIENTS

Government

Federal Government, U.S.

The President's Commission on Postal Organization.
The President's Council of Economic Advisers.
U.S. Department of Health, Education & Welfare.
U.S. Department of Commerce.
U.S. Department of the Interior.
U.S. Department of State, Agency for International Development.
International Bank for Reconstruction and Development.

Federal Government, Canada

Department of Northern Affairs and Natural Resources.
National Energy Board.

State, Provincial and Local

State of California.
State of New Jersey.
State of New Mexico.

State of Virginia.
Province of Alberta, Energy Resources Conservation Board.
National Capital Transportation Agency.
Cities of Elmira/Corning, New York.
City of El Paso, Texas.
City of Eugene, Oregon.
City of Goldsboro, North Carolina.
City of Houston, Texas.
City of Jamestown, New York.
City of Lewiston, Maine.
City of Sandusky, Ohio.
City of Tyler, Texas.

Industry

Petroleum and Gas

Alberta and Southern Gas Co. Ltd.
Alberta Gas Trunk Line Company Limited.
Amerada Hess Corporation.
American Petroleum Institute.
Amoco Production Company.
Ashland Oil & Refining Company.
Atlantic Richfield Company.
California Company.
Canadian Petroleum Association.
Chevron Standard Limited.
Cities Service Oil Company.
Continental Oil Company.
Dome Petroleum Limited.
Esso LNG, Inc.
Getty Oil Company.
Gulf Oil Canada Limited.
Gulf Oil Corporation.
Home Oil Company Limited.
Hudson Bay Oil and Gas Company Limited.
Humble Oil & Refining Company.
Hunt Oil Company.
Imperial Oil Limited.
Independent Natural Gas Association of America.
Independent Petroleum Association of Canada.
Kerr-McGee Corporation.
Marathon Oil Company.
Mid-Continent Oil & Gas Association.
Mobil Oil Corporation.
Murphy Oil Corporation.
Pacific Petroleums Ltd.
Phillips Petroleum Company.
Shell Oil Company.
Signal Oil & Gas Company.
Skelly Oil Company.
Standard Oil Company of California.
Standard Oil Company (Indiana).
Standard Oil Company (New Jersey).
Standard Oil Company (Ohio).
Sun Oil Company
Superior Oil Company.
Tenneco Oil Company.
Texaco Inc.
Union Oil Company of California.
Westcoast Transmission Company Limited.

Electric, Gas and Water Utilities

Alexandria Water Company.
Allegheny Power System.
American Electric Power Company Inc.
Arkansas Power and Light Company.
Atlantic Gas Light Company.
Baltimore Gas & Electric Company.
Calgary Power Ltd.
Canadian Utilities, Ltd.
Canadian Western Natural Gas Company Limited.
Central Maine Power Company.
Cleveland Electric Illuminating Company.
Columbia Gas System.
Columbus & Southern Ohio Electric Company.
Dayton Power & Light Company.
Illinois Power Company.
City of Jamestown Board of Public Utilities.
Middlesex Water Company.
New Orleans Public Service Inc.
Northern Indiana Public Service Company.
Northern Natural Gas Company.
Northern States Power Company.
Northland Utilities Limited.
Northwestern Utilities Ltd.
Ohio Water Service Company.
Pennsylvania Power & Light Company.
Peoples Gas Company.
Philadelphia Electric Company.
Potomac Edison Company.
Union Gas Company of Canada, Limited.
Yukon Electrical Co. Ltd.

Telephone and Communications

Advertising Research Foundation.
Alberta Government Telephone Commission.
American Telephone & Telegraph Company.
Bell Telephone Company of Pennsylvania.
Booth-American Company.
British Columbia Telephone Company.
Chesapeake & Potomac Telephone Company of D.C.
Chesapeake & Potomac Telephone Company of Maryland.
Chesapeake & Potomac Telephone Company of West Virginia.
Chillicothe Telephone Company.
Coaxial Systems, Inc.
Cowles Communications, Inc.
Diamond State Telephone Company.
FCB Cablevision.
Foote, Cone & Belding Communications.
General Cablevision.
General Telephone Company of California.
General Telephone Company of Florida.
General Telephone Company of the Northwest, Inc.
General Telephone Company of the Southeast.
General Telephone & Electronics Corporation.
Lin Broadcasting Corp.
Lorain Telephone Company.
Michigan Bell Telephone Company.
Mutual Telephone Company.
National Association of Radiotelephone Systems.
National Cable Television Association.
Newport Beach Cablevision.
New York State CATV Association.
New York Telephone Company.
Ohio Bell Telephone Company.
Peninsula TV Power.
Post-Newsweek Stations
Pueblo TV Power.
Robinson Television Company, Inc.
Seal Beach Cablevision.
Southern Bell Telephone & Telegraph Company.
The Outlet Company.
Triangle Broadcasting.
TV Power of North County.
United States Independent Telephone Association.
United Telephone Company of Ohio.
WEOK Cablevision.

Transportation

American Association of Railroads.
Braniff Airways, Inc.
Continental Air Lines, Inc.
Delta Air Lines, Inc.
Interprovincial Pipe Line Company.
Lake Head Pipeline Co., Inc.
National Air Lines Incorporated.
Northwest Airlines, Incorporated.
Pacific Far West Line, Inc.
Pennsylvania Railroad Company.
Seaboard Coastline Railroad Company.
Western Air Lines, Incorporated.

General

Arthur Andersen & Company.
Arthur Young & Company.
Booz, Allen & Hamilton, Incorporated.
Canadian Bechtel Limited.
Cresap, McCormick and Paget.
John Diebold, Incorporated.
Direct Mail Advertising Association.
Ernst & Ernst.
MacMillan Bloedel Limited.
Magazine Publishers Association.
Merrill Lynch, Pierce, Fenner & Smith.
National Association of Securities Dealers.
National Sugar Company.
Parcel Post Association.
Price Co. Ltd.
Tessell Patrick & Ostrau.

ESTIMATED ANNUAL VOLUMES OF GAS DELIVERIES UNDER EXISTING AND NEW INTERSTATE CONTRACTS

[Billions of cubic feet]

	Annual volume under new contracts each year	Total annual volume under new contracts	Existing contracts	Total, all interstate sales
1973	250	250	13,083	13,333
1974	800	1,050	12,256	13,306
1975	850	1,900	11,402	13,302
1976	950	2,850	10,567	13,417
1977	1,025	3,875	9,767	13,642
1978	1,100	4,975	8,972	13,947
1979	1,150	6,125	8,208	14,333

The PRESIDING OFFICER (Mr. BARTLETT). The question is on agreeing to the committee amendment in the nature of a substitute, as amended.

The amendment was agreed to.

The PRESIDING OFFICER. The question is on the engrossment and third reading of the bill.

The bill was ordered to be engrossed for a third reading and was read the third time.

Mr. JACKSON. Mr. President, I ask for the yeas and nays on final passage.

The yeas and nays were ordered.

The PRESIDING OFFICER. The question is, the bill having been read the third time, Shall the bill pass?

On this question the yeas and nays have been ordered and the clerk will call the roll.

The legislative clerk called the roll.

Mr. ROBERT C. BYRD. I announce that the Senator from Texas (Mr. BENTSEN), the Senator from North Carolina (Mr. ERVIN), the Senator from Arkansas (Mr. FULBRIGHT), the Senator from Indiana (Mr. HARTKE), the Senator from Utah (Mr. Moss), the Senator from Georgia (Mr. NUNN), and the Senator from Mississippi (Mr. EASTLAND) are necessarily absent.

I further announce that the Senator from Louisiana (Mr. JOHNSTON) and the Senator from Rhode Island (Mr. PELL) are absent on official business.

I also announce that the Senator from Missouri (Mr. SYMINGTON) is absent because of illness.

I further announce that, if present and voting, the Senator from North Carolina (Mr. ERVIN), the Senator from Louisiana (Mr. JOHNSTON), the Senator from Georgia (Mr. NUNN), the Senator from Rhode Island (Mr. PELL), the Senator from Missouri (Mr. SYMINGTON), the Senator from Utah (Mr. Moss), and the Senator from Texas (Mr. BENTSEN) would each vote "yea."

Mr. GRIFFIN. I announce that the Senator from Utah (Mr. BENNETT), the Senator from Florida (Mr. GURNEY), the Senator from Oregon (Mr. HATFIELD), and the Senator from Ohio (Mr. SAXBE) are necessarily absent.

The Senator from Arizona (Mr. GOLDWATER) is absent by leave of the Senate on official business.

The Senator from Kentucky (Mr. COOK) and the Senator from Oregon (Mr. PACKWOOD) are absent on official business.

The Senator from New Hampshire (Mr. COTTON) is absent because of illness in his family.

(If present and voting, the Senator

from Oregon (Mr. HATFIELD) would vote "yea."

The result was announced—yeas 82, nays 0, as follows:

[No. 564 Leg.]

YEAS—82

Abourezk	Fannin	Mondale
Aiken	Fong	Montoya
Allen	Gravel	Muskie
Baker	Griffin	Nelson
Bartlett	Hansen	Pastore
Bayh	Hart	Pearson
Beall	Haskell	Percy
Bellmon	Hathaway	Proxmire
Bible	Helms	Randolph
Biden	Hollings	Ribicoff
Brock	Hruska	Roth
Brooke	Huddleston	Schweiker
Buckley	Hughes	Scott, Hugh
Burdick	Humphrey	Scott,
Byrd,	Inouye	William L.
Harry F., Jr.	Jackson	Sparkman
Byrd, Robert C.	Javits	Stafford
Cannon	Kennedy	Stennis
Case	Long	Stevens
Chiles	Magnuson	Stevenson
Church	Mansfield	Taft
Clark	Mathias	Talmadge
Cranston	McClellan	Thurmond
Curtis	McClure	Tower
Dole	McGee	Tunney
Domenici	McGovern	Weicker
Dominick	McIntyre	Williams
Eagleton	Metcalf	Young

NAYS—0

NOT VOTING—18

Bennett	Fulbright	Moss
Bentsen	Goldwater	Nunn
Cook	Gurney	Packwood
Cotton	Hartke	Pell
Eastland	Hatfield	Saxbe
Ervin	Johnston	Symington

So the bill (S. 1283) was passed, as follows:

S. 1283

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "National Energy Research and Development Policy Act of 1973".

TITLE I—COORDINATION AND AUGMENTATION OF FEDERAL SUPPORT FOR RESEARCH AND DEVELOPMENT OF FUELS AND ENERGY

STATEMENT OF FINDINGS

SEC. 101. The Congress hereby finds that—

(a) The United States is currently suffering a critical shortage of environmentally acceptable forms of energy.

(b) Compounding this energy shortage is our past and present failure to formulate a comprehensive and aggressive research and development strategy designed to make available to American consumers our large domestic energy reserves including fossil fuels, nuclear fuels, geothermal resources, solar energy, and other unconventional forms of energy. This failure is partially a result of economic factors which have inhibited the timely development of new energy technologies.

(c) The responsibilities of the Federal Government for conducting and assisting energy research, development, and demonstration projects are fragmented among many agencies and departments and have not been planned and managed in a rational and coordinated manner.

(d) Present inadequate organizational arrangements and levels of funding for energy research, development, and demonstration have limited the Nation's current and future options for dealing with domestic energy shortages.

(e) The urgency of the Nation's critical energy problems will require a commitment similar to those undertaken in the Manhattan and Apollo projects; it will require that the Nation undertake, at a minimum, a ten-year $20,000,000,000 research, development, and demonstration program.

STATEMENT OF POLICY

SEC. 102. The Congress declares as the purpose of this Act the development within ten years of the option and the capability for the United States to become energy self-sufficient through the use of domestic energy resources by socially and environmentally acceptable means. In the achievement of this national goal, it is hereby declared to be the policy of the Congress to establish and maintain a national program of basic and applied research and development in the discovery, production, transportation, distribution, and conversion of energy resources and fuels adequate to meet the following objectives—

(a) encourage the conservation of limited energy resources and maximize the efficient development, production, conversion, and use of nonrenewable and limited primary energy resources;

(b) insure adequate, reliable, economical, and environmentally acceptable energy supply systems necessary to support the goals and essential needs of modern society including the established social objectives of Federal, State, and local government;

(c) to foster the expeditious transfer of the results of research on new energy technologies into the commercial application by the private sector through Federal assistance and participation in the demonstration and improvement of energy technologies to determine the engineering and economic feasibility, including the societal, economic, and environmental costs and benefits of said energy technologies;

(d) to develop an aggressive research strategy and priorities for solutions to the short-term (to the early 1980's) energy supply system and associated environmental problems;

(e) to develop an aggressive Federal research strategy and priorities including the information base, to support the development of the widest possible range of energy supply system options for the utilization of domestic nonnuclear energy resources to satisfy middle-term (the early 1980's to 2000) and long-term (twenty-first century) United States energy needs consistent with environmental policies;

(f) establish within the Federal Government a central responsibility and institutional capability for maintaining continuing assessment and overview of the energy research, development, and conservation activities of the Federal Government, private industry, and nonprofit organizations pending agencies and activities to attain and support the objectives of this Act and a national energy policy; and

(g) to provide for a program of exchange to include, but not be limited to, a coordinated effort for the exchange of energy and energy-related foreign technologies in the areas of magnetohydrodynamics, coal mining, geothermal, and solar technologies.

It is the policy of the Congress that small business be given an opportunity to participate in this national program of basic and applied research and development and be given full access to the results thereof.

ENERGY RESEARCH MANAGEMENT PROJECT

SEC. 103. (a) There is hereby established an Energy Research Management Project (hereinafter referred to as the "Management Project") which shall be composed of—

(1) one Assistant Secretary of the Interior who shall be designated by the Secretary of the Interior;

(2) one Commissioner of the Atomic Energy Commission who shall be designated by the Chairman of the Commission;

(3) one Commissioner of the Federal Power Commission who shall be designated by the Chairman of the Commission;

(4) the Director of the National Sciences Foundation;

(5) one Assistant Administrator of the Environmental Protection Agency who shall be designated by the Administrator of the Agency;

(6) one Assistant Administrator of the National Aeronautics and Space Administration who shall be designated by the Administrator;

(7) the Director of the National Bureau of Standards; and

(8) such appropriate representatives of other executive agencies which the President finds have a significant and continuing role in energy research and development.

(b) The Management Project shall have a Chairman who shall also serve as the Staff Director. The Chairman shall be appointed by the President to serve at his pleasure, by and with the advice and consent of the Senate. During his term of service, the Chairman shall not hold any other position as an officer or employee of the United States, except as a retired officer or retired civilian employee of the United States.

DUTIES

SEC. 104. The Management Project shall—

(a) review the full range of Federal activities in and financial support for fuels and energy research and development, giving consideration to research and development being conducted by industry and other non-Federal entities, to determine the capability of ongoing research efforts to carry out the policies established by this Act and other relevant Federal policies, particularly the National Environmental Policy Act of 1969 (83 Stat. 852);

(b) formulate a comprehensive energy research and development strategy for the Federal Government which will expeditiously advance the policies established by this Act, provide Congress in this proposed strategy with a range of funding options for its consideration within each of the potential energy sources and technologies included as priorities in section 107 (a), (b), and (c), and insure that full consideration and adequate support is given to:

(1) improving the efficiency, conservation, and environmental effects of the conventional sources of energy including discovery, production, conversion, transportation, use, and disposal of waste products;

(2) advancing energy research, development, and demonstration of unconventional energy sources and technologies including but not limited to—solar energy, geothermal energy, magnetohydrodynamics, fuel cells, low head hydroelectric power, use of agricultural products and wastes as energy sources, tidal power, ocean current and thermal gradient power, wind power, automated mining methods, in situ conversion of energy resources, cryogenic transmission of electric power, electrical energy storage methods, alternatives to internal combustion engines, solvent refined coal, utilization of waste products for fuels, direct conversion methods, utilization of hydrogen for fuel; and

(3) improving management techniques and the effectiveness of management of existing energy systems through quality control; application of systems analysis, communications, and computer techniques; and public information to improve the reliability and efficiency of energy supplies and encourage the conservation of energy resources.

(c) utilize the funds authorized by section 122(b) of this Act to advance the energy research and development strategies pursuant to this Act by—

(1) supplementing by fund transfers the ongoing energy research and development programs of Federal agencies; and

(2) initiating and maintaining, by fund transfers, grants, or contracts, new energy research and development programs or activities utilizing the facilities, capabilities, expertise, and experience of Federal agencies, national laboratories, universities, nonprofit organizations, and industrial entities which are appropriate to each type of research and development.

(d) in the exercise of its duties and re-

sponsibilities under this Act, establish procedures for periodic consultation with representatives of science, industry, environmental organizations, and such other groups who have special expertise in the areas of energy research, development, and technology.

ENERGY-RELATED INVENTIONS

SEC. 105. The National Science Foundation shall give particular attention to the evaluation of all promising energy-related inventions, particularly those submitted by individual inventors and small companies for the purpose of obtaining direct grants. The National Science Foundation is authorized to promulgate regulations in the furtherance of this section.

DEMONSTRATIONS

SEC. 106. The Chairman in consultation with the Management Project is authorized and directed to—

(a) identify opportunities to accelerate the commercial applications of new energy technologies by providing Federal assistance for or participation in pilot plants demonstrating technological advances and field demonstrations of new methods and procedures, and demonstrations of prototype commercial applications for the exploration, development, production, transportation, conversion, and utilization of energy resources; and

(b) conduct preliminary investigations and to explore potential cooperative agreements which may be entered into with non-Federal entities in order to develop recommendations for Federal participation or assistance in demonstrations of the technical feasibility and economic potential of energy technologies on a prototype or full-scale basis.

RESEARCH PRIORITIES

SEC. 107. Pursuant to the authority and directions of this Act, the Chairman shall transmit to the Congress—

(a) Within six months from the date of enactment of this Act, the Chairman's recommendations for an aggressive Federal research strategy and priorities designed to achieve solutions to immediate and short-term (to the early 1980's) energy supply system and associated environmental problems. Such recommendations shall include, but not be limited to, specific anticipated actions and proposals pursuant to sections 106 and 108 for the most effective approach, through Federal assistance—

(1) to accelerate the commercial demonstration of technologies for producing a low-sulfur fuel suitable for boiler use;

(2) to accelerate the commercial demonstration of technologies for producing substitutes for natural gas, including coal gasification: *Provided*, That the Chairman shall invite proposals from potential participants based upon Federal assistance and participation in the form of a joint Federal-industry corporation, and recommendations pursuant to this clause shall be accompanied by a report on the vialibity of using this form of Federal assistance or participation;

(3) to accelerate the commercial demonstration of technologies for producing syncrude and liquid petroleum products from coal: *Provided*, That the Chairman shall invite proposals from potential participants based upon Federal assistance and participation through guaranteed prices or purchase of the products, and recommendations pursuant to this clause shall be accompanied by a report on the viability of using this form of Federal assistance or participation;

(4) to accelerate the commercial demonstration of advanced power cycles for the generation of electricity from coal, including technologies which employ the production of low British thermal unit gas from coal;

(5) in accordance with the program authorized by title II of this Act, to accelerate the commercial demonstration of geothermal energy technologies;

(6) (A) to accelerate the commercial demonstration of the production of syncrude from oil shale, and (B) to assist the research and development of in situ methtodologies for the production of syncrude from oil shale;

(7) to demonstrate new and improved methods for the extraction of petroleum resources, including secondary and tertiary recovery of crude oil;

(8) to demonstrate new and improved methods for the extraction of coal resources including, but not limited to, lignite, bituminous, and anthracitic coal: *Provided*, That the Chairman shall invite proposals from potential participants in joint Government-industry operated mines for the purpose of demonstrating new and improved mining technologies and methods and of training the associated personnel;

(9) to demonstrate the economics and commercial viability of solar energy for residential and commercial energy supply applications;

(10) to accelerate the commercial demonstration of environmental control systems including particulate and sulfur oxides emission control systems, necessary for the timely implementation of air pollution standards and water pollution standards established pursuant to Federal or State law;

(11) to investigate the use of tidal power for supplying electrical energy; and

(12) to demonstrate new and innovative energy conservation technologies.

(b) Within one year from the date of enactment of this Act, the Chairman's recommendations for an aggressive Federal research strategy and priorities designed to achieve solutions to middle-term (the early 1980's to 2000) energy supply system and associated environmental problems. Such recommendations shall include, but not be limited to, specific anticipated actions and proposals for the most effective approach—

(1) to improve the economics and cost-effectiveness of the technologies set forth in the research strategy recommended pursuant to subsection (a);

(2) to advance improvements in the methods and technologies for transportation and shortage of electric energy;

(3) to commercially demonstrate advanced power cycles for the generation of electricity which represent significant improvements in the efficiency of conversion of energy resources to electricity;

(4) to commercially demonstrate hot dry rock geothermal energy technologies;

(5) to commercially demonstrate advanced solar energy technologies;

(6) to determine the economics and commercial viability of the use of hydrogen as a primary energy source;

(7) to commercially demonstrate the use of fuel cells for central station electric power generation;

(8) to determine the economics and commercial viability for producing synthetic energy supplies from agricultural products and wastes; and

(9) to determine the economics and commercial viability of the production and use of methane gas as an energy source.

(c) Within eighteen months from the date of enactment of this Act, the Chairman's recommendations for a Federal research strategy and priorities designed to achieve solutions to long-term (beyond 2000) energy supply systems and associated environmental problems. Such recommendations shall include, but not be limited to, specific anticipated actions and proposals—

(1) to further improve the economics and cost-effectiveness of the technologies set forth in the research strategy recommended pursuant to subsection (a) and (b);

(2) to commercially demonstrate nuclear fusion; and

(3) to commercially advance the use of hydrogen as a primary energy source.

FORMS OF FEDERAL ASSISTANCE

SEC. 108. (a) In developing proposals pursuant to section 106, the Chairman shall consider various forms of Federal assistance and participation which may include but are not limited to—

(1) joint Federal-industry corporations consistent with the provisions of section 109;

(2) contractual arrangements with non-Federal participants including corporations, consortia, universities, governmental entities, and nonprofit institutions;

(3) contracts for the construction and opreation of federally owned facilities;

(4) Federal purchases or guaranteed price of the products of demonstration plants or activities consistent with the provisions of section 110; and

(5) Federal loans to non-Federal entities conducting demonstrations of new technologies.

(b) (1) A financial award under this Act may be made only in the amount of the Federal share of the estimated total design and construction costs, plus operation and maintenance costs; and

(2) For the purposes of this Act the non-Federal share may be in any form, including, but not limited to, lands or interests therein needed for the project or personal property or services, the value of which shall be determined by the Chairman.

(c) The Chairman shall, within ninety days of enactment of this Act, promulgate regulations establishing procedures for submission of proposals to the Management Project for the purposes of this Act. Such regulations shall establish a procedure for selection of proposals which—

(A) provides that projects will be carried out under such conditions and varying circumstances as will assist in solving energy extraction, transportation, conversion, and end-use problems of various areas and regions, under representative geological, geographic, and environmental conditions; and

(B) provides time schedules for submission of, and action on proposal requests for the purposes of implementing the goals of objectives of this Act.

Such regulations also shall specify the types and form of the information, data, and support documentation that are to be contained in proposals for each form of Federal assistance or participation set forth in subsection (a): *Provided*, That such proposals to the extent possible shall include, but not be limited to—

(A) specification of technology;

(B) description of prior pilot plant operating experience with the technology;

(C) preliminary design of the demonstration plant;

(D) time tables containing proposed construction and operation plans;

(E) budget-type estimates of construction and operating costs;

(F) description and proof of title to land for proposed site, natural resources, electricity and water supply and logistical information related to access to raw materials to construct and operate plant and to dispose of saleable products produced from plant;

(G) analysis of environmental impact of the proposed plant and plans for disposal of wastes resulting from the operation of the plant;

(H) plans for commercial use of technology if demonstration is successful;

(I) plans for continued use of plant if demonstration is successful; and

(J) plans for dismantling of plant if demonstration is unsuccessful or otherwise abandoned.

(d) The Chairman shall from time to time review and, as appropriate, modify and repromulgate regulations issued pursuant to this section.

MODEL CORPORATION

SEC. 109. Joint Federal-industry corporations proposed pursuant to section 108 shall conform to the following guidelines:

(a) Each such corporation shall have the function to design, construct, operate, and maintain one or more full-scale, commercial-size facilities or other operations which will demonstrate the technical, environmental, and economic feasibility of a particular unconventional energy technology. In carrying out this function, the corporation shall be empowered, either directly or by contract, to utilize commercially available technologies, perform tests, or design, construct, and operate pilot plants as may be necessary for the design of the full-scale facility.

(b) Each corporation shall have—

(1) a Board of nine Directors consisting of individuals who are citizens of the United States, of whom one shall be elected annually by the Board to serve as Chairman. The Board shall be empowered to adopt and amend bylaws. Five members of the Board shall be appointed by the President of the United States, by and with the advice and consent of the Senate, and four members of the Board shall be appointed by the President on the basis of recommendations received by him from any non-Federal entity or entities entering into contractual arrangements to participate in the corporation;

(2) a President and such other officers and employees as may be named and appointed by the Board (the rates of compensation of all officers and employees shall be fixed by the Board); and

(3) the usual power conferred upon corporations by the District of Columbia Business Corporation Act.

(c) An appropriate time interval, not to exceed twelve years, shall be established for the term of Federal participation in the corporation at the expiration of which the Board of Directors shall take such action as may be necessary to dissolve the corporation or otherwise terminate Federal participation and financial interests. In carrying out such dissolution, the Board of Directors shall dispose of all physical facilities of the corporation in such manner and subject to such terms and conditions as the Board determines are in the public interest, and a share of the appraised value of the corporate assets proportioned to the Federal participation in the corporation, including the proceeds from the disposition of such facilities, on the date of its dissolution, after satisfaction of all its legal obligations, shall be made available to the United States and deposited in the Treasury of the United States as miscellaneous receipts. All patent rights of the corporation shall, on such date of dissolution, be vested in the Administrator of General Services: *Provided*, That Federal participation may be terminated prior to the time established in the authorizing Act upon recommendation of the Board of Directors.

(d) Any commercially valuable product produced by demonstration facilities shall be disposed of in such manner and under such terms and conditions as the corporation shall prescribe. All revenues received by the corporation from the sale of such products shall be available to the corporation for use by it in defraying expenses incurred in connection with carrying out its functions under this title.

(e) The estimated Federal share of the construction, operation, and maintenance cost over the life of each corporation shall be determined to facilitate the congressional authorization of the full amount at the time of establishment of the corporation.

(f) The Federal share of the cost of each such corporation shall reflect (1) the technical and economic risk of the venture, (2) the probability of a financial return to the non-Federal participants arising from the venture, (3) the financial capability of the potential non-Federal participants, and (4) such other factors as the Chairman may set forth in proposing the corporation: *Provided*, That in no instance shall the Federal share exceed 90 per centum of the cost.

SUPPORT THROUGH PRICE GUARANTEES

SEC. 110. Competitive systems of price supports proposed pursuant to section 108 shall conform to the following guidelines:

(a) The Chairman shall determine the types and capacities of the desired full scale, commercial size facility or other operation which would demonstrate the technical, environmental, and economic feasibility of a particular energy technology.

(b) The Chairman may award planning grants for the purpose of financing a study of the full cycle economic and environmental costs associated with the demonstration facility selected pursuant to subsection (a) of this section. Such planning grants may be awarded to industrial entities, Federal agencies, national laboratories, universities, or nonprofit organizations. Such planning grants shall also be used by the grantee to prepare a detailed and comprehensive bid to construct the demonstration facility.

(c) Following the completion of the studies pursuant to the planning grants awarded under subsection (b) of this section, the Chairman shall invite bids from all interested parties to determine the minimum amount of Federal price support needed to construct the demonstration facility. The Chairman may designate one or more competing entities each to construct one commercial demonstration facility. Such designation shall be made on the basis of those entities' (1) commitment to construct the demonstration facility at the minimum level of Federal price supports, (2) detailed plan of environmental protection, and (3) proposed design and operation of the demonstration facility.

(d) The construction plans and actual construction of the demonstration facility, together with all related facilities, shall be monitored by the Administrator of the Environmental Protection Agency. The Administrator of the Environmental Protection Agency is authorized and directed to require the application of the best available pollution control technologies as determined pursuant to the Clean Air Act, as amended (42 U.S.C. 1857 et seq.), and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1151 et seq.) on all demonstration facilities constructed pursuant to this section. If such additional environmental requirements are imposed after the designation of the successful bidders and if such additional environmental requirements result in additional costs, the Chairman is authorized to renegotiate the support price to cover such added costs.

(e) The estimated amount of the Federal price supports of the demonstration facilities' product over the life of such facilities shall be determined by the Chairman to facilitate the congressional authorization of the full amount of such support amounts at the time of the designation of the successful bidders.

(f) There shall be established in the Treasury of the United States a Competitive Research and Development Price Support Fund which shall be available to the Chairman for carrying out the price-support program authorized by this Act, including the payment of administrative expenses incurred in connection therewith.

CONGRESSIONAL APPROVAL

SEC. 111. (a) For each proposal which is considered pursuant to section 106, and in which the potential Federal investment is estimated to exceed $10,000,000 the Chairman shall prepare and transmit to the Congress a report setting forth the following:

(1) the anticipated, research, development, and application objectives to be achieved by the activities or facilities proposed;

(2) the economic, environmental, and societal significance which a successful demonstration may have for the national fuels and energy system;

(3) the relationship of the proposal to the criteria of priority set forth in section 112;

(4) the availability of non-Federal participants to construct and operate the facilities or perform the activities associated with the proposal and to contribute the financing of the proposal;

(5) the total estimated cost and the probable time schedule;

(6) the proposed participants and the proposed financial contributions of the Federal Government and of the non-Federal participants; and

(7) the proposed cooperative arrangement, agreements among the participants, and form of management of the activities.

(b) If the total estimated amount of the Federal contribution to the proposal does not exceed $50,000,000 the Chairman is authorized to proceed with the negotiation of agreements and implementation of the proposal as set forth in the report subject to the availability of funds under the authorization of appropriations granted in section 122(b) of this Act: *Provided*, That if said Federal contribution exceeds $10,000,000 no funds may be expended for any proposal under the authority granted by this subsection prior to sixty calendar days (which sixty days, however, shall not include days on which either House of Congress is not in session because of an adjournment of more than three calendar days to a day certain) from the date on which the Chairman's report is received by the Congress.

(c) Proposals for which the total estimated amount of the Federal contribution exceeds $50,000,000 shall be implemented by the Chairman only if the implementation and the necessary appropriations are specifically authorized by the Congress in subsequent legislation: *Provided, however*, That such proposal shall recommend whether an authorization is being sought for the total estimated amount of the Federal contribution in block or on an annual basis.

DETERMINATION OF NEED FOR FEDERAL PARTICIPATION IN RESEARCH AND DEVELOPMENT

SEC. 112. In evaluating proposed opportunities for particular research and development undertakings pursuant to this Act, the Chairman shall assign priority to those undertakings in which—

(1) the urgency of public need for the potential results of the research, development, or demonstration effort is high, and it is unlikely that similar results would be achieved in a timely manner in the absence of Federal assistance;

(2) the potential opportunities for non-Federal interests to recapture the investment in the undertaking through the normal commercial exploitation of proprietary knowledge appear inadequate to encourage timely results;

(3) the extent of the problems treated and the objectives sought by the undertaking are national or widespread in their significance;

(4) there are limited opportunities for regulatory actions and incentives other than direct Federal financial assistance, including, but not limited to, end-use controls, tax and price incentives, and public education, to induce non-Federal support of the undertaking;

(5) the degree of risk of loss of investment inherent in the research is high, and the availability of risk capital to the non-Federal entities which might otherwise engage in the field of the research is inadequate for the timely development of the technology; or

(6) the magnitude of the investment appears to exceed the financial capabilities of potential non-Federal participants in the research to support effective efforts.

PATENT POLICY AND MANDATORY LICENSING

SEC. 113. (a) (1) All research, development, demonstration, or projects contracted for, sponsored, or cosponsored by the Government pursuant to this Act, shall require as a condition of Federal participation that all

information—whether patented or unpatented, in the form of trade secrets, know-how, proprietary information, or otherwise—resulting in whole or in part from federally assisted research shall be made available at the earliest possible date to the general public, including, but not limited to, nongovernmental United States interests capable of bringing about further development, utilization, and commercial applications of such results.

(2) The Chairman, in administering patents pursuant to this Act, shall make a determination, case by case, in an on-the-record proceeding conducted in accordance with the provisions of the Administrative Procedure Act, as to whether patent licenses shall be granted on a royalty-free basis or upon a basis of charges designed to recover part or all of the costs of the Federal research. He shall make Government patent rights and technological and scientific know-how available on nonexclusive and nondiscriminatory terms to qualified applicants.

(3) (A) Whenever a participant in any program, contract, or energy research and development project pursuant to this Act holds background patents, trade secrets, know-how, or proprietary information which will be employed in the proposed program, contract, or research and development project, the Chairman shall enter into an agreement which will provide equitable protection to the rights of the public and the participant: *Provided, however,* That any such agreement shall provide that when the program, contract, or energy research and development project reaches the stage of possible commercial application, any of the participant's previously developed background patents, trade secrets, know-how, or proprietary information reasonably necessary to possible commercial application of the energy process or system developed under this title will be made available to any qualified applicant on reasonable and nondiscriminatory license terms or in other forms which shall take into account that the commercial viability of the total energy process or system was achieved with the assistance of public funds.

(B) As employed herein, the term "background patent" means a United States patent owned or pending by a contractor, grantee, participant, or other party conducting research or development work, or both, pursuant to this Act for or under the sponsorship or cosponsorship of the chairman of a corporation established pursuant to this Act which would be infringed by the practice of any new technology developed under the research or development work, or both, contracted for, sponsored, or cosponsored pursuant to this Act, or any demonstration-type or commercial-size facility authorized by any corporation thereunder.

(b) (1) Any corporation established pursuant to this Act, and any other Government agency or instrumentality, shall receive a royalty-free unrestricted license to practice any invention or discovery made or employed in connection with any demonstration-type or commercial-size facility provided for hereinafter. Such license shall include the right to make, use, and sell. As used herein, the term "research" includes "development" within its scope.

(2) Any net royalty income from the licensing of patents shall accrue to such corporation during its existence for use by the corporation in the advancement of its purposes. On and after the dissolution of the corporation, the Administrator of General Services shall administer such patent and shall have the sole right to issue licenses thereunder, in accordance with the provisions of this section: *Provided,* That participants in the corporation shall receive a royalty-free license during and after the life of the corporation: *And provided further,* That the Chairman may recommend variations from this policy which he believes to be in the public interest for the consideration of the Congress when specific corporations are proposed for authorization.

(c) Whenever the Chairman determines that—

(1) (A) in the implementation of the requirements of this Act a right under any United States patent, which is not otherwise reasonably available, is reasonably necessary to the development or demonstration of an energy system or technology pursuant to this Act, and

(B) there are no reasonably equivalent methods to accomplish such purpose, and

(C) the unavailability of such right may result in a substantial lessening of competition or tendency to create a monopoly in any line of commerce in any section of the country,

the Chairman shall so certify to a district court of the United States, which shall review the Chairman's determination. If the district court upholds such determination, the court shall issue an order requiring the person who owns such patent, or rights thereunder, to license it on such reasonable and nondiscriminatory terms and conditions as the court, after hearing, may determine. Such certification may be made to the district court for the district court in which the person owning the patent resides, does business, or is found.

(d) The Chairman shall, in determining license terms, duly consider and give weight to the effects of such terms on competition and small business.

RELATIONSHIP TO ANTITRUST LAWS

SEC. 114. (a) Nothing in this Act shall be deemed to convey to any individual, corporation, or other business organization immunity from civil or criminal liability, or to create defenses to actions, under the antitrust laws.

(b) As used in this section, the term "antitrust laws" means—

(1) the Act entitled "An Act to protect trade and commerce against unlawful restraints and monopolies", approved July 2, 1890 (15 U.S.C. 1 et seq.), as amended;

(2) the Act entitled "An Act to supplement existing laws against unlawful restraints and monopolies, and for other purposes", approved October 15, 1914 (15 U.S.C. 12 et seq.), as amended;

(3) the Federal Trade Commission Act (15 U.S.C. 41 et seq.), as amended;

(4) sections 73 and 74 of the Act entitled "An Act to reduce taxation, to provide revenue for the Government, and for other purposes", approved August 27, 1894 (15 U.S.C. 8 and 9), as amended; and

(5) the Act of June 19, 1936, chapter 592 (15 U.S.C. 13, 13a, 13b, and 21a).

PRESIDENTIAL REVIEW

SEC. 115. (a) The President shall—

(1) in connection with any reorganization plan which he has proposed or may propose which has significant impacts upon the agencies represented on the Management Project, or

(2) immediately upon the authorization by the Congress of any reorganization which has significant impact upon the agencies represented upon the Management Project.

make his recommendations to the Congress concerning the appropriate agency and organizational arrangements to perform the functions authorized by this title.

(b) Not later than two years from the date of this Act, unless a permanent reorganization of the energy research and development functions of the Federal Government has been accomplished in the interim, the President shall report to the Congress on his evaluation of the progress of fuels and energy research and development and his recommendation for further management of the Federal research and development programs, but not limited to—

(1) the necessity for continuing the Management Project,

(2) the appropriate membership of the Management Project if it is continued, and

(3) the appropriate agency to receive the duties, funding, and staff of the Management Project if it is to be terminated.

ADMINISTRATIVE PROVISIONS

SEC. 116. The Chairman shall be compensated at the rate provided for level II of the Executive Schedule Pay Rates (5 U.S.C. 5313).

POWERS

SEC. 117. (a) The Chairman may employ such officers and employees as may be necessary to carry out the functions of the Management Project under this title and may employ and fix the compensation of such experts and consultants as may be necessary, in accordance with section 3109 of title 5, United States Code (but without regard to the last sentence thereof);

(b) The Management Projects may—

(1) acquire, furnish, and equip such office space as is necessary;

(2) use the United States mails in the same manner and upon the same conditions as other agencies of the United States;

(3) purchase, hire, operate, and maintain passenger motor vehicles;

(4) enter into contracts or agreements for studies and surveys with non-Federal public and private organizations and transfer funds to Federal agencies to carry out aspects of the Management Project's duties; and

(5) incur such necessary expenses and exercise such other powers as are consistent with and reasonably required to perform its functions under this title.

(c) The Chairman shall have the authority and be responsible for—

(1) the supervision of personnel;

(2) the assignment of duties and responsibilities among personnel; and

(3) the use and expenditure of funds.

COOPERATION OF FEDERAL AGENCIES

SEC. 118. (a) Upon request of the Chairman, the head of any Federal department or agency is authorized—

(1) to furnish the Management Project within the limits of available funds, including funds transferred for that purpose pursuant to section 117(b) of this Act, such information as may be necessary for carrying out its functions, and

(2) to detail to temporary duty with the Management Project on a reimbursable basis such personnel as it may require for carrying out its functions pursuant to this Act, each such detail to be without loss of seniority, pay, or other employee status.

(b) In carrying out his responsibilities under this Act, the Chairman shall consult with the Administrator of the Small Business Administration to assure that small businesses are given an opportunity to participate in research and development projects under this Act and are given access to the results of such projects.

CONGRESSIONAL ACCESS TO INFORMATION

SEC. 119. The Chairman shall keep the Congress fully and currently informed of all the Management Project's activities and shall submit to the Congress an annual report.

ENVIRONMENTAL EVALUATION

SEC. 120. (a) The Council on Environmental Quality established under the provisions of the National Environmental Policy Act (83 Stat. 852) is authorized and directed to carry out a continuing analysis of the conduct of research and development of energy technologies to evaluate—

(1) the adequacy of attention to energy conservation methods,

(2) the adequacy of attention to the probable environmental effects of the application of technology, and

(3) the adequacy of attention to environmental protection in connection with energy processes.

(b) The Council on Environmental Quality, in carrying out the provisions of this section, may employ consultants or contractors and may by fund transfer employ the services of other Federal agencies for the conduct of studies and investigations.

(c) The Council on Environmental Quality shall hold annual public hearings on the conduct of energy research and development and the probable environmental consequences of trends in the application of energy technology, and the transcript of the hearings shall be published and made available to the public.

(d) The Council on Environmental Quality shall make such reports to the President, the Chairman, and the Congress as it deems appropriate concerning the conduct of energy research and development, and the President as a part of the annual Environmental Policy Report required by section 201 of the National Environmental Policy Act (83 Stat. 854) shall set forth the findings of the Council on Environmental Quality concerning the conduct of energy research and development and the probable environmental consequences of trends in the application of energy technology.

ACQUISITION OF ESSENTIAL MATERIALS

SEC. 121. To achieve the purposes of this Act, the President is authorized to take such action as may be necessary to obtain or allocate materials which are or may be in critical supply and which are essential to the expeditious progress of energy research and development efforts.

APPROPRIATIONS

SEC. 122. (a) There are authorized to be appropriated to the Chairman to remain available until expended $2,000,000 for the fiscal year 1974 and $10,000,000 annually for fiscal years 1975 and 1976 for the expenses of the Management Project in administering this Act including such amounts as may be expended for consulting services and including funds transferred to other Federal agencies in compensation for personal services in assisting the Management Project with the administration of this Act.

(b) There are authorized to be appropriated to the Chairman to remain available until expended not to exceed $800,000,000 for each of the fiscal years ending June 30, 1974, and 1975, and such amounts as may be authorized by annual authorization Acts in fiscal year 1976 to carry out the provisions of sections 104(c), 106, 107, and 108 of this Act: *Provided*, That 1 per centum of such amounts as may be appropriated in each fiscal year under the authority of this subsection shall be made available by fund transfer to the Council on Environmental Quality for the purposes authorized and directed by section 120.

(c) The Chairman of the Management Project, in conjunction with his recommendations for annual appropriations pursuant to subsection (b) of this section, shall report to the Congress on the activities of the previous calendar year, the expenditure of funds, the new projects initiated, the projects which have been terminated, and any new contractual arrangements entered into, and the progress which has been made during that year toward attaining the capability of domestic energy self-sufficiency for the United States within ten years of the date of enactment of this Act. In each instance where delays in scheduled accomplishments are reported, the reasons for the delays shall be set forth along with recommendations for actions, including specific estimates of additional funding, or requirements for new legislative authority which would assist in regaining the schedule.

TITLE II—GEOTHERMAL ENERGY

SEC. 201. This title may be cited as the "Geothermal Energy Act of 1973".

LOAN GUARANTEE PROGRAM

SEC. 202. (a) The Congress, in consideration of the Federal responsibility for the general welfare, to facilitate commerce, to encourage productive harmony between man and his environment, and to protect the public interest, finds that the advancement of technology by private industry for the production of useful forms of energy from geothermal resources is important to all of those areas of responsibility. It is the policy of the Congress, therefore, to encourage and assist in the commercial development of practicable means to produce useful energy from geothermal resources with environmentally acceptable processes. Accordingly, it is the policy of the Congress to facilitate such commercial development by authorizing the Secretary of the Interior to guarantee loans for such purposes.

(b) In order to encourage the commercial production of energy from geothermal resources, the Secretary of the Interior, hereinafter referred to as the Secretary, is authorized to guarantee, and to enter into commitments to guarantee, banks or other financial institutions against loss of principal or interest on loans made by such institutions to qualified borrowers for the purposes of acquiring rights in geothermal resources and performing exploration, development, and construction and operation of facilities for the commercial production of energy from geothermal resources.

(c) Any guaranty under this title shall apply only to so much of the principal amount of any loan as does not exceed 75 per centum of the aggregate cost of the project with respect to which the loan is made.

(d) Loan guaranties under this title shall be on such terms and conditions as the Secretary determines: *Provided, however*, That a guaranty shall be made under this title only if—

(1) the loan involved is at a rate of interest which does not exceed the prevailing interest rates for conventional construction loans;

(2) the terms of such loans require full repayment within thirty years after the date thereof;

(3) in the judgment of the Secretary, the amount of the loan (when combined with amounts available to the qualified borrower from other sources) will be sufficient to carry out the project; or

(4) in the judgment of the Secretary, there is reasonable assurance of repayment of the loan by the qualified borrower of the guaranteed indebtedness.

(e) The Secretary shall not guarantee any loan for any project the amount of which exceeds $25,000,000, nor guarantee any combination of loans for any single qualified borrower in an amount exceeding $50,000,000.

SEC. 203. (a) With respect to any loan guaranteed pursuant to this title, the Secretary is authorized to enter into a contract to pay, and to pay, the lender for and on behalf of the borrower the interest charges which become due and payable on the unpaid balance of any such loan if the Secretary finds:

(1) that the borrower is unable to meet interest charges, and that it is in the public interest to permit the borrower to continue to pursue the purposes of his project, and that the probable net cost to the Government in paying such interest will be less than that which would result in the event of a default, and

(2) the amount of such interest charges which the Secretary is authorized to pay shall be no greater than an amount equal to the average prime interest rate for the preceding fiscal year as determined by the Secretary of the Treasury, plus one-half of 1 per centum.

(b) In the event of any default by a qualified borrower on a guaranteed loan, the Secretary is authorized to make payment in accordance with the guaranty, and the Attorney General shall take such action as may be appropriate to recover the amounts of such payments from such assets of the defaulting borrower as are associated with the project.

SEC. 204. No loan guaranties shall be made, or interest assistance contract entered into, pursuant to this title, after the expiration of the ten-calendar-year period following the date of enactment of this title.

SEC. 205. There is established in the Treasury of the United States a Geothermal Resources Development Fund (referred to in this title as the "fund"), which shall be available to the Secretary of the Interior for carrying out the loan guaranty and interest assistance program authorized by this title, including the payment of administrative expenses incurred in connection therewith. Moneys in the fund not needed for current operations shall be invested in bonds or other obligations of, or guaranteed by, the United States.

SEC. 206. There shall be paid into the fund the amounts appropriated pursuant to section 207 of this title and such amounts as may be returned to the United States pursuant to section 203(b) of this title, and the amounts in the fund shall remain available until expended: *Provided*, That after the expiration of the ten-year term established by section 204 of this title, such amounts in the fund which are not required to secure outstanding guaranty obligations shall be paid into the general fund of the Treasury.

SEC. 207. There are authorized to be appropriated (1) to the fund not to exceed $50,000,000 annually, and (2) such amounts as may be required for the administrative costs of carrying out the provisions of sections 201 through 206 of this title.

SEC. 208. Business-type financial reports covering the operations of the fund shall be submitted to the Congress by the Secretary annually upon the completion of an appropriate accounting period.

COORDINATION OF FEDERAL ACTIVITIES IN GEOTHERMAL ENERGY EXPLORATION, RESEARCH, AND DEVELOPMENT

SEC. 209. The Congress, in consideration of the Federal responsibility for the general welfare, to facilitate commerce, to encourage productive harmony between man and his environment, and to protect the public interest, finds that the advancement of technology with the cooperation of private industry for the production of useful forms of energy from geothermal resources is important to all of those areas of responsibility. It is the policy of the Congress, therefore, to encourage and assist private industry through Federal assistance for the development and demonstration of practicable means to produce useful energy from geothermal resources with environmentally acceptable processes. Such means shall accordingly include resource inventory, research, and financial and technical assistance in the construction of pilot plants and demonstration developments with the objective of reaching commercialization in the most timely and practicable manner.

SEC. 210. The Secretary, acting through the Geological Survey, is authorized and directed to:

(a) develop and carry out a general plan for the orderly inventorying of all forms of geothermal resources of the Federal lands and, where consistent with property rights and determined by the Secretary to be in the national interest, of non-Federal lands;

(b) conduct regional surveys, based upon such a general plan, using innovative geologic, geophysical, geochemical, and drilling techniques, which will lead to a national inventory of geothermal resources in the United States;

(c) publish and make available maps, reports, and other documents developed from such surveys to encourage and facilitate the commercial development of geothermal resources for beneficial use and consistent with the national interest;

(d) make such recommendations for legislation as may from time to time appear to

be necessary to make Federal leasing policy for geothermal resources consistent with known inventories of various resources types, with the current state of technologies for geothermal energy development, and with current evaluations of the environmental impacts of such development; and

(e) participate with the Atomic Energy Commission, the National Aeronautics and Space Administration, and the National Science Foundation in research to develop, improve, and test technologies for the discovery and evaluation of all forms of geothermal resources, and conduct research into the principles controlling the location, occurrence, size, temperature, energy content, producibility, and economic lifetimes of geothermal reservoirs.

SEC. 211. The Secretary shall coordinate the development and implementation of the inventory authorized by section 210(a) and the applied research authorized by subsection 210(e) with the geothermal research and development program of the Atomic Energy Commission to insure that information is developed in a timely manner for the optimum progress of geothermal development.

SEC. 212. In preparing or implementing the resources inventory plan, the Secretary is authorized to:

(a) employ contractors and consultants;

(b) acquire by fund transfers the services of employees and facilities of other Federal agencies; and

(c) cooperate and enter into contracts with State, regional, and local governmental agencies and educational and research institutions.

SEC. 213. The Administrator of the National Aeronautics and Space Administration, hereinafter referred to as NASA, is authorized and directed to prepare and transmit to the Secretary within six months from the date of enactment of this title a proposal for the employment of space technologies and the services and facilities of NASA for inventorying and mapping of geothermal resources.

SEC. 214. The Secretary is authorized and directed to transmit to the President and the Congress, not later than one year from the date of enactment of this title, the general plan including a schedule and objectives, for inventory of, and applied research on, geothermal resources required by section 210, and each year thereafter a report on the status of activities authorized to be performed by the Secretary under the provisions of this title.

SEC. 215. (a) The Atomic Energy Commission in cooperation with private industry is authorized and directed to:

(1) conduct, encourage, and promote basic and applied scientific research to develop effective, economical, and environmentally acceptable processes and equipment for the purpose of utilizing all forms of geothermal resources for the production of useful energy forms;

(2) pursue the findings of research authorized by this title having potential applications in matters other than geothermal energy to the extent that such findings can be published in a form for utilization by others;

(3) conduct engineering and technical work including the design, construction, and testing of pilot plants to develop and improve geothermal energy processes and plant design concepts to the point of demonstration on a commercial scale;

(4) conduct laboratory and field experiments and tests of technologies necessary for the successful development of all forms of geothermal resources;

(5) study methods for the reduction and elimination of undesirable environmental impacts of geothermal development;

(6) study methods for the recovery and marketing of byproducts resulting from the production of energy from geothermal resources; and

(7) undertake engineering and economic studies to determine the potential for energy from geothermal resources to contribute to energy requirements on national and regional levels.

(b) The Commission shall coordinate the research and development activities authorized by this section with the activities of the Department of the Interior relating to geothermal resources research to insure the full utilization of expertise and information and to prevent duplication of efforts.

SEC. 216. (a) The Commission is authorized to investigate, negotiate, and enter into cooperative agreements with non-Federal utilities, industries, and governmental entities for the construction, operation, and maintenance of demonstration developments for the production of electric or heat energy, water supplies, or minerals from geothermal resources.

(b) No agreement shall be entered into under the authority granted by this section unless the Commission determines that:

(1) the nature of the resource, the geographical location, the scale and engineering design of the facilities, the techniques of production, or other significant factors of the proposal offer opportunities to make important contributions to the general knowledge of geothermal energy, the techniques of its development, or public confidence in the technology;

(2) the potential non-Federal cooperating entities are willing and capable to make contributions toward the capital cost of the development, to operate the facilities, and to provide a market for the energy produced;

(3) no benefits have been obtained through the loan guaranty provisions of this title and applied to development of any facility for which funding assistance pursuant to this section is proposed;

(4) the development or the practical benefits of the development as set forth in clause (1) of this subsection are unlikely to be accomplished without Federal assistance or through the assistance provided by this title; and

(5) the Federal investment in each such development project will not exceed $10,000,000.

(c) The Commission is authorized to investigate potential agreements for the cooperative development of major facilities to demonstrate the feasibility of the production of energy from geothermal resources and to submit engineering and financial proposals to the Congress for consideration of authorization to proceed with implementation of said proposals. The Commission may consider:

(1) cooperative agreements with non-Federal governmental entities and utilities for construction of facilities to produce energy for commercial disposal;

(2) cooperative agreements with other Federal agencies for the construction and operation of facilities to produce energy for direct Federal consumption.

(d) Before favorably considering proposals under subsection (c) of this section, the Commission must find that:

(1) the nature of the resource, the geographical location, the scale and engineering design of the facilities, the techniques of production, or other significant factor of the proposal offer opportunities to make important contributions to the general knowledge of geothermal energy, the techniques of its development, or public confidence in the technology;

(2) the development or the practical benefits as set forth in clause (1) of this subsection are unlikely to be accomplished without such cooperative development; and

(3) where non-Federal participants are involved, the proposal is not eligible for adequate Federal assistance under the loan guarantee provisions of this title.

SEC. 217. There are authorized to be appropriated to remain available until expended to carry out the purposes of sections 210 through 216:

(a) $10,000,000 for fiscal years 1974, 1975, and 1976 to the Secretary of the Interior;

(b) $35,000,000 for fiscal years 1974, 1975, and 1976 to the Atomic Energy Commission;

(c) such amounts as may be required in fiscal years 1974, 1975, and 1976 to NASA.

SEC. 218. As used in this title, the term—

(a) "geothermal resources" means (A) all products of geothermal processes, embracing indigenous steam, hot water, and brines; (B) steam and other gases, hot water, and hot brines resulting from water, gas, or other fluids artificially introduced into geothermal formations; and (C) any byproduct derived from them;

(b) "qualified borrower" means any public or private agency, institution, association, partnership, corporation, political subdivision, or other legal entity which the Secretary has determined has presented satisfactory evidence of a property interest in a geothermal resource identified, in a manner acceptable to the Secretary, as being of sufficient interest for research objectives or the development and production of energy, and which has the financial responsibility to establish and operate, utilizing such resource, a commercial facility;

(c) "pilot plant" means an experimental unit of small size used for early evaluation and development of new or improved processes and to obtain technical and engineering data;

(d) "demonstration development" means a complete facility which produces electricity or heat energy for commercial disposal from geothermal resources and which will make a significant contribution to the knowledge of full-sized technology, plant operation, and process economics.

The title was amended, so as to read: "A bill to establish a national program for research, development, and demonstration in fuels and energy and for the coordination and financial supplementation of Federal energy research and development; and for other purposes."

Mr. JACKSON. Mr. President, I ask unanimous consent that S. 1283, be printed as passed by the Senate, and that an extra 1,000 copies be printed for the use of the Committee on Interior and Insular Affairs.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. JACKSON. I also ask unanimous consent that Secretary of the Senate be authorized to make any necessary technical and conforming changes.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. PERCY. Mr. President, I would like to explain the thinking that went into my vote today on S. 1283, the National Energy Research and Development Policy Act of 1973.

I am in full accord with the purposes of this bill, to stimulate a full-scale effort on research and development of potential energy sources and to provide for adequate funding for such an effort. With a massive and sustained funding commitment, I believe we can achieve the President's goal of energy independence as a nation by 1980.

I commend the chairman, Senator JACKSON, the ranking minority member, Senator FANNIN, and the other members

of the Interior Committee for the leadership and initiative in this vital area.

I am particularly interested in the development of gas and synthetic petroleum from coal, which is abundant in Illinois and throughout our Nation. I have sponsored and supported several promising coal gasification projects. I am also especially interested in shale oil development, because of the visionary commitment of my distinguished predecessor, Senator Paul Douglas, to that source of energy.

While I fully support the energy R & D strategy in S. 1283, I am very concerned about the organizational aspects of the bill. On December 5, I offered a motion that S. 1283 be referred to the Government Operations Committee for a brief period of time—7 days—to allow that committee, which has jurisdiction over executive reorganization, to examine the organizational structure in the bill. That effort failed, and as a result the bill, as passed, contained what I considered to be an energy R. & D. organization that should have been studied more carefully because of certain faults.

Under S. 1283, a project manager with a large staff, a huge responsibility over Government research and development, and massive funding resources, would be superimposed on the present governmental structure. This project manager would have control of all new energy R. & D. funds, yet the agencies carrying out the research and development would remain scattered throughout the Government. The present proliferation of energy agencies could be made even worse by the establishment of another pseudo-agency called the Energy Research Management project. There would be none of the consolidation and reform of organization that has long been recognized as needed. Instead of pulling the energy R. & D. agencies together under one jurisdiction, they would be more scattered than ever.

The Senate Government Operations Committee is presently considering a bill, which was urgently recommended by the President, which would provide the necessary consolidation and central focus for R. & D. in a single agency, the Energy Research and Development Administration—ERDA. This bill, S. 2744, has been sponsored by Senator RIBICOFF and consponsored by Senators AIKEN, BROCK, ERVIN, GURNEY, JACKSON, JAVITS, PASTORE, ROTH, and myself, and has the full support of the administration. The House Government Operations Committee has reported out a bill to establish ERDA, and the House will probably pass that bill before the end of this session.

If S. 1283 could have been referred to the Government Operations Committee for a short time, we could have substituted ERDA for the unwieldy organizational structure in S. 1283. It would have made S. 1283 a much sounder bill, and would have enhanced its chances for its enactment before the end of this session of Congress.

Mr. President, I ask unanimous consent to insert in the RECORD at this point a letter just received from Dr. Dixy Lee Ray, Chairman of the Atomic Energy Administration, which expresses many of the same serious reservations as I have about the organizational aspects of S. 1283.

There being no objection, the letter was ordered to be printed in the RECORD, as follows:

ATOMIC ENERGY COMMISSION,
Washington, D.C.

HON. ABRAHAM A. RIBICOFF,
Chairman, Subcommittee on Reorganization, Research, and International Organizations, Committee on Government Operations, U.S. Senate.

DEAR SENATOR RIBICOFF: On Tuesday, December 4, 1973, I testified before the Subcommittee on S. 2744, a bill "to reorganize and consolidate certain functions of the Federal Government in a new Energy Research and Development Administration and in a Nuclear Energy Commission in order to promote more efficient management of such functions." During the course of the hearing, I was asked to give the Subcommittee my views on S. 1283, a bill "to establish a national program for research, development, and demonstration in fuels and energy and for the coordination and financial supplementation of Federal energy research and development; and for other purposes." (Calendar No. 567, Report No. 93-589.) I am pleased to furnish my views for the record.

My understanding of the principal provisions of S. 1283 is as follows:

Title I provides, among other things, for the establishment of an Energy Research Management Project, which would be comprised of representatives of a number of agencies concerned with energy, including one Commissioner of the Atomic Energy Commission. The project would: (1) review Federal activities in fuels and energy research and development to determine the capability of ongoing efforts to carry out the policies established by this Act and other relevant Federal policies, particularly that of the National Environmental Policy Act of 1969; (2) formulate a comprehensive energy research and development strategy for the Federal Government; (3) utilize the funds authorized to advance energy research and development; and (4) establish procedures for periodic consultation with groups which have special expertise in energy research and development. Forms of Federal assistance and participation would include, but not be limited to, joint Federal-industry corporations, contractual arrangements with non-Federal participants, contracts for the construction and operation of Federally-owned facilities, Federal purchases or guaranteed prices of the products of demonstration plants or activities, and Federal loans.

The Council on Environmental Quality would be authorized and directed to carry out a continuing analysis of the conduct of research and development of energy technologies to evaluate the adequacy of attention to (1) energy conservation methods, (2) probable environmental effects of application of technology, and (3) environmental protection in connection with energy processes.

Title II of the bill concerns geothermal energy and provides, among other things, that the Secretary of the Interior, acting through the Geological Survey, is authorized and directed to develop and carry out a general plan for the orderly inventorying of all forms of geothermal resources, and participate with AEC, NASA, and NSF in research related to geothermal resources.

The Atomic Energy Commission, in cooperation with private industry, is authorized and directed to conduct, encourage, and promote basic and scientific research related to geothermal resources.

In my opinion, S. 1283 would not provide a viable framework for accomplishing what I believe to be the joint goal of the Congress and the Administration; that is, the establishment of a Federal program which will assure the independent capability of the United States to meet its energy needs. The formation of a practicably achievable, organizationally sound Federal structure for energy research and development is a central element in accomplishing this goal.

As I testified before your Committee on S. 2744, it is of utmost importance that the Governmental structure be organized so as to consolidate most Federal energy R&D activities within a single agency which, on the one hand, would be responsible for meeting the Federal goal in the area of research and development, and, on the other hand, would have sufficient authority in the field of energy R&D to accomplish that goal. In my judgment, S. 1283 would accomplish neither of these objectives.

Contrary to one of the purposes stated in S. 1283, that bill, rather than centralizing responsibility for energy R&D, would further fragment and diffuse such responsibility. Energy R&D work presently being carried out by a number of Federal agencies would remain with those agencies. Grafted to the present structure would be an Energy Research Management Project responsible for the allocation of funds to advance funds for ongoing Federal agency R&D programs and by initiating and maintaining—by fund transfers, grants, or contracts—new energy R&D programs with private organizations. In addition, S. 1283 contemplates the establishment of Federal-industry corporations for the purpose of constructing and operating one or more full-scale, commercial-size facilities to demonstrate the technical, environmental, and economic feasibility of a particular unconventional energy technology. The result is a new Federal entity charged (1) to advance or carry out energy research and developments through existing Federal department or agency programs and to initiate new Federal energy R&D programs, and (2) to establish additional energy R&D entities empowered to conduct research and development programs through the creation of Federal-industry corporations.

This multilayered and disparate structuring of energy research and development activities will result, in my view, in further and counter-productive diffusion of responsibility and will dissipate the ability to control or direct energy R&D programs from both a fiscal and policy standpoint. The potential under S. 1283 for decentralization and fragmentation of energy research and development efforts would appear to compound the present deficiencies of the existing Federal structure.

In my opinion, the appropriate organizational path to follow to pursue effectively a broadly based energy research and development effort is one which is built upon greater centralization of responsibility, not less. I believe that S. 2744—which utilizes established research and development capabilities and proven organizational structures is better designed to achieve the goal sought by both bills.

Sincerely,

DR. DIXY LEE RAY,
Chairman.

ENROLLED BILL PRESENTED

The Secretary of the Senate reported that on today, December 7, 1973, he presented to the President of the United States the enrolled bill (S. 1747) to amend the International Travel Act of 1961 to authorize appropriations for fiscal years 1974, 1975, and 1976, and for other purposes.

PROHIBITION ON THE IMPORTATION OF RHODESIAN CHROME

The PRESIDING OFFICER (Mr. BARTLETT). The Chair lays before the Senate the unfinished business, which will be stated by title.

The legislative clerk read as follows:

A bill (S. 1868) to amend the United Nations Participation Act of 1945 to halt the importation of Rhodesian chrome and to restore the United States to its position as a law-abiding member of the international community.

MILITARY CONSTRUCTION APPROPRIATIONS, 1974—CONFERENCE REPORT

Mr. MANSFIELD. Mr. President, I submit a report of the committee of conference on H.R. 11459, and ask for its immediate consideration.

The PRESIDING OFFICER (Mr. BARTLETT). The report will be stated by title.

The legislative clerk read as follows:

The committee of conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H.R. 11459) making appropriations for military construction for the Department of Defense for the fiscal year ending June 30, 1974, and for other purposes, having met, after full and free conference, have agreed to recommend and do recommend to their respective Houses this report, signed by all the conferees.

The PRESIDING OFFICER. Is there objection to the consideration of the conference report?

There being no objection, the Senate proceeded to consider the report.

(The conference report is printed in the House proceedings of the CONGRESSIONAL RECORD of Dec. 4, 1973, at pages 39318–39320.)

Mr. MANSFIELD. Mr. President, I ask for the yeas and nays.

The yeas and nays were ordered.

Mr. MANSFIELD. Mr. President, the conference committee agreed on an overall figure of $2,658,861,000 for military construction for fiscal year 1974. This is an amount of $49,771,000 over the amount approved by the House, $12,000,000 under the amount approved by the Senate, and $286,039,000 under the budget estimate of $2,944,900,000. The conferees agreed on the following amounts for the military services and the Department of Defense:

Army, $578,120,000;
Navy, $609,292,000;
Air Force, $247,277,000;
Army Reserve, $40,700,000;
Naval Reserve, $22,900,000;
Air Force Reserve, $10,000,000;
Army National Guard, $35,200,000;
Air National Guard, $20,000,000;
Family housing, Department of Defense, $1,188,539,000; and
Homeowners assistance fund, $7,000,000.

Mr. President, I wish to emphasize that the military construction bill this year is, indeed, an austere bill. The percentage of reduction from the budget estimate amounts to approximately 10 percent. However, I wish to point out that this bill provides for all the essential operating facilities needed by the military services and I wish to state categorically that there are no moneys in this bill for plush accommodations for the military services.

I do not intend to make a long and involved statement of the actions taken by the committee of conference. The conference report explains in a most succinct manner the complete actions.

Mr. President, this completes my statement. I believe that the conference committee has presented for the Senate's consideration a military construction bill that fits the stringent financial conditions in which this Government finds itself. I will be glad to answer any questions which individual Senators may have regarding construction projects in their States.

I ask unanimous consent that, at the conclusion of my remarks on this bill, a tabulation comprising a summary of the conference action on the military construction appropriation bill for fiscal year 1974 be included in the RECORD.

There being no objection, the material was ordered to be printed in the RECORD, as follows:

COMPARATIVE STATEMENT OF NEW BUDGET (OBLIGATIONAL) AUTHORITY FOR 1973 AND BUDGET ESTIMATES AND AMOUNTS RECOMMENDED IN THE BILL FOR 1974

Item	New budget (obligational) authority, fiscal year 1973	Budget estimates of new (obligational) authority, fiscal year 1974	New budget (obligational) authority recommended in House bill	New budget (obligational) authority recommended in Senate bill	New budget (obligational) authority recommended by conference action	Conference action compared with— New budget (obligational) authority, fiscal year 1973	Conference action compared with— Budget estimates of new (obligational) authority, fiscal year 1974	Conference action compared with— New budget (obligational) authority recommended in House bill	Conference action compared with— New budget (obligational) authority recommended in Senate bill
Military construction, Army	413,955,000	[1] 664,900,000	551,575,000	567,735,000	$578,120,000	+$164,165,000	−$86,780,000	+$26,545,000	+$10,385,000
Military construction, Navy	517,830,000	685,400,000	587,641,000	608,467,000	609,292,000	+91,462,000	−76,108,000	+21,651,000	+825,000
Military construction, Air Force	265,552,000	291,900,000	239,702,000	261,198,000	247,277,000	−18,275,000	−44,623,000	+7,575,000	−13,921,000
Military construction, Defense Agencies	36,704,000	19,100,000	0	12,000,000	0	−36,704,000	−19,100,000		−12,000,000
Transfer, not to exceed	(20,000,000)	(20,000,000)	(20,000,000)	(20,000,000)	(20,000,000)				
Military construction, Army National Guard	40,000,000	35,200,000	35,200,000	35,200,000	35,200,000	−4,800,000			
Military construction, Air National Guard	16,100,000	20,000,000	20,000,000	20,000,000	20,000,000	+3,900,000			
Military construction, Army Reserve	38,200,000	40,700,000	40,700,000	40,700,000	40,700,000	+2,500,000			
Military construction, Naval Reserve			20,500,000	20,300,000	22,900,000	+2,400,000	+2,600,000		+2,600,000
Military construction, Air Force Reserve	7,000,000	10,000,000	10,000,000	10,000,000	10,000,000	+3,000,000			
Total, military construction	1,355,841,000	1,787,500,000	1,507,718,000	1,575,600,000	1,563,489,000	+207,648,000	−224,001,000	+55,771,000	−12,111,000
Family housing, defense	1,064,046,000	[2] 1,250,567,000	1,194,539,000	1,188,539,000	1,188,539,000	+124,493,000	−62,028,000	−6,000,000	
Portion applied to debt reduction	−96,666,000	−100,167,000	−100,167,000	−100,167,000	−100,167,000	−3,501,000			
Subtotal, family housing	967,380,000	1,150,400,000	1,094,372,000	1,088,372,000	1,088,372,000	+120,992,000	−62,028,000	−6,000,000	
Homeowners assistance fund, defense		[3] 7,000,000	7,000,000	7,000,000	7,000,000	+7,000,000			
Grand total, new budget (obligational) authority	2,323,221,000	2,944,900,000	2,609,090,000	2,670,972,000	2,658,861,000	+335,640,000	−286,039,000	+49,771,000	−12,111,000

[1] Due to lack of authorization, does not include additional $4,300,000 requested in House Document 93–155.

[2] Due to lack of authorization, does not include additional $31,100,000 requested in House Document 93–155.

[3] Includes $7,000,000 requested in House Document 93–155.

Mr. YOUNG. Mr. President, the Senate is fortunate in having the distinguished majority leader as chairman of the Subcommittee on Military Construction. I think all the essential needs of the military were taken care of under the bill, and with a minimum amount of money and at a cost savings.

Mr. President, I hope the conference report will be agreed to by the Senate.

Mr. SCHWEIKER. Mr. President, I join the distinguished ranking minority member of the committee in his remarks and I wish to say that as the ranking minority member of the subcommittee I concur strongly with the distinguished majority leader as well as the ranking minority member of my committee in saying this is a good bill, passed with a lot of give and take on both the House and the Senate positions. I strongly support it.

I yield 1 minute to the Senator from Texas.

Mr. TOWER. Mr. President, I wish to emphasize that this bill reflects the emphasis of Congress on personnel support assistance for the armed services. At a time when we are trying to attract an all-volunteer armed force in this country, it is incumbent upon us to do all we can to make living conditions as pleasant and safe as possible for our men and women in uniform.

I wish to point out that a large percentage of the money contained in the appropriation is for barracks, medical facilities, commissaries, and other things

designed to make service life more comfortable and attractive.

PROGRAM FOR TODAY

Mr. YOUNG. Mr. President, I wish to ask the schedule for the remainder of the day.

Mr. MANSFIELD. Mr. President, after this we will take up three unobjected-to items on the calendar and then go back to the unfinished business, the so-called Rhodesian chrome bill, at which time a motion for cloture will be laid before the Senate which will make the measure eligible to be considered Tuesday 1 hour after the Senate convenes.

This will be the last vote today.

ORDER FOR ADJOURNMENT UNTIL MONDAY, DECEMBER 10, 1973

Mr. MANSFIELD. Mr. President, I ask unanimous consent that when the Senate completes its business today it stand in adjournment until 12 o'clock meridian on Monday next.

The PRESIDING OFFICER. Without objection, it is so ordered.

PROGRAM FOR NEXT WEEK

Mr. MANSFIELD. Mr. President, on Monday it is expected that we will take up S. 2176, the bill to provide for a national fuels and energy conservation policy, and S. 2686, legal services for the Office of Economic Opportunity.

On Tuesday the Senate will consider S. 2767, the rail service bill, and H.R. 8449, the national flood insurance program. The vote on cloture will occur on Tuesday.

On Wednesday we will consider the measure relating to the independent Special Prosecutor, unless there is some chance we can get it up on Monday, which we are endeavoring to do at this time. If the Senate will allow the leadership a little flexibility, we will do our best in that regard and give Senators the picture.

We hope that the Committee on Appropriations will be able to report the defense appropriations bill around Tuesday and with the consent of the Senate we could take that up on Thursday and Friday. It will consume 2 days.

Mr. YOUNG. Mr. President, will the Senator yield?

Mr. MANSFIELD. I yield.

Mr. YOUNG. I cannot speak for the chairman of the committee, but I think the supplemental will be ready ahead of the defense appropriation bill.

Mr. MANSFIELD. We will take them in order. I hope the Senate will not hold the leadership to the 3-day rule. We are trying to get out 2 weeks from today or tomorrow, at the latest.

As the Senator has indicated the supplemental bill will be reported this week. The defense appropriation bill will be reported this week. The foreign aid authorization should be reported this week, followed by the foreign aid appropriation bill. I do not know what is going to happen to the District of Columbia home rule or conference bill, which was agreed to some days ago but has to be considered in the House.

That is as far as I can go at this time.

Mr. ROBERT C. BYRD subsequently said: Mr. President, I ask unanimous consent that the statement of the distinguished majority leader concerning the program for next week be printed in the RECORD today just prior to the motion to adjourn.

The PRESIDING OFFICER. Without objection, it is so ordered.

MILITARY CONSTRUCTION APPROPRIATIONS, 1973—CONFERENCE REPORT

The Senate resumed the consideration of the report of the committee of conference on H.R. 11459, making appropriations for military construction for the Department of Defense for the fiscal year ending June 30, 1974, and for other purposes.

The PRESIDING OFFICER. Who yields time?

Mr. MANSFIELD. Mr. President, I yield back the remainder of my time.

Mr. SCHWEIKER. I yield back the remainder of my time.

The PRESIDING OFFICER. All time is yielded back. The question is on agreeing to the adoption of the conference report. The yeas and nays have been ordered, and the clerk will call the roll.

The legislative clerk called the roll.

Mr. ROBERT C. BYRD. I announce that the Senator from Texas (Mr. BENTSEN), the Senator from North Carolina (Mr. ERVIN), the Senator from Arkansas (Mr. FULBRIGHT), the Senator from Indiana (Mr. HARTKE), the Senator from Utah (Mr. Moss), the Senator from Georgia (Mr. NUNN), the Senator from Mississippi (Mr. EASTLAND), and the Senator from Montana (Mr. METCALF) are necessarily absent.

I further announce that the Senator from Louisiana (Mr. JOHNSTON), and the Senator from Rhode Island (Mr. PELL) are absent on official business.

I also announce that the Senator from Missouri (Mr. SYMINGTON) is absent because of illness.

I further announce that, if present and voting, the Senator from Louisiana (Mr. JOHNSTON), the Senator from Georgia (Mr. NUNN), the Senator from Missouri (Mr. SYMINGTON), and the Senator from Rhode Island (Mr. PELL) would each vote "yea."

Mr. GRIFFIN. I announce that the Senator from Oklahoma (Mr. BELLMON), the Senator from Utah (Mr. BENNETT), the Senator from Florida (Mr. GURNEY), the Senator from Oregon (Mr. HATFIELD), and the Senator from Ohio (Mr. SAXBE) are necessarily absent.

The Senator from Arizona (Mr. GOLDWATER) is absent by leave of the Senate on official business.

The Senator from Kentucky (Mr. COOK) and the Senator from Oregon (Mr. PACKWOOD) are absent on official business.

The Senator from New Hampshire (Mr. COTTON) is absent because of illness in his family.

If present and voting, the Senator from Oregon (Mr. HATFIELD) would vote "yea."

The result was announced—yeas 80, nays 0, as follows:

[No. 565 Leg.]

YEAS—80

Abourezk	Fong	Muskie
Aiken	Gravel	Nelson
Allen	Griffin	Pastore
Baker	Hansen	Pearson
Bartlett	Hart	Percy
Bayh	Haskell	Proxmire
Beall	Hathaway	Randolph
Bible	Helms	Ribicoff
Biden	Hollings	Roth
Brock	Hruska	Schweiker
Brooke	Huddleston	Scott, Hugh
Buckley	Hughes	Scott, William L.
Burdick	Humphrey	Sparkman
Byrd, Harry F., Jr.	Inouye	Stafford
Byrd, Robert C.	Jackson	Stennis
Cannon	Javits	Stevens
Case	Kennedy	Stevenson
Chiles	Long	Taft
Church	Magnuson	Talmadge
Clark	Mansfield	Thurmond
Cranston	Mathias	Tower
Curtis	McClellan	Tunney
Dole	McClure	Weicker
Domenici	McGee	Williams
Dominick	McGovern	Young
Eagleton	McIntyre	
Fannin	Mondale	
	Montoya	

NAYS—0

NOT VOTING—20

Bellmon	Fulbright	Moss
Bennett	Goldwater	Nunn
Bentsen	Gurney	Packwood
Cook	Hartke	Pell
Cotton	Hatfield	Saxbe
Eastland	Johnston	Symington
Ervin	Metcalf	

So the report was agreed to.

The PRESIDING OFFICER (Mr. BARTLETT). The clerk will state the amendments in disagreement.

The legislative clerk read as follows:

Resolved, That the House recede from its disagreement to the amendment of the Senate numbered 1 to the aforesaid bill, and concur therein with an amendment as follows:

In lieu of the sum proposed by said amendment, insert "$578,120,000".

Resolved, That the House recede from its disagreement to the amendment of the Senate numbered 2 to the aforesaid bill, and concur therein with an amendment as follows:

In lieu of the sum proposed by said amendment, insert "$609,292,000".

Mr. MANSFIELD. Mr. President, I move that the Senate concur in the amendments of the House to Senate amendments Nos. 1 and 2.

Mr. JAVITS. Mr. President, Mr. President, Mr. President.

The PRESIDING OFFICER. The Senator from New York is recognized.

Mr. JAVITS. Mr. President, I intend to vote against concurrence in the amendments. I would like to ask the manager of the conference report some questions.

Mr. President, one of the items in disagreement is amendment No. 1. Members can see this on page 3 of the explanatory statement of the conferees. It shows a figure in the House amendment which relates to the military ocean terminal at Bayonne, N.J. The amount involved will be noted as something in the neighborhood of $2.2 million.

This facility is located at Brooklyn, N.Y., at the present time. There has been a constant running back between the two Houses as well as the military authorities and the State and the city relating to the movement of this facility in the sense of

substantiation as to why it should be moved and why money should be provided to move it.

It has been stalemated for a considerable period of time. My colleague, the junior Senator from New York (Mr. BUCKLEY), and I are strongly opposed to the proposition on the ground that no adequate showing has been made of the need or desirability.

This was fought for very strongly in the conference by Representative ROONEY of New York, and obviously without success notwithstanding his strong feeling on the matter and the fact that he is an important member of the Appropriations Committee in the other body.

Mr. President, another thing is important in this matter. I understand, and I have no reason to doubt the statement that has been made to me, that the money which involves a certain amount of loss of employment. I understand that this particular area has also lost a very considerable amount of money. In the Brooklyn Navy Yard an enormous amount of labor has been lost, as well as important credit to try to substitute some employment for the thousands of jobs lost when the navy yard was shut down.

Here again quite a fair number of jobs are involved, I understand something in the area of hundreds, without hopes as far as I can see that we can get approval of this amendment that is in technical disagreement, without any provision as to how this transition is to be made with some decent accommodation to the place where it is now and the loss to that place.

I would like to ask the manager of the conference report if he would tell us exactly what dictated this policy which is reflected by this particular appropriation and what consideration, if any, has been given to the need of this local area for some transition in respect of the facility which is in question here.

Mr. MANSFIELD. Mr. President, in response to the question raised by the distinguished senior Senator from New York, might I say that this is a matter which has been before the committee for the last 4 years and that during that period of time despite the fact that the Brooklyn Army Terminal has been closed, there was a certain amount of transiency in the process.

This project is required to provide administrative space for relocation of Headquarters, Eastern Area, Military Transportation Management and Terminal Service from Military Ocean Terminal, Brooklyn, N.Y. Brooklyn is excess to DOD requirements and is only partially utilized by DOD activities for administrative functions. The current annual cost of operation and maintenance of facilities under the present austere basis exceeds $1.8 million. If the DOD activities remain at Brooklyn, major rehabilitation of the utilities systems must be accomplished. Numerous power outages and waterline breaks have disrupted operations repeatedly. Consolidation of the activities in existing facilities at Bayonne will permit savings by reduction in civilian and military manpower spaces, equipment rental costs, and maintenance costs for unoccupied facilities.

This project—electric substation—is related to request for administrative facilities for Bayonne MOT, also requested in the fiscal year 1974 progam. The project provides a new 3,000 KVA substation to provide additional electrical capacity at Bayonne MOT. The work is necessary to improve the reliability of the present system to meet the additional load generated by new tenants, that is, the Headquarters Eastern Area, Military Transportation Management and Terminal Service. This organization is scheduled to relocate to Bayonne from Brooklyn MOT and will occupy the requested administrative facilities.

It is my further understanding, subject to correction, that some of the employees from Brooklyn have been transferred to Bayonne, N.J.

Mr. JAVITS. Mr. President, would the Senator be able to inform us whether the amount of savings contemplated are equal to or exceed the expense, which is not inconsiderable? There is $2.2 million appropriated here alone for that purpose.

Mr. MANSFIELD. The answer is in the affirmative.

Mr. JAVITS. May I also ask the Senator what assurance he can give us, as the city of New York is doing its best to fill up the gap—our experience is that not many employees, though I am sure some, transfer to another location—can the Senator give us any assurance that we will get some help from the committee or the department, so that a decent opportunity is provided to enable the transition to be made and enable the city of New York to find some other way to deal with the gap in employment which will be created?

Mr. MANSFIELD. Yes; to a degree. I understand the Post Office Department has taken over half of the facility, and that some of the people from the Army terminal have gone into the postal facility, plus the fact that additional employees are needed. So I think that Brooklyn will be more than compensated as far as employment is concerned, on the basis of the post office moving in.

Mr. JAVITS. And could we have some assurance that if additional time is needed, we will have sympathetic consideration, at least from the committee which is sponsoring this measure, to help us to get it if we have a good case for it?

Mr. MANSFIELD. The committee will give most sympathetic consideration to any request of the two Senators from New York.

Mr. JAVITS. I thank my colleague.

Mr. HUMPHREY. Mr. President, will the majority leader yield to me briefly?

Mr. MANSFIELD. Is it on the bill?

Mr. HUMPHREY. No, it is not.

Mr. JAVITS. Mr. President, if the Senator is not asking the majority leader to yield on this measure, I, too, have a small matter which we wanted to take up.

The PRESIDING OFFICER. The question is on agreeing to the motion to concur in the House amendments to the Senate amendments.

The motion was agreed to.

Mr. MANSFIELD. Mr. President, I yield first to the Senator from New York and then to the Senator from Minnesota.

LEGISLATIVE PROGRAM

Mr. JAVITS. Mr. President, Senator CRANSTON, Senator MONDALE, and I were not in the Chamber because we were all engaged in a conference on manpower when the program was discussed, and one of the bills which the majority leader said he would put on for Monday was S. 2686, legal services.

We were not, because of our necessary preoccupation, privileged to participate in that discussion, and we would greatly appreciate it—I think I speak for my colleagues as well as myself—if the majority leader could, so that we might understand the situation, state whatever he informed the Senate about that particular bill, so that we might have our input into that situation.

Mr. MANSFIELD. Mr. President, let me repeat what I said to the Senate in response to a question raised by the distinguished senior Senator from North Dakota (Mr. YOUNG) as to what the program would be for the remainder of the day, next week, and insofar as the rest of the session is concerned.

Tentatively—and some flexibility has to be allowed—on Monday the program will be S. 2176, national emergency policy, and S. 2688, legal services, OEO.

Tuesday, S. 2767, rail services; H.R. 8449, national flood insurance; and a vote on a cloture motion which I shall file shortly.

On Wednesday, there is the Special Prosecutor's measure.

Thursday and Friday, supplemental and Defense appropriation bills, and in the meantime we should have an authorization bill, or rather during the next week or shortly thereafter, on foreign aid out of the Foreign Relations Committee; and a foreign aid appropriation bill which is awaiting the disposition of the authorization proposal.

Then it is my understanding that some days ago agreement was reached on the D.C. home rule bill. What action will be I do not know, but action will be taken in the House of Representatives first.

What the leadership is endeavoring to do is to bring about an adjournment either 2 weeks from today or 2 weeks from tomorrow if at all possible.

That may well mean late sessions next week. I think we ought to conclude our work as soon as possible. Then we shall take a well-deserved rest, but on the basis of being subject to call at any time for emergencies with respect to energy, the Middle East, and so forth.

Mr. JAVITS. Mr. President, will the Senator further yield?

Mr. MANSFIELD. I yield.

Mr. JAVITS. This bill—the legal services bill, to which I refer—has been very much debated and very deeply considered, and has finally resulted in an understanding with the White House—a very unusual way. The understanding was in the form of a letter that, so far as the Senate bill was concerned, no effort

would be made to frustrate it, but that the Senate bill would then be enabled to go to conference with some degree of celerity. In the conference, of course, the administration reserved every right to do what it could to get a bill. With that, we had a clear track ahead.

With the number of associations very strongly in back of the bill with which we were presented, we had hoped to get action. But I think we have made it clear, and wish to make it clear again, that if any effort is made to filibuster the matter, we are perfectly willing to face the issue of cloture at a very early time. This is not one of those bills as to which people need to be educated, particularly. This bill has been gone through from end to end and has been most thoroughly considered by all kinds of experts.

So I would appeal to the majority leader that this matter, at the very least, be put on a second track on Monday, and we will do our part by assuring the majority leader that we are ready to face the issue at any moment that he or the Senator from West Virginia (Mr. ROBERT C. BYRD) feels it is appropriate to consider the matter. I can assure the Senator that the bill can well be in conference, on a second track basis, at the end of next week.

Mr. CRANSTON. Mr. President, I thank the distinguished Senator from New York. We have been working, together with the Senator from Minnesota (Mr. MONDALE), for a long time, first to work out a bill that was acceptable to the administration, a bill that would not be vetoed, and then to get it before the Senate. I think it is very important to get it there soon.

I am delighted that the majority leader has agreed to do everything he can to bring it before this body on Monday.

Mr. HELMS. Mr. President, I should like to have an understanding of what the Senator from New York was saying. As I understand, it was his judgment, however sincere he may have been—although I do not agree with him—that this matter should be given short shrift.

Mr. JAVITS. Not at all.

Mr. HELMS. At what point would the Senator apply cloture?

Mr. JAVITS. We cannot apply cloture without a vote of two-thirds of the Senate.

Mr. HELMS. I understand.

Mr. JAVITS. But it is our contention that this particular bill, this broad plan for a legal services corporation, has been so thoroughly debated and considered here, in committee, and by experts outside the Senate that we believe that within a matter of days, giving second-track attention to this matter, keeping in mind that we shall probably be sitting until late hours next week, that whenever the leadership calls up the bill, we could, in good faith, seek cloture.

Mr. HELMS. I will simply say to my good friend, whom I admire and respect, that I personally think this matter deserves a great deal of discussion, notwithstanding those who think a bill approaching perfection has been agreed upon. I would hope that nothing summary would be done to shut off debate on this matter, because there are those of us who do feel very strongly about it.

Mr. JAVITS. I will, myself, be the first to assess the good faith of those who oppose the bill. But we will have to, just as the Senator from North Carolina will have to, if the Senator is going to decide that he wants to debate it and Senators in opposition will want to debate it—we will have to decide when to test the Senate as to whether the Senate thinks the bill has been debated long enough. If we are wrong, we will be penalized and will lose. We have just as much risk as does the Senator from North Carolina.

Mr. HELMS. I appreciate the Senator's remarks. I just did not want to labor under a misapprehension that a warning was being sounded to those of us who disagree that cloture was forthcoming immediately because I do feel that this measure deserves great consideration and debate.

Mr. JAVITS. Senator HELMS, we are too adult and we have too much respect for this body and our colleagues to make any threats or to issue any warnings around here.

Mr. HELMS. I thank the Senator from New York.

Mr. MANSFIELD. Mr. President, I yield to the Senator from Minnesota (Mr. HUMPHREY).

Mr. McGEE. Mr. President——

The PRESIDING OFFICER (Mr. BARTLETT). The Chair lays before the Senate the unfinished business which the clerk will state.

THE CALENDAR

Mr. MANSFIELD. Mr. President, I first ask unanimous consent that the Senate proceed to the consideration of Calendar Nos. 579, 580, and 581.

The PRESIDING OFFICER. Without objection, it is so ordered.

U.S. CAPITOL HISTORICAL SOCIETY STUDY

The Senate proceeded to consider the joint resolution (S.J. Res. 169), to provide for a feasibility study and to accept a gift from the U.S. Capitol Historical Society, which has been reported from the Committee on Interior and Insular Affairs with an amendment on page 2, in line 20, after "Representatives" strike out "and to the majority and minority leaders of the Senate" and insert in lieu thereof "and to the United States Senate Commission on Art and Antiquities," so as to make the joint resolution read:

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That, notwithstanding any other provision of law, the United States Capitol Historical Society is authorized, under direction of the Architect of the Capitol, to prepare a feasibility study to determine the desirability of installing within the United States Capitol Grounds, at the east front of the United States Capitol, all items of equipment and other facilities required for a sound and light performance, consisting of an interplay of light, music, narrative, and sound effects (without the use of live actors), which, when projected onto the imposing facade of the east front of the United States Capitol, will re-create the evolution of American history, based on a foundation of thorough historical research, subject to the following conditions:

(1) Such study and all expenditures connected therewith will be borne by the United States Capitol Historical Society.

(2) Upon completion of such study, the United States Capitol Historical Society, at its expense, will furnish the Architect of the Capitol a report detailing the results of such study, installations, and programs proposed, and estimates of cost required to implement such project without expense to the United States, including maintenance and operating expenses.

(3) The project may not be implemented, beyond the report stage, except as provided in section 2 hereof.

SEC. 2. The Architect of the Capitol shall review such report and submit the same, with his recommendations, to the Speaker and majority and minority leaders of the House of Representatives and to the United States Senate Commission on Art and Antiquities.

If the project, as presented, with or without modifications, meets with the approval of such House and Senate officials, the Architect of the Capitol, notwithstanding any other provision of law, is authorized after such approval—

(1) To accept in the name of the United States from the United States Capitol Historical Society, as a gift, such sum or sums as may be required to further implement such project, and such sum or sums when received, shall be credited as an addition to the appropriation account "Capitol Buildings, Architect of the Capitol".

(2) Subject to section 3 hereof, to expend such sum or sums for all items of equipment and other facilities required for the sound and light performance, and for any other items in connection therewith.

SEC. 3. The Architect of the Capitol, under the direction of the House and Senate officials designated in section 2 hereof, is authorized to enter into contracts and to incur such other obligations and make such expenditures as may be necessary to carry out the provisions of said section 2.

SEC. 4. Sums received under this joint resolution, when credited as an addition to the appropriation account "Capitol Buildings, Architect of the Capitol", shall be available for expenditure and shall remain available until expended. Following completion of the installation, such sums may thereafter be used by the Architect of the Capitol, in whole or part, to defray any expenses which he may incur for maintenance and operation.

Mr. MANSFIELD. Mr. President, I ask unanimous consent that the Public Works Committee be discharged from further consideration of House Joint Resolution 736, and that the Senate proceed to its immediate consideration.

The PRESIDING OFFICER. Without objection, it is so ordered.

The joint resolution will be stated by title.

The assistant legislative clerk read as follows:

A joint resolution (H.J. Res. 736), to provide for a feasibility study and to accept a gift from the United States Capitol Historical Society.

Mr. MANSFIELD. Mr. President, I move to strike all after the resolving clause and insert the text of Senate Joint Resolution 169 as reported with amendments.

The motion was agreed to.

The PRESIDING OFFICER. The question is on the engrossment of the amendment and third reading of the joint resolution.

The amendment was ordered to be engrossed and the joint resolution to be read a third time.

The joint resolution (H.J. Res. 736) was read the third time and passed.

Mr. ROBERT C. BYRD subsequently said: Mr. President, I ask unanimous consent that Senate Joint Resolution 169 be indefinitely postponed.

The PRESIDING OFFICER (Mr. McCLURE). Without objection, it is so ordered.

CHOCTAW-CHICKASAW-CHEROKEE BOUNDARY DISPUTE ACT

The bill (H.R. 5089), to determine the rights and interests of the Choctaw Nation, and the Chickasaw Nation, and the Cherokee Nation in and to the bed of the Arkansas River below the Canadian Fork and to the eastern boundary of Oklahoma, was considered, ordered to a third reading, was read the third time, and passed.

MENOMINEE RESTORATION ACT

The Senate proceeded to consider the bill (H.R. 10717), to repeal the act terminating Federal supervision over the property and members of the Menominee Indian Tribe of Wisconsin as a federally recognized, sovereign Indian tribe; and to restore to the Menominee Tribe of Wisconsin those Federal services furnished to American Indians because of their status as American Indians; and for other purposes, which had been reported from the Committee on Interior and Insular Affairs with amendments on page 2, in line 5, after "elected" strike out "at a general council meeting called by the Secretary pursuant to section 4(a) of this Act" and insert in lieu thereof "pursuant to subsections 4(a) and 4(b) of this Act."

On page 2, at the beginning of line 25, strike out "Nothing" and insert "Except as specifically provided in this Act, nothing."

On page 3, in line 17, after the period, insert:

The Menominee Restoration Committee shall have full authority and capacity to be a party to receive such grants to make such contracts, and to bind the tribal governing body as the successor in interest to the Menominee Restoration Committee: *Provided, however,* That the Menominee Restoration Committee shall have no authority to bind the tribe for a period of more than six months after the date on which the tribal governing body takes office.

On page 3, in line 25, strike out "thirty" and insert in lieu thereof "fifteen".

On page 4, at the end of line 4, strike out "ninety" and insert in lieu thereof "thirty".

On page 4, in line 5, strike out "sixty" and insert in lieu thereof "forty-five".

On page 4, at the end of line 18, insert:

The Menominee Restoration Committee shall have no power or authority under this Act after the time which the duly-elected tribal governing body takes office: *Provided, however,* That this provision shall in no way invalidate or affect grants or contracts made pursuant to the provisions of subsection 3(e) of this Act.

On page 5, at the end of line 16, strike out "Menominee Restoration Committee" and insert in lieu thereof "Secretary".

On page 5, in line 18, strike out "Secretary", and insert in lieu thereof "Menominee Restoration Committee".

On page 6, in line 12, strike out "initiated: *Provided,* That the time for making a final determination may be extended by mutual agreement of the Secretary and the appellant." and insert "initiated.".

On page 6, in line 21, after "within" strike out "one hundred and eighty days after enactment of this Act." and insert in lieu thereof "sixty days after final certification of the tribal roll."

On page 7, in line 4, strike out "Menominees" and insert in lieu thereof "Minominee".

On page 7, in line 14, after "officials" insert "as".

On page 7, in line 22, strike out "subsections (a) and (c)".

On page 8, beginning in line 4, insert "(e) The Time periods set forth in subsections 4(c), 5(a), and 5(c) may be changed by the written agreement of the Secretary and the Menominee Restoration Committee."

On page 8, in line 12, after the period, insert "The Secretary shall submit such plan to the Congress within one year from the date of the enactment of this Act."

On page 8, in line 15, after "(b)" strike out "The" and insert "If neither House of Congress shall have passed a resolution of disapproval of the plan within sixty days of the date the plan is submitted to Congress, the".

On page 9, at the beginning of line 9, strike out "his" and insert in lieu thereof "this".

The title was amended so as to read:

An Act to repeal the Act terminating Federal supervision over the property and members of the Menominee Indian Tribe of Wisconsin; to reinstitute the Menominee Indian Tribe of Wisconsin as a federally recognized sovereign Indian tribe; and to restore to the Menominee Tribe of Wisconsin those Federal services furnished to American Indians because of their status as American Indians; and for other purposes.

The amendments were agreed to.

The amendments were ordered to be engrossed and the bill to be read a third time.

The bill was read the third time, and passed.

Mr. MANSFIELD. Mr. President, if the distinguished Senator from Virginia (Mr. HARRY F. BYRD, JR.) will allow me, I should like to yield at this time to the assistant majority leader for a unanimous-consent request or requests.

UNANIMOUS-CONSENT AGREEMENT ON S. 2611

Mr. ROBERT C. BYRD. Mr. President, I thank the distinguished majority leader.

Mr. President, I ask unanimous consent, at the request of the distinguished majority leader, this request having been cleared with the Senator from Nebraska (Mr. HRUSKA), with the assistant Republican leader, and with Senators KENNEDY, HART, TAFT, PERCY, and HOLLINGS, and other Senators, that at such time as S. 2611, a bill to establish an independent Special Prosecutor, is called up and made the pending business before the Senate, there be a time limitation for debate thereon of 4 hours, to be equally divided between the Senator from Nebraska (Mr. HRUSKA) and the Senator from Michigan (Mr. HART); that time on an amendment by the Senator from Ohio (Mr. TAFT) be limited to 2 hours; that time on an amendment to be designated the Percy-Baker amendment be limited to 2 hours; that time on any other amendment in the first degree be limited to 1 hour; that time on any amendment to an amendment be limited to 40 minutes; that time on any debatable motion or appeal be limited to 20 minutes; that no amendment not germane be in order; provided, however, that the two amendments identified as the Taft and the Percy-Baker amendments be in order regardless of germaneness; provided each of those two amendments pertains to the appointment of a Special Prosecutor; ordered further that the agreement be in the usual form with respect to the division and control of time.

The PRESIDING OFFICER. Is there objection to the request of the Senator from West Virginia? The Chair hears none, and it is so ordered.

UNANIMOUS-CONSENT AGREEMENT ON S. 1435

Mr. ROBERT C. BYRD. Mr. President, the following unanimous-consent request has been cleared with the distinguished manager of the conference report, the Senator from Missouri (Mr. EAGLETON), and the ranking member of the Subcommittee on Appropriations for the District of Columbia, the Senator from Maryland (Mr. MATHIAS):

Ordered, That, during the consideration of the conference report on S. 1435, the so-called "District of Columbia Charter Act," debate thereon be limited to 1 hour, to be equally divided and controlled by the manager of the conference report and the Senator from Maryland, Mr. MATHIAS.

Ordered further, That, debate on any motion or appeal relating to the conference report be limited to 20 minutes, to be equally divided and controlled by the mover of such and the manager of the conference report.

Ordered further, That, should the conference report be defeated, debate on any request for a new conference and the appointment of conferees shall be limited to 20 minutes to be equally divided and controlled by the manager of the conference report and the Senator from Maryland, Mr. Mathias, and should any motion be made to instruct the conferees before the conferees are named, any debate on any such motion shall be limited to 20 minutes to be equally divided and controlled by the mover of such and the manager of the conference report, and debate on any amendment to any such instructions shall be limited to 10 minutes to be equally divided and controlled by the mover of such and the manager of the conference report. *Provided,* That in all cases, when the manager of the conference report is in favor of any amendment, motion, or appeal, the time in opposition shall be under the control of the Minority Leader or his designee.

The PRESIDING OFFICER. Without objection, it is so ordered.

RURAL WATER AND SEWER FUNDS IMPOUNDED BY ADMINISTRATION

Mr. HUMPHREY. Mr. President, a news report in the New York Times of December 6, 1973, charges that the Nixon administration has impounded a total of $550 million appropriated by Congress for Federal grants for water and sewer systems.

If this report is correct, I am incredulous over what amounts to a blatant disregard by the Nixon administration of an explicit directive by Congress early this year that these vitally needed funds be allocated without delay. These funds included $150 million for crucially important home and industrial development in rural areas. And our cities have stated emphatically time and again that the improvement of water and sewer systems, under a $400 million program administered by the Department of Housing and Urban Development, is one of their highest priorities.

Meanwhile, it is reported, only about one-third of the funds authorized by Congress for loan assistance for these systems have actually been obligated.

Mr. President, the issue of administration impoundments in violation of appropriations laws enacted by Congress must be forcefully addressed without further delay. It is expected that the Senate will take up major budget control legislation in January 1974. The House passed similar legislation yesterday, containing provisions requiring the release of impounded funds.

I firmly believe that Congress must now instruct the administration that it is not exempt from the law, but that its function is to faithfully uphold and effectively administer laws enacted by Congress and signed by the President. In a recent statement in the Senate, I strongly criticized an attempt by the White House to have set aside at one stroke lawsuits by States, communities, and organizations against the administration for the allocation of almost $1 billion in fiscal 1973 funds claimed to have been illegally impounded by the Office of Management and Budget. The conference report on H.R. 8877, providing for appropriations for the Departments of Labor and Health, Education, and Welfare, and recently adopted by both houses of Congress, rejected an amendment proposed by White House adviser Melvin R. Laird, which would have had this effect.

However, at the same time, six States have found it necessary to sue the Federal Government for the release of $2.7 billion in impounded highway construction funds—the latest in a series of some 36 lawsuits against the administration, on most of which lower courts have handed down favorable decisions.

Mr. President, I take this opportunity to inform the Senate that a letter is being sent to the President, jointly signed by myself, the chairman of the Senate Appropriations Subcommittee on Agriculture, Environmental and Consumer Protection (Mr. McGEE), and the Senator from Wisconsin (Mr. NELSON). We are requesting the President to indicate the newspaper report on the withholding of rural water and sewer grant funds is accurate, and to provide a status report on the allocation of funds appropriated by Congress under the Agriculture, Environmental, and Consumer Protection Act for fiscal 1974. We have requested that this information be provided within 1 week.

Mr. President, there is an absolute necessity that these funds for water and sewer in rural areas be made available. There is nothing short of a major emergency in these areas for this kind of facility.

Mr. President, I ask unanimous consent that two articles on the impoundment of water and sewer funds, and appearing in the New York Times of December 7, 1973, be printed in the RECORD.

There being no objection, the articles were ordered to be printed in the RECORD, as follows:

[From the New York Times, Dec. 6, 1973]

ADMINISTRATION IMPOUNDS FUNDS FOR WATER AND SEWER SYSTEMS

(By William Robbins)

WASHINGTON, December 6.—The Nixon Administration has quietly impounded $550-million voted this year for development of water and sewer systems despite a directive from Congress to spend the money.

The action, which included withholding of funds for a popular rural development program, is considered likely to increase pressure behind a bill that would allow Congress to force release of money it appropriates.

The rural program provided $150-million to promote home and industrial development, and thus aid distressed communities, through grants for construction of water and sewer systems.

The program had been "terminated" early this year by a Presidential impoundment action but revived by Congress, which also adopted an accompanying conference report directing the Administration to spend the money.

Representative Jamie Whitten, Democrat of Mississippi, the powerful chairman of the House appropriations subcommittee, reacted today with a thinly veiled warning, although he said:

"I don't want to be in a position of threatening the Administration."

Under present conditions, Congress lacks the power to force the Administration to spend the money, Mr. Whitten noted, but he added, "Next year, you can make them wish they had spent the money."

He observed that Congress has the power of the purse, enabling it to control funds for both the White House and the Office of Management and Budget, but added quickly that "the country cannot afford" a stalemate between the White House and Congress.

The impoundment issue has been a focal point of controversy between President Nixon and Congress since the current session began. A total of about $12-billion in appropriated funds had been withheld by the Administration at one point, but some of that has since been released and court suits have compelled the spending of additional money for several programs.

Both houses have passed bills giving Congress the power to review and override Presidential impoundment decisions, but they have never gone to conference.

Those bills would be superseded by a new budget control act, passed by the House yesterday, which contains a section giving either chamber the power to force release of impounded funds. The Senate is expected to act on a similar bill early next year.

President Nixon is considered likely to veto the bill if it reaches his desk with the anti-impoundment provision intact, but the withholding of rural funds disclosed today is expected to reinforce support for any attempt to override.

The $150-million was the rural counterpart of a water and sewer program administered by the Department of Housing and Urban Development, for which $400-million had been voted in the same Congressional appropriations measure.

The withholding of funds for the grants does not affect a loan program for the same purpose, for which $470-million has been authorized, and $110-million obligated this fiscal year, which ends next June 30.

Arthur C. Harmon Jr., the deputy administrator of the Farmers Home Administration, which supervises the rural program, said today that his agency and higher officials in the Administration considered the water and sewer grants "redundant" because a similar program was administered by the Environmental Protection Agency.

Mr. Whitten had argued during appropriation hearings, however, that the only relevant E.P.A. program was that funded under the Water Pollution Control Act. That act, he said, provided mainly for sewage treatment systems and, under allocation systems set by the states, little money filtered down to rural areas.

A staff aide at the House agricultural appropriations subcommittee noted today that, although it was possible to fund sewage-collection systems under the pollution act, those were normally given a low priority by the states, and there was no provision for development of water systems.

An official at the Environmental Protection Agency said rural sewer systems were not considered to be a primary objective of its program. He said that it was impossible to determine how much money might have gone to rural areas thus far.

In another action involving impounded funds, six states filed suit today seeking release of $2.7-billion in highway construction funds for all 50 states.

The suit was filed in United States District Court here by Louisiana, Washington, Nevada, Oklahoma, Pennsylvania and Texas. It names as defendants Secretary of Transportation Claude S. Brinegar, the Federal Highway Administrator, Norbert T. Tiemann and Roy L. Ash, director of the Office of Management and Budget.

[From the Washington Post, Dec. 7, 1973]

WATER-SEWER FUNDS ARE IMPOUNDED

(By Bernard Brenner)

Apparently ignoring a blunt directive from Congress, the White House Office of Management and Budget has quietly impounded all of the $150 million voted by the lawmakers for rural water and sewer grants.

No public announcement was made. But officials at the Agriculture Department, in reply to a query, said they had been told the OMB would not release the appropriation.

The action may revive an administration-Congress controversy that began early this year when the White House, after holding spending on the water-sewer grants below appropriated levels in past years, suspended the program altogether.

In reply, congressional leaders inserted the $150 million fund in the Agriculture appropriation bill and wrote in language directing revival of the grants and a similar grant program operated by the Department of Housing and Urban Development.

Reports accompanying bills do not have the force of law. But since they are considered to express the will of Congress, they

are usually heeded by administrative officials.

SIX STATES SUE UNITED STATES TO GET ROAD FUNDS

Six states yesterday filed suit against the federal government seeking release of $2.7 billion in impounded federal highway construction funds.

The action, if successful, would benefit all 50 states, the District of Columbia and Puerto Rico for Fiscal 1973 and 1974.

The suit was filed in U.S. District Court here by Louisiana, Washington, Nevada, Oklahoma, Pennsylvania and Texas.

At least 65 such suits have been filed against the withholding of monies apportioned by Congress for various federal programs. Most of them have been successful in initial stages, but the government has continued the court battles to avoid distributing the money.

VACATION OF ORDER IN CONNECTION WITH THE NOMINATION OF HELMUT SONNENFELDT TO BE UNDER SECRETARY OF THE TREASURY

Mr. MANSFIELD. Mr. President, pursuant to the order of Tuesday, November 20, 1973, in executive session, there were to be 4 hours of debate on the nomination of Mr. Helmut Sonnenfeldt—2 hours to be allocated to the disinguished Senator from Virginia (Mr. HARRY F. BYRD, JR.), 30 minutes to be allocated to the distinguished Senator from North Carolina (Mr. HELMS), and 90 minutes to be allocated to the distinguished Senator from Louisiana (Mr. LONG); and this was to be done on Monday, December 10, 1973.

This afternoon—the Chair will correct me if I am wrong—the Senate received notice from the executive branch that the nomination of Mr. Sonnenfeldt was being withdrawn. Therefore, on that basis, as in executive session, I ask unanimous consent that the order previously granted be vacated.

The VICE PRESIDENT. As in executive session, without objection, it is so ordered.

Mr. MANSFIELD. It is my further understanding that another nomination concerning Mr. Sonnenfeldt has been sent up by the executive branch, for a position in the Department of State.

The VICE PRESIDENT. The Senator is correct.

REFERRAL OF S. 1541, THE BUDGET CONTROL ACT

Mr. PERCY. Mr. President, I ask unanimous consent that the previous order for referral of S. 1541 to the Committee on Rules and Administration with instructions to report by January 21 be vacated. I ask unanimous consent that S. 1541, the Federal act to control expenditures and to establish national priorities, otherwise known as the Budget Control Act, be referred to the Committee on Rules and Administration with instructions that the bill be reported to the Senate not later than February 1, 1974, provided, however, that the bill be automatically placed on the calendar at that time.

Mr. President, I have discussed this with the assistant majority leader, the Senator from West Virginia (Mr. ROBERT C. BYRD), with the assistant minority leader, the Senator from Michigan (Mr. GRIFFIN), and with the chairman of the Committee on Rules and Administration, the Senator from Nevada (Mr. CANNON). They are all in accordance with this.

I have not been able to discuss it with the Senator from Kentucky (Mr. COOK), the ranking minority member of the Committee on Rules and Administration as he is out of town necessarily on business. However, on the basis of my conversations with him I am lead to believe that he would be in agreement with the request.

The PRESIDING OFFICER. Without objection, it is so ordered.

BUDGET CONTROL—ORDER FOR H.R. 7130 TO BE PLACED ON THE CALENDAR

Mr. ROBERT C. BYRD subsequently said: Mr. President, I ask unanimous consent that the bill (H.R. 7130) which has to do with budget control go on the calendar, with the understanding that it remain on the calendar until such time as the Committee on Rules and Administration has reported out a companion bill (S. 1541), recently referred to the Rules Committee, at which time and following the action of the Senate on S. 1541, it is anticipated that all after the enacting clause of the House bill will be stricken and the Senate language, as amended, if amended, will be inserted in lieu thereof.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. ROBERT C. BYRD. My request goes only to putting the House bill on the Senate calendar.

NATIONAL FUELS AND ENERGY CONSERVATION ACT OF 1973

Mr. ROBERT C. BYRD. Mr. President, I ask unanimous consent that at the close of business today, the Chair lay before the Senate the bill (S. 2176) to provide for a national fuels and energy conservation policy.

The PRESIDING OFFICER (Mr. MCCLURE). Without objection, it is so ordered.

Mr. ROBERT C. BYRD. Mr. President, I have asked that the bill be laid before the Senate at the direction of the distinguished majority leader, because he indicated earlier in his statement of the program for next week that on Monday the Senate would take up this bill (S. 2176), and hopefully dispose of it on Monday.

ORDER FOR RECOGNITION OF SENATORS MANSFIELD AND GRIFFIN ON MONDAY NEXT

Mr. ROBERT C. BYRD. Mr. President, I ask unanimous consent that on Monday after the two leaders or their designees have been recognized under the standing order, the distinguished majority leader (Mr. MANSFIELD) be recognized for not to exceed 15 minutes, and that he be followed by the distinguished majority whip (Mr. GRIFFIN) for not to exceed 15 minutes, prior to the transaction of routine morning business on Monday, for which an order has already been entered providing for a period for the transaction of routine morning business of not to exceed 15 minutes, with statements therein limited to 3 minutes.

The PRESIDING OFFICER. Without objection, it is so ordered.

ORDER FOR ADJOURNMENT TO 11 A.M. ON MONDAY, DECEMBER 10, 1973

Mr. ROBERT C. BYRD. Mr. President, I ask unanimous consent that when the Senate completes its business today, it stand in adjournment until the hour of 11 a.m. on Monday next.

The PRESIDING OFFICER. Without objection, it is so ordered.

PROHIBITION ON THE IMPORTATION OF RHODESIAN CHROME

The VICE PRESIDENT. The Chair lays before the Senate the unfinished business, which the clerk will report.

The assistant legislative clerk read as follows:

A bill (S. 1868) to amend the United Nations Participation Act of 1945 to halt the importation of Rhodesian chrome and to restore the United States to its position as a law-abiding member of the international community.

Mr. MANSFIELD. Mr. President, will the Senator from Wyoming yield to me briefly?

Mr. McGEE. I am glad to yield.

CLOTURE MOTION

Mr. MANSFIELD. Mr. President, I send to the desk a cloture motion and ask that it be read.

The VICE PRESIDENT. The cloture motion having been presented under rule XXII, the Chair, without objection, directs the clerk to read the motion.

The assistant legislative clerk read as follows:

CLOTURE MOTION

We, the undersigned Senators, in accordance with the provisions of Rule XXII of the Standing Rules of the Senate, hereby move to bring to a close the debate upon the bill (S. 1868), a bill to amend the United Nations Participation Act of 1945 to halt the importation of Rhodesian chrome and to restore the United States to its position as a law-abiding member of the international community.

Signed by 23 Members of the Senate.

Mr. McGEE. Mr. President, the pending business has been the pending business for some time——

Mr. ROBERT C. BYRD. Mr. President, the clerk did not read the names of the signers of the cloture motion.

The VICE PRESIDENT. The clerk will read the names on the cloture motion.

The assistant legislative clerk read as follows:

Senators Mansfield, McGee, Pastore, Randolph, Case, Jackson, Brooke, Eagleton, Clark, Humphrey, Gravel, Hughes, Hart, Cranston, Metcalf, Mondale.

Mr. McGEE. Mr. President, there must be many candidates for President on

here. The clerk cannot read their signatures. [Laughter.]

The assistant legislative clerk read as follows:

Muskie, Percy, Mondale.

Mr. HARRY F. BYRD, JR. Mr. President, a parliamentary inquiry.

The VICE PRESIDENT. The Senator will state it.

Mr. HARRY F. BYRD, JR. Is such a motion valid, when we cannot read the signatures? [Laughter.]

The VICE PRESIDENT. The Chair notes that they are valid signatures.

The assistant legislative clerk read the names, as follows:

Mike Mansfield, Gale W. McGee, John O. Pastore, Quentin N. Burdick, Jennings Randolph, Clifford P. Case, Henry M. Jackson, Edward W. Brooke, Thomas F. Eagleton, Dick Clark, Hubert H. Humphrey, Mike Gravel, Harold E. Hughes, Philip A. Hart, Alan Cranston, Gaylord Nelson, Floyd K. Haskell, Jacob K. Javits, Edward M. Kennedy, Walter F. Mondale, Lee Metcalf, Edmund S. Muskie, Charles H. Percy.

Mr. McGEE. The action this afternoon which returns us once again to this bill simply serves as a reminder that it has been the pending business since before Thanksgiving. As a matter of fact, the Committee on Foreign Relations reported it after another round of hearings in late September. It was impossible, or at least it was ruled difficult, to bring it to the floor of the Senate and place it on the calendar because holds were placed on the bill at the time, for meritorious reasons, I am sure. The point is that, after all this delay, over ground that we have covered many times in the last 2 or 3 years, we are hopeful of bringing this measure to a vote.

The measure is simply designed to repeal what is commonly referred to as the Byrd amendment, the amendment of the distinguished senior Senator from Virginia. This was an amendment a couple of years ago that had the effect of taking the United States out of the United Nations embargo imposed by U.N. vote on the British Territory of Rhodesia, in Central Africa.

The reason why it became a problem was that a unilateral action in the name of the United States, taken by the U.S. Senate, initiated by the Senate, removed us from our commitment as one of the members of the United Nations. It was a United Nations sanction program that was the business. It was a unilateral action of the Government of the United States that withdrew from that action.

This has remained a matter of very deep concern ever since, not only because it has compounded our difficulties at the UN in developing votes for American issues at the UN, since no one issue has tended more to galvanize the votes and the unity of the some 39 or 40 African nations who have votes in the U.N. at the present time, but also because it was open to question in terms of its original intent, couched in terms of national security and the vitality of national interest in the requirement for importing chrome; and the companion suggestion that we were too dependent on the Soviet Union and should not be trading with the Soviets has been laid bare in the record at the time.

The Lord happened to endow the Soviets with superior chrome, for whatever judgments or misjudgments may have gone into that location. The Soviets are still selling chrome and, in fact, increased their sales of chrome after the embargo was lifted.

However, of greatest concern to many people at this time is the status of the American policy position under law. The American Bar Association has addressed itself to that particular point.

The concern is that as a Nation ourselves under law, an issue very much at stake at the present time in our domestic crisis, in which we are continually reminding each other that we are a nation under law and not under men, we find the United States now in the rather naked position of being guilty of having defected under law from a commitment to the United Nations.

The Charter of the United Nations was adopted overwhelmingly by this body and in doing so we took on a commitment to abide by the Charter of the United Nations which we had a great hand in drafting. Through the unilateral action I have described we have openly flouted our commentment under the United Nations Charter.

It was with these thoughts in mind that the American Bar Association House of Delegates passed a resolution a year ago relevant to this principle. The resolution calls upon Congress to put the United States back into compliance with the United Nations' sanctions against Rhodesia, noting, and I quote from the House of Delegates of the American Bar Association:

The United States believes the good faith fulfillment of treaty obligations is central to the rule of law.

Mr. President, I ask unanimous consent to have printed in the RECORD the American Bar Association resolution.

There being no objection, the resolution was ordered to be printed in the RECORD, as follows:

Whereas, The United States of America considers the rule of law to be the only alternative to the rule of force;

Whereas, The United States believes the good faith fulfillment of treaty obligations is central to the rule of law;

Whereas, All members of the United Nations have a solemn treaty commitment as parties to the Charter of the United Nations;

Whereas, Article 25 of the Charter of the United Nations provides that "The members of the United Nations agree to accept and carry out the decisions of the Security Council in accordance with the present Charter";

Whereas, The Security Council of the United Nations has decided in accordance with the Charter to impose economic sanctions against Rhodesia prohibiting the import or export of goods from or to Rhodesia;

Whereas, The Administration of President Nixon has strongly and unequivocally expressed its view that (a) the United States is legally obligated under the Charter to comply with said decision of the Security Council and (b) neither economic nor national security considerations are sufficiently compelling to compensate for the adverse foreign policy consequences of a failure so to comply; and

Whereas, The Congress of the United States over the objections of the Administration has approved legislation which has become law and requires the United States to permit the importation of chrome and various materials from Rhodesia,

Therefore Be It Resolved, That the American Bar Association urges the Congress of the United States to repeal such legislation and thus permit the Administration to take all necessary steps to prohibit the importation of material from Rhodesia into the United States in conformity with its international obligations under the Charter of the United Nations.

Further resolved, That the President or his designee be authorized to appear before the appropriate committees of the Congress in support of such action.

Mr. McGEE. Mr. President, throughout the course of debate and discussion of our continued violation of United Nations sanctions against Southern Rhodesia, the opponents of our return to compliance with sanctions have argued that the United States does not stand in violation of international law.

As I noted on June 22, 1973, the U.S. Congress overwhelmingly passed the United Nations Participation Act of 1945, committing this Nation and its integrity to a treaty agreement. At that time, in order for our national interests to be protected, the United States, along with other members of the U.N. Security Council, were given the veto power, should any resolution be introduced which we determined to be unpalatable.

I noted, in my statement of June 22, that the action taken by this body the past 2 years, which allowed us to violate U.N. economic sanctions against Southern Rhodesia, has placed us in the position of breaking a duly constituted law of this Nation—a law which the Congress in its wisdom saw fit to give its approval.

As I also noted, our Government is sustained by a principle of faith, and it is for this reason that all of us in this body take our oath of office. In order for our Government to perpetuate itself, our system demands faith on the part of its participants. This does not mean that we can select and choose only those facets of our Constitution and our laws to which we, as individuals, have determined we owe our allegiance, and that somehow there is an authority higher than our Constitution which allows us to ignore those laws with which we do not agree. If we allowed this to happen, it would spell immediate disaster for our Nation. Chaos would reign supreme. It seems that if nothing else, Watergate should have taught us this lesson. I believe the Rhodesian chrome question, and the manner in which we have addressed ourselves to this issue, raises the same serious problems posed by the Watergate mess.

Mr. President, I am prepared to yield the floor to the distinguished chairman of the Subcommittee on African Affairs of the Committee on Foreign Relations. The Senator from Minnesota has been called to the telephone and I offered to fill in the time until that important call from his constituency could be handled.

Mr. HUMPHREY. Mr. President, what I seek more than anything else is a vote

on the measure before us. It seems to me that if we can settle issues as complex as the energy policy, major defense appropriations, items that relate to health, education, and welfare, within reasonable time limitations, we should be able at least to arrive at decisions one way or another on legislation of the nature now pending before the Senate.

So once again I ask those in opposition to the measure if there is any chance whatever that we could agree, let us say, on 4 hours of debate, equally divided, or 6 hours, 8 hours, whatever amount of debate my colleagues might wish to have so that we could arrive at a decision?

I know we have had filed a cloture motion, but it seems to me a much better way to handle this matter is the way we have handled most controversial issues before this body; namely, time limitations mutually acceptable.

I notice that the distinguished Senator from Virginia, who is in opposition to the measure before us, and the distinguished Senator from Alabama, are in the Chamber. I wonder if either of them has given any more thought to the possibility of an agreement upon a time limitation. I would yield to the Senator from Virginia for any observation he would like to make on that matter.

Mr. HARRY F. BYRD, JR. Mr. President, if the Senator will yield, I have the calendar for November and December 1973. I note that this legislation was laid before the Senate and made the pending business at 12:39 p.m. on Tuesday, November 20. The next day was Wednesday, November 21. That was the day before Thanksgiving. By common consent the Senate adjourned early that day for the Thanksgiving recess.

The Senate was not in session on Thursday, November 22; the Senate was not in session on Friday, November 23; the Senate was not in session on Saturday, November 24; and, of course, the Senate was not in session on Sunday, November 25.

Now, we come to Monday, November 26, and the record shows that this legislation, because of the press of more important business, was not considered on that date. We come to Tuesday, November 27, and because of the press of more important business, the pending legislation was laid aside and not considered that day. We come to Wednesday, November 28, and the record shows it was not considered.

We come to Thursday, November 29, and the record shows it was not under consideration. We come to November 30, and the record shows it was not under consideration. We come to December 1, and the record shows it was not under consideration because of the press of more important matters. We come to December 2, and the record shows it was not under consideration.

Then the Senate had a very historic session on Sunday, December 3, and the record shows that the legislation, S. 1868 was not under consideration.

Then, we come to Monday, December 4, and we find the measure was laid aside because of the press of more important legislation. Then we come to Tuesday, December 5, the record shows that this measure was not under consideration. We come to Thursday, December 6, and the record shows it was laid aside because of the press of other business.

That brings us to the afternoon of Friday, December 7. The pending legislation became the pending legislation on December 7 at approximately 4:15 p.m.

During the past 2 weeks and during the next 2 weeks the Senate has had and will have very important legislation before it. Incidentally, the leadership is against the position which I take, but the leadership has been faced with very difficult problems in handling a vast amount of important legislation and it has to give priorities naturally, and this is the first opportunity since November 20 to have a discussion with the managers of this legislation. So I think that the importance of the legislation is such that it deserves thought and consideration on the part of the Senate because the legislation would repeal what the Senate did 2 years ago.

I might add, not only what the Senate did 2 years ago, but what the House of Representatives did 2 years ago, which legislation was signed by the President and upheld by the courts of the United States.

I think it is very significant, when we take the combined vote of the House and the Senate, that representatives from 46 of the 50 States supported the legislation that S. 1868 would repeal.

So I think before such action is taken to override what was done just 2 years ago, there should be thorough consideration of this problem.

Another reason why I think there should be a thorough discussion of this matter is that great stress has been laid on the assertion that the United States is in violation of international law. That is a very serious charge, of course, and before the Senate condemns itself as an outlaw—and that is what this legislation asks be done—as being in violation of international law, the Senate, I feel sure, would want to give very careful thought to it.

You know, Mr. President, the title of S. 1868 is a most interesting one, and I will read it. It sets forth the purpose of the bill:

To amend the United Nations Participation Act of 1945 to halt the importation of Rhodesian chrome and——

And this is the interesting part—

to restore the United States to its position as a law-abiding member of the international community.

I do not believe that many of us want to vote to condemn ourselves as a law violator, to condemn the House of Representatives as a law violator, to condemn the President of the United States and the courts as law violators, without giving more than cursory consideration to the many problems involved.

And so, to answer the question raised by the distinguished Senator from Minnesota, the Senator from Virginia would not be in a position to enter into a unanimous-consent agreement.

Mr. McGEE. Mr. President——

The VICE PRESIDENT. The Senator from Wyoming.

Mr. McGEE. Mr. President, I appreciate the comments of my colleague from Virginia very much, and would say to him that the record tells us a little more than he has suggested with regard to the procedures on the bill.

The bill has been pending now officially on the calendar since the 20th of November. As the Senator suggests, we have been waiting and waiting and waiting for the opponents of the pending measure to unburden themselves and to explain what the opposition is. But, if I may go to the RECORD, we were ready on Wednesday, November 21, as the Senator reminds us, the day before Thanksgiving, but the Senator from Wyoming was willing to go through Thanksgiving, Friday, and Saturday, if that was necessary. But no one appeared to speak in opposition to the bill on the 21st of November. We had none of the critics here to share their wisdom with those of us who wanted to get the bill moving.

Mr. HARRY F. BYRD, JR. Mr. President, will the Senator yield?

Mr. McGEE. In just a minute, I will be glad to yield. I want to finish the sequence, which is so clearly spelled out, day by day.

Mr. HARRY F. BYRD, JR. I just wanted to correct an error, if the Senator will yield at that point.

Mr. McGEE. Let us correct all my errors when I get through. I am trying to follow the record from the Journal of the Senate.

The order of the day on Monday, November 26, when we returned after Thanksgiving, following our great American tradition of the Thanksgiving holiday in this body, was S. 1868. There were 90 minutes during which those of us who were here could not get anybody to say a word. Those of us who have introduced this measure, the chairman of the committee, the Senator from Minnesota (Mr. HUMPHREY), and I have joined as a cosponsor, and many other Senators, have no interest in further debate, after all the rhetoric that has been shared on this issue. We were ready to vote on Tuesday, November 20. We were ready to vote on Wednesday, November 21. And not a word, except the gentlemen's agreement that they did not particularly care to agree to have a time limit on the debate.

Well, that says only one thing to me—that they do not want to permit any action on the bill, up or down, so that the Senate, as an honorable body, can determine whether it is a government under law, can determine whether it wants to live up to our commitments under the United Nations, so it can make its judgment as to what that vote will be and will have a chance to declare itself. We do not know how it is going to come out. It may be that the opponents of the bill may know more than we know. For some reason, they do not seem to want to risk a vote on the bill.

I have to say that after two more tries on eliciting proper enlightment as to the reasons for the opposition to the bill, and thus failing that effort, recently and today, the chairman of the subcommit-

tee has made a request for a time agreement. We could arrive at no time agreement. The Senator from Virginia made it clear he is not willing to agree to a time limit. I take it that other critics of the bill will not be disposed to agree to a time limit because it is such a horrendous bill. With all this important legislation that the Senator from Virginia has alluded to that has been acted upon in the gentlemanly way that we are capable of in the Senate, for some reason or other a bill that, at least it was suggested, was not as important as these other measures, we find of such priority as not to be able to agree to a time limit.

We are not asking you to change your vote. We do not want you to change your principles. We do not want you to vote for striking this blow for the integrity of the United Nations, if that is the way you want it. That is what grown men are supposed to do in the U.S. Senate. What we object to is the parliamentary maneuvering that prevents the opportunity for the Members of this body to express themselves. That is all.

We do not want to listen this afternoon to the substantive arguments, because we have read them upside down and inside out. We have had it out of both sides of our ears. We merely speak for the right of the Senate to express itself.

That leaves the Senate to take the only course left to it, if that indeed is the final judgment of my friend from Virginia; namely, that we simply have to try for cloture. Now, I do not know how that is going to proceed. Senators have been through this experience recently, and it may be that the Members of the Senate of the United States will abide by the decision of our colleagues. We would like to give it a chance. We think we owe it to a great many principles and to a great many people and to the Members of this body to be on record just where we stand on this measure.

And so I would say, with all due respect to my colleague from Virginia, that I was really hopeful that it might be possible, as gentlemen, to agree on whatever fantastic number of hours might be necessary in order to shed all the light on this question from all angles.

I am mildly disappointed that we could not arrive at an agreement. However, I understand. And so we are proceeding to proceed to a vote at any rate on Tuesday. I believe that is when it would come to a vote.

I will be glad to yield to the Senator from Virginia so that we might set the record straight.

Mr. HARRY F. BYRD, JR. Mr. President, first I would like to say that the Senator from Wyoming and the Senator from Minnesota are taking the appropriate course if they wish to shut off debate. They are taking the appropriate course that the rules of the Senate provide. Any 16 Senators who wish to shut off debate have the right to file a cloture motion, and the Senate will vote on the cloture motion and make a decision.

To get back to the point the Senator from Wyoming made, I do not like to refer to personal conversations in a debate. However, I think since the Senator from Wyoming brought the matter up that I should probably say that we discussed this matter privately on the floor of the Senate on the day before Thanksgiving.

It was then the judgment of both of us, I thought, that being the day before Thanksgiving, the Senate probably should have the opportunity for an early adjournment.

I was prepared to discuss the legislation. I had no place to go. I stayed here that night until about 8:30 working in my office. However, I do not like to bring up private conversations on the floor of the Senate. But I would think, since the Senator from Wyoming mentioned that time, that I should point out that we had an agreement among ourselves that that was the appropriate thing to do.

Mr. McGEE. Mr. President, I am glad the Senator mentioned that private conversation. I recall it, also. It was the kind of conversation that the Senator and I have frequently had on occasions when we disagreed. We respect each other in our procedures and beliefs.

The Senator will recall that as a part of the discussion, since it was the day before Thanksgiving, the motivation was not toward reaching an agreement on a time limitation. And since we were about the only two Senators hanging around here at the time, there was no particular point in proceeding, although we have great admiration for each other's speaking ability. There was no opportunity use in going through that again.

Mr. HARRY F. BYRD, JR. Mr. President, I wish I had one-half the speaking ability that the Senator from Wyoming has.

Mr. McGEE. Mr. President, I think it puts the matter in the proper context. The Senator from Virginia and I had no intention of agreeing to a voting time on the bill.

Since the Senator from Wyoming has nothing else to add for the enlightenment of mankind and since we have been over this so many times, I am ready to vote on it. And I stood ready to vote on it the day before Thanksgiving.

I stood ready to vote when it was the pending business on the 27th of November. I stand ready at any time the Senator will relax the hold he placed on the bill by failing to agree to a time limitation.

We ought to be candid with each other as we are very privately in our respect for each other in our exchanges with one another.

We are not trying to stop debate. We are trying to get it started. We have tried for 2 weeks. We cannot find anyone who wants to make a speech against the legislation.

That is why we want to do it at any hour on the hour. Let us have the matter considered so that people who have been interested in this matter for a long time have a chance to express themselves. It may be that no one has changed his mind. It may be that a good many have. However, it is an opportunity for men in this Senate not to obstruct the opportunity to have a vote at a time when we are being watched very closely in the country in terms of procedure in this Government. We have had constitutional issues taken up, and we are willing to talk about it and test it. However, on a matter such as this, on which there is a reluctance to even speak, the very least we should do in a public way is to exercise the responsibility of the Senate to at least declare ourselves on the record and let the record tell the story.

That is all I care to say at this time in response to my friend, the Senator from Virginia.

Mr. HARRY F. BYRD, JR. Mr. President, I might say that I think this is the first time since the first day, on November 20, that the Senator from Virginia has had an opportunity to be on the floor jointly with the two principal sponsors of the legislation and has had an opportunity to discuss it with them.

The Senator from Virginia and the Senator from Minnesota did have a discussion on the first day, or rather the Senator from Minnesota had a very able and excellent statement to present from his point of view. And the Senator from Virginia then tried to make some remarks in connection therewith. However, except for that, I believe that this is the first time in which the able Senator from Minnesota and the able Senator from Virginia have been on the floor together to discuss the subject.

I have some comments that I want to make. I can make them at this time, or I can yield to the Senator from Minnesota. I have some questions that I would probably want to ask as we go along.

Mr. McGEE. Mr. President, I can likewise not leave that record unattended. In our confrontation, as one goes back through the CONGRESSIONAL RECORD for the past umpteen months, I think it will be discovered that the Senator from Virginia and I have exchanged views on this very question over a very protracted period of time. On some occasions it has not coincided with our presence here at that moment.

It is true that the Senator from Virginia did make some remarks or put them in the RECORD, whichever that occasion might require. And the Senator from Wyoming would at the time be in a committee meeting. He would then respond to the remarks of the Senator from Virginia. The Senator from Virginia would then in turn respond. So, we ran up the hill and down again in a manner that no Senators have done here for a good long time.

We kept up a good camaraderie in regard to our exchanges in this matter.

On the day under discussion when the Senator from Minnesota made a very full and in-depth presentation of a paper in regard to this matter, the Senator from Wyoming was likewise present at the time. And out of deference to the fact that the Senator from Virginia was interested in the colloquy and that I was involved in a conference between the House and the Senate on a committee on which I serve, I took the opportunity to place my remarks that day in the RECORD.

I dare say that is not the first time it has been done. That has been almost the rhythm of our exchanges on this matter for a long time.

Let us not strain the question about whether we have had various exchanges at times each one with the other. One way or the other, we have been over the ground until the ground is pretty well powdered from the way we have stomped around on it, all of us, including Senator McGEE.

It is important to talk about whether the Senators of the United States ought to have a right to express themselves on the issue. That is the only issue left now.

Mr. HARRY F. BYRD, JR. Mr. President, I expect to express myself on the record.

Mr. President, I find myself in a very undesirable and unenviable position, standing between the two most eloquent Members of the Senate, the Senator from Minnesota and the Senator from Wyoming. I want to be on the same side with them.

Mr. HUMPHREY. Welcome.

Mr. HARRY F. BYRD, JR. They have such eloquence and are so articulate that I do not like to be in opposition to them, because I realize that I am at a disadvantage. So for that reason I have to proceed a little more slowly than perhaps either the Senator from Minnesota or the Senator from Wyoming would proceed.

Mr. President, the Senate once again is considering the question of the importation of strategic commodities from Rhodesia. Three times in the past 2 years this body has gone on record in favor of permitting the importation of essential materials from Rhodesia. I think the issue has once again been put before the Senate.

Let us give a little background to this Rhodesian matter. Rhodesia declared her independence from Great Britain on November 11, 1965. When Rhodesia took that action, an action which the United States itself took in 1776, the British refused to recognize the government organized under Premier Ian Smith. At the behest of Great Britain, the United Nations condemned the declaration of independence.

What would have been the situation with regard to the United States if we had a United Nations in 1776, when the United States itself was trying to achieve independence from Great Britain?

I want to make clear from the outset that I do not pass judgment as to whether Rhodesia should be a colony of Great Britain or a dependency of Great Britain, or whether Rhodesia should be independent. I think that is a matter to be decided by Great Britain and Rhodesia. My objection is to the United States attempting to coerce Rhodesia by economic sanctions, to force her to remain a part of Great Britain, or not achieve the independence that she herself has sought.

On December 16, 1966, the United Nations Security Council voted sanctions against Rhodesia. The U.S. representative on the Security Council failed to veto those boycott resolutions. I think that was a great mistake on the part of our Government, but that is another matter. I intend to discuss that aspect at a later date.

In September of 1971, in connection with considerations of the military procurement bill of that year, the Senate voted to retain language in that legislation requiring that the President permit the importation of strategic materials from free world countries where such materials were also being imported from Communist countries.

Mr. President, I will point out to the distinguished sponsors of the measure before us, S. 1868, that the legislation is not necessary to accomplish what they want to accomplish. There are two procedures that the President can take if he wants to do what the sponsors claim should be done, to use their words, "put the United States in compliance with international law." It is not necessary to pass this legislation because the President can do it tonight, in one of two ways.

He can strike chrome from the strategic list and if that is done then the so-called Byrd amendment would not be operative and chrome could not be imported from Rhodesia.

The other way he could do it would be to prevent the importation of chrome from Russia. If he does that, the Byrd amendment would not be operative and the United States would then be what the Senator from Minnesota and the Senator from Wyoming feel would be in compliance with international law.

So the President has two ways that this matter can be handled. But the President signed the legislation. He knows that chrome is a strategic material. All of us know that. All of us know the vital importance of it.

So why not cease the importation of chrome from Russia, then?

If that is done, the Byrd amendment is inoperative and S. 1868 would not be necessary.

But the important thing to remember is that there are only three countries in the world that have any quantity of chrome—there are a few other countries that have a little bit here and there—but as a practical matter, all the chrome comes from Rhodesia, South Africa, or Russia. That is where the great chrome deposits lie.

We declared a boycott against Rhodesia. Some would declare a boycott against South Africa. So that would leave the United States completely at the mercy of Russia. I know there are many Members of Congress so involved in détente that that would be highly satisfactory to them. But it would not be satisfactory, let me say, to the Senator from Virginia.

To those who feel that Rhodesia should be boycotted, that sanctions should be applied against Rhodesia, I wonder whether they would be willing to indicate why sanctions should not also be applied against South Africa? The only difference between South Africa and Rhodesia is that Rhodesia is seeking her freedom and independence from Great Britain.

The argument has been made on the floor of the Senate that no, that is not the reason we are having sanctions against Rhodesia.

That is not the reason. It must be because of the racial policies. If it is because of racial policies, its racial polices are better than those of South Africa. If anyone wants to deny that, let him get up and deny it. So why do we not advocate sanctions against South Africa?

To show the hypocrisy of the whole thing, just recently a resolution was before the United Nations Security Council to impose sanctions against South Africa, and the United States Ambassador vetoed it. If we are embargoing trade with Rhodesia because of her racial policies, why do we not embargo trade with South Africa? It does not make much sense to me to say that we are going to embargo Rhodesia, but not South Africa, on grounds of the way she handles her racial problems. So I say again that that is an additional reason to assert that the main reason we are placing an embargo on Rhodesia is that she did exactly the same thing the United States did in 1776: She declared her independence from Great Britain.

The principal immediate effect of the so-called Byrd amendment, which was later passed by the House—it passed the Senate, passed the House, and was signed by the President—was to remove the ban on importation of chrome from Rhodesia.

Subsequent to the initial vote, the Senate has twice refused to reverse its position on this issue. Members of Congress from 46 of the 50 States, taking the two bodies together—the Senate and the House—have voted in support of legislation to permit the importing of strategic goods from Rhodesia.

The bill which the Senate has been called upon to consider this year is S. 1868. I stated before, the language of the legislation which sets forth the purpose, but I shall not read it again. This is what the Senate is being asked to vote for:

A bill to amend the United Nations Participation Act of 1945 to halt the importation of Rhodesian chrome and to restore the United States to its position as a law-abiding member of the international community.

Are Members of the Senate and Members of the House going to think that they have committed an illegal act? That is what they would be saying if they voted for this proposed legislation.

Members of the Senate are being called upon to pass legislation with the declared purpose of restoring the United States to its position as a law-abiding member of the international community. If there is any country in the world that has a record of being a peaceful, law-abiding country, it is the United States of America. If we accept the premise implicit in this language, then we are saying that whatever the United Nations Security Council directs us to do, and then if that direction is put into effect by the President of the United States, we are law-abiding; otherwise, we are outlaws.

Mr. HUMPHREY. Mr. President, will the Senator yield.

Mr. HARRY F. BYRD, JR. I am glad to yield to the Senator from Minnesota.

Mr. HUMPHREY. I understand that the Senator is concerned over the United Nations Participation Act; but the fact of the matter is that the United Nations Charter, as adopted by the Congress of the United States and ratified by the Senate, has the same standing as a provision of our Constitution. It is the su-

preme law of the land. That is how treaties are made. That is the historic way by which treaties are consummated.

I may say, further, that the United Nations Participation Act does provide that the President of the United States shall take action under the Participation Act as the law of the land. That was passed by Congress. We may disagree with that, but that is the law.

Mr. HARRY F. BYRD, JR. Does the Senator from Minnesota seriously contend that any action that the United Nations Security Council takes and then the President of the United States puts into effect becomes, in effect, a part of the Constitution of the United States?

Mr. HUMPHREY. The Senator from Minnesota contends that when we ratified the Charter of the United Nations, we ratified it as if it were a part of the Constitution of the United States. That is what treaties are. They are equivalent to the supreme law of the land, and the Senator from Virginia knows it as well as the Senator from Minnesota.

Article 25 of the U.N. Charter states:

All member States are legally bound to comply with sanctions.

Section 5(a) of the United Nations Participation Act of 1945 gave the President express authority to implement sanctions when imposed by the United Nations.

The United States is thus in violation of international law and international treaty which we ratified and in its obligations to the United Nations in violating sanctions against Rhodesia.

I might add that the United States has a special obligation to observe decisions made by the Security Council, because we had the protective right, the power to veto any resolution that we did support. Both when limited sanctions were imposed on Rhodesia in 1966 and total sanctions were imposed in 1968, we fully supported these resolutions.

Therefore, the Senator can say, "I wish we had not ratified the Charter of the United Nations. I wish the United Nations Participation Act were not the law." I do not say it because I am glad we did ratify the Charter and did vote for the United Nations Participation Act. But once having done so, my knowledge of constitutional law—which is not great, but is sufficient for this purpose—is that we are obligated to abide by the law, just as if it were any other law that was passed by the Congress of the United States.

Mr. HARRY F. BYRD, JR. I will say to the able Senator from Minnesota that I certainly do not agree with him at all that the Members of the Senate of the United States and the Members of the House of Representatives of the United States are bound by any such action. So far as the Senator from Virginia is concerned, so long as I remain a Member of the United States Senate, the United Nations Security Council is not going to direct my action.

Mr. HUMPHREY. May I say, respectfully, to the Senator from Virginia that he may rail and rile against that and beat his breast and say he is not going to do it; but the fact is that once we have voted in the Security Council and have not used the right of veto to protect what we thought were our rights, we are obligated, under the Charter of the United Nations and the United Nations Participation Act, to abide by the law.

The Senator was not here to vote for that, nor was I; but treaties are as continuing in their effect as the Constitution itself.

Mr. HARRY F. BYRD, JR. I say to the Senator from Minnesota that this has been tested in the courts of the United States, and the courts do not agree with the Senator from Minnesota.

Mr. HUMPHREY. We can violate the law, which people do many times. But I refer to article 25 of the charter and section 5(a) of the United Nations Participation Act. First, article 25 binds the member states to comply with sanctions, and section 5(a) of the United Nations Participation Act gave the President of the United States express authority to implement sanctions that were imposed by the United Nations. Those are commitments on the part of our Government.

Mr. HARRY F. BYRD, JR. I say again to the Senator that a group of Congressmen took this matter to the U.S. courts, and the U.S. courts sustained the Byrd amendment, sustained the action of Congress, and did not sustain the position of those who said it was contrary to law.

Mr. HELMS. Mr. President, will the Senator yield?

Mr. HARRY F. BYRD, JR. Mr. President, I ask unanimous consent that I may yield, without losing my right to the floor.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. HARRY F. BYRD, JR. I yield to the Senator from North Carolina.

Mr. HELMS. I should like to direct a question to the distinguished Senator from Minnesota, if I may, with reference to Secretary General Dag Hammarskjold.

Will the Senator from Minnesota say that the Secretary General was conversant with the intent of article 25?

Mr. HUMPHREY. I did not hear the Senator.

Mr. HELMS. I wonder whether the Senator is willing to say that Secretary General Dag Hammarskjold was conversant with the intent of article 25, to which the Senator just referred.

Mr. HUMPHREY. Was he reversed by it?

Mr. HELMS. No. The question is, Was he conversant with the intent?

Mr. HUMPHREY. I would imagine he would have been, yes.

Mr. HELMS. As a matter of fact, the Senator would be certain of it, would he not?

Mr. HUMPHREY. Yes.

Mr. HELMS. Let me read what the Secretary General said in 1961 about this very point:

In spite of the delegated authority which the Council may be considered as exercising, and the condition that decisions must be agreed to by the permanent members, the experience of the Organization, as regards the implementation of Council decisions, is uneven and does not indicate full acceptance in practice of Article 25. In this case also, examples can be given of a tendency to regard decisions, even when taken under Chapter VII, as recommendations binding only to the extent that the party concerned has freely committed itself to carry them out; there is here a clear dichotomy between the aims of the Charter and the general political practice at its present stage of development. Such cases refer not only to Members outside the Council, or perhaps. Members inside the Council, who have not supported a specific decision, but also to Members within the Council who have cast their votes in favour of a decision, but who later on are found to reserve for themselves at least a right to interpret the decision in ways which seem to be at variance with the intentions of the Council. The ambiguity of this situation emerges with special force in cases where such attitudes have been taken by permanent members of the Council, who are considered to shoulder the responsibility for the maintenance of peace and security which is reflected in the special position they hold within the Council. Obviously, the problem whether the intended legal weight is given to decisions of the Secretary Council arises in practice not only in cases of non-compliance, but also in cases of a refusal to shoulder the financial consequences of a decision of the Council.

Mr. HUMPHREY. May I say that all he was saying was that some countries do not obey the law; that is all.

Mr. HELMS. I disagree. I think he makes clear that a country, as in the case of the United States, is justified in its right to enact legislation necessary to national security and economic stability, and this is precisely what the Senator from Virginia accomplished in the first place.

Mr. HUMPHREY. May I say on that point that that changes the whole venue here, the whole argument as to whether or not this is a national security matter. If that is the case, then we have it won fair and square, because the top national security officers of this Government, from the President on down, have said that the Byrd amendment ought to be repealed. They said it does not do anything for our national security and have pointed out that sanctions upon Rhodesia in no way injured our national security.

So on the national security argument, those we have entrusted with national security are openly and plainly on the side of the Senator from Wyoming and the Senator from Minnesota.

Mr. HELMS. The Senator from North Carolina will say to the Senator from Minnesota that he can say it changes the argument, if he wishes, but Congress decided otherwise.

PROGRAM FOR NEXT WEEK

Mr. MANSFIELD. Mr. President, on Monday it is expected that we will take up S. 2176, the bill to provide for a National Fuels and Energy Conservation Policy, and S. 2686, Legal Services for the Office of Economic Opportunity.

On Tuesday, the Senate will consider S. 2767, the rail service bill, and H.R. 8449, the national flood insurance program. The vote on cloture will occur on Tuesday.

On Wednesday, we will consider the measure relating to the independent special prosecutor, unless there is some

chance we can get it up on Monday, which we are endeavoring to do at this time. If the Senate will allow the leadership a little flexibility, we will do our best in that regard and give Senators the picture.

We hope that the Committee on Appropriations will be able to report the defense appropriations bill around Tuesday and with the consent of the Senate, we could take that up on Thursday and Friday. It will consume 2 days.

Mr. YOUNG. Mr. President, will the Senator yield?

Mr. MANSFIELD. I yield.

Mr. YOUNG. I cannot speak for the chairman of the committee, but I think the supplemental will be ready ahead of the defense appropriation bill.

Mr. MANSFIELD. We will take them in order. I hope the Senate will not hold the leadership to the 3-day rule. We are trying to get out 2 weeks from today or tomorrow, at the latest.

As the Senator has indicated, the supplemental bill will be reported this week. The defense appropriation bill will be reported this week. The foreign aid authorization should be reported this week, followed by the foreign aid appropriation bill. I do not know what is going to happen to the D.C. home rule or conference bill, which was agreed to some days ago but has to be considered in the House.

That is as far as I can go at this time.

(This marks the end of the statement of the program ordered to be printed at this point.)

PROHIBITION ON THE IMPORTATION OF RHODESIAN CHROME

Mr. HARRY F. BYRD, JR. I have some questions I should like to present to the Senator from Minnesota.

(At this point, Mr. HUMPHREY assumed the Chair.)

The PRESIDING OFFICER. (Mr. HUMPHREY). The Senator from Minnesota, the occupant of the chair, finds himself in a rather difficult position at this time because of the inability to find someone to preside in this body.

ADJOURNMENT TO 11 A.M., MONDAY, DECEMBER 10, 1973

Mr. HARRY F. BYRD, JR. Mr. President, that being the case, in accordance with the previous order——

(At this point Mr. HELMS assumed the Chair.)

Mr. HARRY F. BYRD, JR. I move that the Senate stand in adjournment until 11 a.m. on Monday next.

The PRESIDING OFFICER. Under the previous order, the Chair lays before the Senate Calendar No. 494, S. 2176, the National Fuels and Energy Conservation Act of 1973; and, without objection, the motion to adjourn is agreed to.

Thereupon, at 5:19 p.m., the Senate adjourned until Monday, December 10, 1973, at 11 a.m.

NOMINATIONS

Executive nominations received by the Senate December 7, 1973:

DEPARTMENT OF STATE

David D. Newsom, of California, a Foreign Service officer of the class of career minister, to be Ambassador Extraordinary and Plenipotentiary of the United States of America to the Republic of Indonesia.

Helmut Sonnenfeldt, of Maryland, a Foreign Service officer of class 1, to be counselor of the Department of State.

EXPORT-IMPORT BANK OF THE UNITED STATES

William J. Casey, of New York, to be President of the Export-Import Bank of the United States, vice Henry Kearns, resigned.

THE JUDICIARY

Herbert J. Stern, of New Jersey, to be U.S. district judge for the district of New Jersey, vice Leonard I. Garth, elevated.

DEPARTMENT OF JUSTICE

Harry Connolly, of Oklahoma, to be U.S. marshal for the northern district of Oklahoma for the term of 4 years, reappointment.

Raymond J. Howard, of Wisconsin, to be U.S. marshal for the eastern district of Wisconsin for the term of 4 years, reappointment.

CONFIRMATIONS

Executive nominations confirmed by the Senate December 7, 1973.

U.S. AIR FORCE

The following officer to be placed on the retired list in the grade indicated under the provisions of section 8962, title 10, of the United States Code:

To be lieutenant general

Lt. Gen. Thomas K. McGehee, [redacted] USAF, (major general, Regular Air Force) U.S. Air Force.

The following officer under the provisions of title 10, United States Code, section 8066, to be assigned to a position of importance and responsibility designated by the President under subsection (a) of section 8066, in grade as follows:

To be lieutenant general

Maj. Gen. Royal N. Baker, [redacted] USAF (major general, Regular Air Force), U.S. Air Force.

U.S. NAVY

Adm. Richard G. Colbert, U.S. Navy, for appointment to the grade of admiral, when retired, pursuant to the provisions of title 10, United States Code, section 5233.

Rear Adm. Eli T. Reich, U.S. Navy, retired, for appointment to the grade of vice admiral on the retired list pursuant to title 10, United States Code, section 5233.

U.S. MARINE CORPS

Lt. Gen. Leo J. Dulacki, U.S. Marine Corps, for appointment to the grade of lieutenant general on the retired list in accordance with the provisions of title 10, United States Code, section 5233.

In accordance with the provisions of title 10, United States Code, section 5232, Maj. Gen. Samuel Jaskilka, U.S. Marine Corps, having been designated for commands and other duties determined by the President to be within the contemplation of said section for appointment to the grade of lieutenant general while so serving.

IN THE AIR FORCE

Air Force nominations beginning Maj. James E. Aiken, to be lieutenant colonel, and ending Maj. Duane F. Mabeus, to be lieutenant colonel, which nominations were received by the Senate and appeared in the Congressional Record on November 9, 1973.

IN THE ARMY

The nomination of Barbara A. Schroeter for appointment in the Regular Army of the United States in the grade of captain, which nomination was received by the Senate and appeared in the Congressional Record on November 28, 1973.

IN THE NAVY

Navy nominations beginning Thomas H. Abernathy, to be lieutenant (j.g.), and ending John B. Montgomery, to be permanent grade of lieutenant (j.g.), which nominations were received by the Senate and appeared in the Congressional Record on November 26, 1973.

WITHDRAWAL

Executive nomination withdrawn from the Senate December 7, 1973:

DEPARTMENT OF THE TREASURY

Helmut Sonnenfeldt, of Maryland, to be Under Secretary of the Treasury, vice Edwin S. Cohen, resigned, which was sent to the Senate on April 10, 1973.

HOUSE OF REPRESENTATIVES—*Friday, December 7, 1973*

The House met at 12 o'clock noon.

The Chaplain, Rev. Edward G. Latch, D.D., offered the following prayer:

I sought the Lord, and He heard me, and delivered me from all my fears.—Psalms 34: 4.

"Lift up our hearts, O King of Kings,
To brighter hopes and kindlier things,
To visions of a larger good,
And holier dreams of brotherhood.
Thy world is weary of its pain,
Of selfish greed and fruitless gain,
Of tarnished honor falsely strong,
And all its ancient deeds of wrong.
Almighty Father, who dost give
The gift of life to all who live,
Look down on all Earth's sin and strife
And lift us to a nobler life."

—JOHN H. B. MASTERMAN.

Amen.

THE JOURNAL

The SPEAKER. The Chair has examined the Journal of the last day's proceedings and announces to the House his approval thereof.

Without objection, the Journal stands approved.

There was no objection.

MESSAGE FROM THE SENATE

A message from the Senate by Mr. Arrington, one of its clerks, announced that the Senate had passed with an amendment a bill of the House of the following title:

H.R. 11710. An act to insure that the compensation and other emoluments attached to the Office of Attorney General are those which