GASOLINE SHORTAGES

HEARINGS

BEFORE THE

SUBCOMMITTEE ON ECONOMIC STABILIZATION

OF THE

COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS UNITED STATES SENATE

NINETY-SIXTH CONGRESS

FIRST SESSION

ON

OVERSIGHT OF THE ECONOMIC STABILIZATION ASPECTS OF THE PRESENT GASOLINE SHORTAGE

MAY 22 AND JUNE 6, 1979

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WITNESSES

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GASOLINE SHORTAGES

TUESDAY, MAY 22, 1979

U.S. SENATE,
COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS,
SUBCOMMITTEE ON ECONOMIC STABILIZATION,
Washington, D.C.

The subcommittee met at 9:20 a.m., in room 5302 of the Dirksen Senate Office Building, Senator Donald W. Riegle, Jr., chairman of the subcommittee, presiding.

Present: Senators Riegle, Proxmire, Cranston, and Lugar.

OPENING STATEMENT OF SENATOR RIEGLE

Senator RIEGLE. The Economic Stabilization Subcommittee of the Senate Banking Committee will come to order.

I apologize for starting at such an early hour today. We have a lot of ground to cover this morning. We have a number of experts who will be here.

Both Senator Proxmire and Senator Lugar will be here at various points in the morning, because they have other duties that they have to attend to at the same time this hearing will be taking place today.

Today is the first of two hearings that this subcommittee is holding on the economic stabilization aspects of the present gasoline shortage.

It is clear that the energy problem is rapidly overtaking inflation as the Nation's No. 1 economic and political issue.

In both cases, inflation and the energy problem, the diseases have multiple origins and cures are difficult to find and implement.

The problems differ sharply, however, in that inflation inflicts its damage in a steady, insidious, longer range way; whereas a sudden shortage of gasoline, such as occurred this month, can produce immediate and severe disruptions actively.

With the recent gasoline shortage, we have seen absenteeism rise, the demands on public transportation have suddenly become enormous; large cars are suddenly selling at huge discounts, if at all, while small cars are selling at a premium; and the welfare of many industries, especially highly energy-dependent ones like tourism and petrochemicals is being threatened.

The problems differ also in that while we can agree on the seriousness and reality of inflation, the confused approach of the administration toward energy has left considerable doubt about the reality of the petroleum shortage.

Some time ago the administration termed the energy problem the moral equivalent of war.

More recently, it asked for authority to ration gasoline on a standby basis.

That authority was approved by the Senate. The administration has also decided on a crude oil decontrol program that it believes would provide price incentives to increase domestic crude production.

However, a few days ago, Secretary of Transportation Adams expressed serious doubts about whether supplies would be much increased, if at all, by decontrol.

To top if off, and no pun is intended, the President indicated that the worst of the gasoline crunch was probably over.

CONGRESS BLAMED FOR THE ENERGY SHORTAGE

Yesterday, reported fully in today's papers, the President's press secretary sought to lay the blame for the energy shortage at the doorstep of the Congress. Wherever one assigns the responsibilty for this situation, there is clearly a stark absence of coherent leadership on this issue.

On a matter of this strategic importance, that is a crucial national failure that must be remedied.

It would be refreshing, indeed, if someone in authority would step forward and accept the responsibiity for dealing with the problem, rather than the situation we now find where the principals all seem to be begging off or pointing the finger of blame at someone else.

So it seems that no one is in charge.

That is a failure that must be remedied.

Unless we can develop a capacity to manage this energy problem adequately, we face the most serious possible economic and strategic jeopardy.

Clearly, we need more cooperation and teamwork by all involved.

Perhaps setting up a working task force of public and private energy experts at the highest executive level is a way to bring about the immediate cooperation and action that is needed to deal with this situation.

Under these confused conditions, it's hardly suprising that people do not know whether the gasoline shortage is really contrived, whether to conserve fuel or not, whether to make vacation plans or not, and whether decontrol will increase prices without materially affecting supplies.

Real or contrived, the gasoline shortage is a clear enough fact.

Gasoline demand is up about 3 percent nationally over a year ago; and in California, it is up a staggering 7 percent.

At the same time, deliveries are far below last year's, so there is a gas shortage throughout the Nation.

LOOKING FOR ANSWERS, NOT SCAPEGOATS

At today's hearings we will focus our efforts on understanding the nature and extent of this supply problem. We want to learn the extent to which the problem is due to a shortage of crude oil; and if so, what is the cause of that shortage?

To what extent is it attributable to insufficient refinery capacity and why are major refineries not being built? To what extent is the problem due to the failure to adopt existing refinery capacity to the refining of heavier and more sulfuric oils, such as Alaskan oil, and why have steps not been taken to effect the necessary retrofitting?

Also, what are the specific ingredients of the California situation?

Why are Californians becoming gas-hungry at such a more rapid rate than the rest of the country?

Also, to what extent have the rules and regulations of administrative practices of the Department of Energy contributed to the prcblem?

Finally, and in the immediate sense, what is the outlook right now for the Memorial Day weekend which is almost upon us and for the rest of the summer and for the period beyond?

As I have indicated, today's hearing is diagnostic. We are looking for answers, not for scapegoats.

At the hearing to be held on June 6, our purpose will be to examine the larger consequences of the petroleum shortage for the economy.

What will it do to employment and inflation? Is it increasing the risk of recession?

What will be its effects on specific major industries, especially high energy-intensive industries?

We are opening today's hearings with a panel of petroleum retailers from different regions of the country.

We have asked them to come, because they are the people who not only deal in the most immediate sense with the gas shortage problem in terms of dealing with consumers, but also are at the end of this distribution chain and, therefore, we have asked the panel to come that represents a cross-section from across the United States.

We will follow them with a second panel of six experts who will address some specific issues as to the crude oil shortage, refinery capacity issues, the specific situation in California.

Finally, we will hear from Mr. David Barbin, who is in charge of the Economic Regulatory Administration, Department of Energy.

Hopefully, when he testifies, he will be in a position to respond not only to the questions the subcommittee wants to pose, but as well, to issues that may arise from either of our first two panels that will be starting out this morning.

Let me begin now with our panel of petroleum product retailers.

Mr. Charles Shipley, executive director of Service Station Dealers of Michigan and who will speak on behalf of the National Congress of Petroleum Dealers.

Mr. Shipley, would you come forward and bring the other representatives you have with you?

I would appreciate it if once you are seated, if you would identify each of the panelists you have.

I understand that one of your panelists is coming from the State of New York and is en route and should be arriving any moment.

When he or she comes, we will be delighted to have them join you at the witness table.

STATEMENTS OF CHARLES SHIPLEY, EXECUTIVE DIRECTOR OF SERVICE STATION DEALERS ASSOCIATIONS OF MICHIGAN, ON BEHALF OF THE NATIONAL CONGRESS OF PETROLEUM DEALERS; JAMES HEIZER, EXECUTIVE DIRECTOR OF VIRGINIA GASOLINE RETAILERS ASSOCIATION; MAC VICTOR, EXECUTIVE DIRECTOR OF THE NEW YORK STATE ASSOCIATION OF SERVICE STATIONS; AND JOHN HAWKINS, CHIEF COUNSEL, CALIFORNIA SERVICE STATION ASSOCIATION

Mr. SHIPLEY. Thank you, Mr. Chairman.

I am Charles Shipley. I am executive director of the Service Station Dealers Association of Michigan, appearing today on behalf of the National Congress of Petroleum Retailers located in Washington.

To my immediate left is Mr. James W. Heizer, the executive director of the Virginia Gasoline Retailers Association, and to my right is John Hawkins, the legal counsel for the California Service Station Association.

We are expecting momentarily, Mac Victor, executive director of the New York State Association of Gasoline Retailers and, hopefully, he will be able to join us, before we get too far into our presentation, and certainly, hopefully, he will be here for responses to any questions that might come from the committee.

Mr. Chairman, we are appearing here today in behalf of the National Congress of Petroleum Retailers, a trade association with 47 State and local affiliates, representing approximately 60,000 members who are for the most part branded franchised retailers who sell the products of our major oil suppliers.

In behalf of our organization, we want to thank the committee for the opportunity to appear and give testimony on the economic impact of the gasoline shortages that are now disrupting the lives of our fellow citizens and the economy of this country.

All too much is said and written about the gasoline shortages and all too little has been addressed to the subject of its effect on the economy.

It appears that the members of the public, the news media and, yes, many Members of Congress, have two questions that are their chief concerns:

One. When will we reach a price of $1 a gallon; and

Two. Will I be able to get gas this Memorial Day?

It is our hope that this committee hearing will be the beginning of a new era that looks at the hard questions.

Questions such as:

One. Can we maintain our life style, our standard of living in the face of today's supply problems?

Two. Can our sprawling cities, dependent on automobiles, be maintained without billions being spent for new transportation systems, or would it be cheaper to tear down the factories built in the last 30 years, far out in the country and relocate them once again in urban areas where people live?

This subcommittee and the full Banking Committee will be facing these problems for many years and hopefully the experiences that our members have had in the past 8 years may provide some insight as to what may well happen unless answers, real answers, are found and found soon.

MAJOR CHANGES IN INDUSTRY BEGAN IN 1970

It became very apparent to our organization that things were happening in 1970 and in 1971 that were to bring about major changes in our industry.

Within a very short period of time many major oil companies almost in unison began to pull out of entire areas of the country.

These pullouts and their effect on consumers, the canceled dealers, and the jobbers, as well as the effect on competition were the subject of hearings by the Senate Subcommittee on Antitrust and Monopoly in 1971. That committee was then chaired by our very good friend from Michigan, Senator Phillip A. Hart.

The records of those hearings could well be of interest to this committee. They far predate the Arab embargo, when the words "shortage" and "shortfall" became a way of life in this industry.

It was then—and not following the embargo of 1973 and 1974, that the words "shortfall" and "shortage" began to appear in trade publications on a regular basis.

Beginning then with those pullouts, the economic impact of this whole energy problem began to be felt by the small businessmen who were retailers of petroleum products.

As small businessmen, very small, we do not have available to us the CPA's and economists available to the Government or the giant oil companies who supply us, but it is obvious to anyone as to the effect of this problem, when we report that the National Petroleum News showed that in 1972, there were over 220,000 retail service stations selling gasoline in this country and today only 170,000 outlets remain.

Even that reported 50,000 loss doesn't tell the entire story because, of the 170,000 retail outlets remaining, a good share are company-operated units operating as secondary brands.

A study, mandated in the last session of Congress, is now under way to check on the use of upstream profits to subsidize the sale of gasoline at these direct operations.

In our opinion, that study will show that upstream profits have been used unfairly to force still more small retailers out of business.

These 50,000 lost stations not only reflect 50,000 lost participants in the free enterprise system, it meant the loss of at least three times that many jobs. Jobs that were often filled by the young, the inexperienced and the new entry into the job market. These people are the same people who make up a large portion of the unemployed today.

Some protection for those remaining dealers was obtained by the passage of the Petroleum Marketing Practices Act, approved last year by the Congress.

Unfortunately, that piece of legislation does not prevent the economic termination that still goes on. Some major oil companies, who maintain that competition and the free enterprise system is the only solution to the energy problem, have long since ceased to compete in any way, shape, or fashion in that system.

Texaco over the last 2 years has continued to price their gasoline to its retailers at a price that was often 5 cents higher than any other brand.

SMALL BUSINESSMEN FORCED OUT OF BUSINESS

Texaco dealers, by the hundreds, found themselves unable to compete, forced out of business, economically terminated.

Texaco dealers, out of business, because they could not compete, while at the same time Texaco reported a 81-percent increase in profits for the first quarter of 1979.

It can be said without any fear of contradiction that the small businessmen, such as we represent, have been the hardest hit, economically, by this energy crisis.

The Department of Energy regulations have been, and still are, impossible to understand; and it has been even more difficult to get any official within that Department to give explanations on those regulations.

The present short supply again will add to the problems of our members who are now receiving an average of 80 to 85 percent of their last years purchases and find themselves locked into a profit margin that has remained unchanged since March of 1974.

That ceiling price, under the Department of Energy regulations, has no provision for retailers to recover the increased operating costs that occurred since that date.

Unlike our suppliers, who have passed through all costs increases, both for crude oil and operating expense, our members were faced with the real world and often with unfair competition from our own suppliers.

Our ever increasing costs had to come out of an already slim profit and now with reduced supply volume will mean financial failure to many of our members.

The Department of Energy has shown a callous disregard for our problems and often attempts to use small businessmen as scapegoats in making it appear that they are responsible for the ever escalating cost of gasoline.

From our experience, the problems that come about due to the energy problem have fallen on small business to a far greater degree than on big business.

The major oil companies with their expertise, with their large staffs of legal experts and with their political muscle have been able, not only to live with regulation, but have been able to profit from them.

Mr. Chairman, this country needs big business, but it needs even more a healthy small business climate.

Small business provided 55 percent of all private employment and produces 43 percent of the gross national product.

Federal regulators, and especially the Department of Energy, should be mandated to provide special consideration as to the effect of their regulations on small business.

The National Congress of Petroleum Retailers would like to take this opportunity to inform the committee that they stand ready to offer their assistance in any way possible in seeking answers to questions that may concern this committee.

Mr. Chairman, I would like to add that I, as a representative of the Service Station Dealers Association of Michigan, make the same pledge for our State association that has represented gasoline retailers for the past 50 years.

[Complete statement follows:]

National Congress
- OF -
Petroleum Retailers
INCORPORATED
EXECUTIVE OFFICE
SUITE 301
2021 K STREET, N.W.
WASHINGTON, D. C. 20006

STATEMENT IN THE BEHALF OF THE NATIONAL CONGRESS OF PETROLEUM RETAILERS, INC. BY CHARLES E. SHIPLEY, EXECUTIVE DIRECTOR OF THE SERVICE STATION DEALERS ASSOCIATION OF MICHIGAN, ACCOMPANIED BY:

Mac Victor - Executive Director of the New York State Association of Service Station Dealers

James W. Heizer - Executive Director of the Virginia Gasoline Retailers Association

John Hawkins - Legal Council, California Service Station Association.

BEFORE THE U. S. SENATE

Economic Development Sub Committee of the Senate
Banking, Housing and Urban Affairs Committee - May 22, 1979

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Our Opinions

The Detroit News

Saturday, May 19, 1979

Published Daily and Sunday by The Evening News Association

Small Business

President Carter has set aside this week as National Small Business Week. It coincides with National Nursing Home Week, Michigan's Holland Tulip Festival, and Duchess County Stamp Collecting Week.

Although small business accounts for 43 percent of the nation's gross national product and 55 percent of private employment, it lacks the dedicated defenders that even the tulip and the postage stamp attract.

We think the time for simple recognition of small business' plight is past. Congress and the Carter administration should be generating legislation instead of commemorative weeks, conferences, and forums. Small business is too important to the American economy and the political system to allow its market share to shrink further.

Small business is the nation's major creator of jobs. Of the nine million new jobs created between 1969 and 1976, six million can be credited to the small business sector.

Small business is the nation's major innovator and inventor, keeping the United States ahead of world competitors. Small firms produce about four times as many ideas per research dollar as medium-sized firms and 24 times as many per dollar as the largest firms.

Unhappily, small and medium-sized businesses are surrounded by many government-made problems. Small businesses suffer most from inflation's squeeze. Rising production costs endanger their competitive position when passed on to the consumer and eat away profits when absorbed. Inflation also creates the need for more borrowing at the same time it raises the cost of borrowing. In addition, small businesses must try to meet wage and price guidelines.

Small firms also must bear the inflated burden of federal regulation. The cumulative effect of all the safety, health, environmental, and social-welfare requirements is staggering. These regulations are most onerous to the small firms, which have neither the financial nor the human resources to comply with the piles of paper work. While it costs small businesses $126 for every $100,000 worth of sales to meet federal standards, it costs large corporations only $4 per $100,000 in sales.

Finally, small business has trouble obtaining the capital it needs to establish or expand. The small firms cannot easily obtain capital in the public securities market as large firms can. At the same time, because of greater risks, lower collateral, and the higher cost of small loans, small businesses have difficulty borrowing adequate capital from banks when money is tight. Small businesses must finance investments with their inflation-pinched profits.

The government adds to the burden with taxes; large firms with sources of capital besides profits and easy access to tax shelters have the advantage. Meanwhile, the weight of workers' compensation, unemployment compensation, and Social Security taxes upon small firms constantly increases.

Small business needs help.

The White House Conference on Small Business, in conjunction with the Small Business Administration (SBA), is reviewing federal proposals. One pilot program helps small business obtain capital through major banks, which lend to small firms at reduced rates. Another program would simplify export regulations to encourage small exporters.

These are good beginnings, but far-reaching policy changes are needed. For example, federal anti-inflation policy, particularly wage and price guidelines, must begin to recognize the special problems of small business. A cooperative effort by all federal agencies should be exerted to ease the unfair costs of regulation to small business and to reduce required paper work.

Small business should receive more federal procurement contracts and federal research and development funds. Tax legislation should give small business preferential capital gains tax rates. Existing federal programs to aid small business should be reevaluated and strengthened; their results have not been impressive.

National Small Business Week is a nice recognition of the small businessman, but he deserves more than a pat on the back. He needs a new federal policy which, if it does not actually promote his interests, at least refrains from mashing him into the ground.

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Mr. SHIPLEY. I would like to report, Mr. Chairman, that so far in Michigan, citizens have been able to buy gasoline in a relative easy fashion despite the lower allocation fractions, with a great deal of work and cooperation between the industry, the State government, the automobile club, the tourist association, we have attempted to keep the problem at as low a key as possible so as not to disrupt our most vital second-place industry, that of tourism.

I think that you are certainly aware that in our State, we are very vulnerable, just as is the State of California, we are a highly automotive oriented society. We have the unfortunate disadvantage of being the home of the automobile, particularly that phase of the automobile industry that builds larger cars.

This problem is going to, in the next few months, have a greater impact on the citizens of our State with the unemployment that is already beginning to take place in the manufacture of large automobiles. It is going to come down harder on the citizens of Detroit, citizens of Flint, and other places where these automobiles are manufactured.

Car sales are suffering at this time as you remarked in your early statements. I was told by a friend yesterday that a small automobile was being offered in a dealer's showroom at $500 over the sticker price, while sales are taking place everywhere in an attempt to unload the large automobiles that are in great inventory.

Mr. Chairman, Mr. Heizer of Virginia would like to analyze what he sees going on in Virginia. Then Mr. Hawkins, from California, and I would be happy to respond to any questions.

Senator RIEGLE. I want to address the question of the supply situation at the moment, in other words, what your dealers are facing, what kind of inventories they have on hand today, what they look forward to in terms of the coming weekend.

I think I will save that until we have heard from all three or four, if the New York man arrives, before getting into that. I want to get a composite of what we are seeing around the country.

Why don't we go to our spokesman from Virginia?

IMPACT UPON INDUSTRY AND SMALL BUSINESS

Mr. HEIZER. Mr. Chairman, I understand your interest in learning the impact upon industry, upon small business, particularly the service station operators of the Nation, and also upon the consumer.

I would like first to comment rather briefly upon the impact upon the service station dealers.

In Virginia, for example, the bureau of the census in 1972 reported that there were 4,648 stations employing 19,952 employees, for a total of 24,600 wage earners deriving their income from the service station business.

Four short years later, in 1976, the bureau of the census reported 3,237 stations, a drop of over 1,400; 17,161 employees, for a total employment of 20,398.

So in 4 short years, 1,411 retail dealers went out of business, along with 2,791 employees, for a total job loss of 4,202.

Those are the latest figures that are available for the year 1976. However, there have been some additional stations going out of business since then, with resulting job loss.

During the current shortage in Virginia, it is my estimation that approximately two full-time employees have been laid off in each of the remaining approximately 3,250 stations. In many cases, this is part-time help, high school and college students working in stations, attempting to earn money to go to college or to continue in college.

In many cases, minority groups are included in this; those first entering into the job field; people that can ill afford to lose these jobs.

Counting each part-time man, two part-time men as being one full-time employee, based upon a survey that I have made at random throughout the State, we would estimate two people being laid off in each station, which would mean that in Virginia, during the past several months, we have had 6,000 employees laid off in the service station business. From what I read in the trade publications, from talking with my counterparts in other areas of the country, I would estimate that this would hold true throughout the Nation. If this be true, with 170,000 service stations throughout the land, this would mean a job loss of close to 350,000 jobs.

As I say, many of these are not full time employees alone, but they are part-time employees as well. As one dealer told me just yesterday on the phone, "You wonder about the economic impact that may be involved."

He's a typical dealer, pumping between 40,000 and 50,000 gallons a month. He said he had dropped off one full-time employee and three part-time employees. One of the employees working part-time was doing so to make his house payment each month.

Another employee was working extra to make his car payment. The third employee was working extra to pay his alimony.

He says, "If you don't think this is going to have some impact upon these three part-time men, one man may end up losing his house, the other have his car repossessed, and the other may end up in court for failing to pay his alimony."

This may not be typical throughout the country, but certainly I use this in a humorous vein to illustrate the fact that even the part-time employees, those not primarily breadwinners, are being affected, not only those employed full-time, but those employed part time.

Insofar as the other impact upon the travel industry and other related businesses, Marshall Murdolph, the commissioner of the Virginia State Travel Service, has said if stations were to close on Saturdays and Sundays in Virginia—which could happen if the shortage happens—there would be an estimated loss of up to $200 million annually from travel receipts, and approximately 12,000 people would lose their jobs, 8,000 directly from the travel industry and another 4,000 from service related industries.

We feel should the shortage continue, it is bound to have heavy impact upon industry, particularly should the shortage worsen, because we do have many people who have to travel rather long distances to get to their work, particularly out in the southwestern part of the State where we have the coal fields. I would say

particularly if the shortage should continue through the summer months and the fall months, it will impact very heavily upon industry and the impact upon the consumer will also be greater.

One thing that does concern me, and in response to a remark you made earlier, about the inventories. In a recent spot survey I made of our dealers throughout the State, I have become somewhat concerned over the fact that they have drawn down their reserve inventories. We have——

Senator RIEGLE. You are talking about the monthly allocation, I take it?

Mr. HEIZER. No. Not the monthly allocation. The inventory the dealer has going into this. Many, many of our dealers throughout Virginia, anticipating a possible shortage during the spring, summer, and fall months, those that had the money were filling up their tanks as much as they could and trying to maintain a good inventory of gasoline should a shortage occur.

Many of our people in Virginia went into this when the allocations were first announced; they went into this with rather heavy inventories of gasoline, more than they might normally have on hand. Many of them had on hand 12,000, 15,000 gallons in reserve. We have been able to get along pretty well in Virginia although we have had some problems in this immediate northern Virginia area, immediately adjacent to Washington.

DEALERS BORROW ON THEIR ALLOCATIONS

In my opinion, I believe a lot of this has been due to the fact that dealers have been able to draw down 8,000, 10,000, 12,000 gallons that they have had in storage March 1; and they tell me that these reserve inventories are now depleted. I have had a number of dealers tell me that they are going to have to borrow a load or part of a load on their June allocation as they come up to the end of the month; and, of course, that borrowed load or part of a load on their June allocation must be paid back.

Although there are some guardedly optimistic reports that June may be better than the month of May, I personally do not believe that this will probably occur in Virginia, at least due to the fact that our dealers have depleted their reserve supplies of gasoline.

Senator RIEGLE. Let me just understand the way this works. The allocation that your dealers would be able to get from their suppliers has been restricted of late. You are saying they can draw against what they have available as an allocation, but when that's gone, there isn't any place they can turn? Does that describe it? Would you describe it differently?

Mr. HEIZER. Let me answer in this manner, sir:

Let's say that a dealer should have been entitled to, let's say, 50,000 gallons a month under the allocation plan in Virginia. The first month he might have gotten 100 percent. He gets a full 50,000. The next month, maybe he got 90 percent, so he only got 45,000. The next month, maybe he only got 80 percent, so he only got 40,000.

To take up the slack there, perhaps that dealer had 10,000, 12,000, 15,000 gallons in reserve on March 1; so he has used that gasoline in reserve to help to supply his customers and avoid

curtailing his hours any more than he already had and perhaps to keep him from having to close on Saturday or Sunday or both.

Now that that reserve is gone, he will only be able to get his fractional allocation that may be declared for June. We don't know yet what it will be.

Senator RIEGLE. You don't know what the June allocation is going to be yet?

Mr. HEIZER. Not as yet, sir. It's usually not announced until the first of the month. Some companies announce 1 or 2 days ahead of time; some not until 2 or 3 days after the 1st of the month.

Many dealers go into this month's allocation blind, not knowing how much gasoline they will get until it's finally announced by the company.

Senator RIEGLE. It seems to me, that could make the problem worse. It really prevents planning.

If a dealer could manage that inventory over a shortage period, if he knew what he was going to face, presumably it could ease some of the disruption.

You are saying that knowledge isn't available?

Mr. HEIZER. That knowledge is not available. Now the inventories that they had beginning March 1 have now been depleted. So they have nowhere to go except just to sell the allocation that may be actually given to them by their particular company for the month of June.

Senator RIEGLE. As I understand it, the allocations from company to company can also differ. One station may get a larger supply and the station right across the street—affiliated with a different company—can get a smaller supply; is that right?

Mr. HEIZER. That's correct. Currently in Virginia, the allocation practices run anywhere in a low of 70 percent on up to 100-percent allocation. There are very few of them allocating on that basis.

The overall fraction would be about 85 percent for Virginia; however, due to adjustments that are permitted by the Department of Energy under new regulations, issued the first of this month to allow adjustments in the high-growth areas, the oil companies tell us—and this is confirmed by our State energy office, that the actual amount of gasoline available in Virginia will be about 92 or 93 percent for the month of May which would mean approximately a 7 percent shortfall.

However, the consumption in Virginia is running, at this point, about 3 percent ahead of May of 1978 which would cause us to believe that we might have as much as a potential 10-percent shortfall for May.

What I am telling you is that some of that has come from research inventory and it is now gone.

Senator RIEGLE. So we may be getting a delayed reaction here? We have been working down this inventory? Some people anticipated the problem, yet we are really in the dark as to what June is going to present us with here?

Mr. HEIZER. That is true.

Senator RIEGLE. We have no way of knowing now, even though June is here, what the picture will be?

Mr. HEIZER. We have no idea at this point.

Senator RIEGLE. I have several questions I want to pose. Shall we go to California and try to find out what's going on out there?

Mr. SHIPLEY. Is that an invitation? [Laughter.]

Mr. HAWKINS. I think as the chairman observed earlier the shortage presently in California, the shortfall between supply and demand, is probably more acute than the rest of the Nation.

Senator RIEGLE. Apparently the microphone in front of you isn't working.

Speak as loudly as you can.

Mr. HAWKINS. As the chairman observed, the shortage in California is more acute than the rest of the Nation as a whole. In that sense, our observations in California may have a particular relevancy for this committee.

If crude production or gasoline production continues to decline, California may be a look into the future for the rest of the Nation.

SHORTAGES PRODUCE PANIC BUYING

Our observations for the most part have not been optimistic. The shortage at the outset produced panic buying. California's peculiar lifestyle and the dependence on automobiles and the large number of automobiles per capita has resulted in the removal of gasoline inventories from service stations into automobiles which are sitting in garages.

For example, a family with three automobiles may have two of them sitting in the garage with full tanks and a third which they are topping off periodically. Our dealers have observed, say, for example, sales of a quantity of 31 cents which is about something less than half a gallon in California.

I wouldn't say that that is typical yet, but it seems to be a growing phenomenon.

Senator RIEGLE. I would think you would have to use 31 cents worth of gas to go get 31 cents worth of gas. You don't come out ahead on that.

Mr. HAWKINS. I think you have to use 31 cents of gas to find a line to get gasoline in.

The result has been—what we are seeing—as Mr. Shipley observed earlier, everybody wondered when gasoline would go to a dollar.

Gasoline is presently selling in California at some service stations for $1.40 a gallon. Short Stop, one of the large independent chains, recently moved their price from 99.9 to $1.19.9.

Senator RIEGLE. In one jump?

Mr. HAWKINS. In one jump.

Senator RIEGLE. So, in other words, one thing we know today, at least in California, is that dollar-a-gallon gasoline has arrived.

Mr. HAWKINS. It appears to be here to stay.

Senator RIEGLE. You say there are some situations where it's selling for as much as $1.40?

Mr. HAWKINS. Yes. When you can get it.

The long lines, the high prices, the era of gouging and rip-offs have resulted in a lot of violence. In California we know of five instances, one knifing which results in 26 stitches; a dealer was

shot in Los Angeles and is presently in critical condition in the hospital.

There have been several other fistfights.

I know of five instances. My impression is that there were substantially a greater number of conflicts of that sort going on at service stations.

It's a phenomenon we observed in 1974 but only after the shortage had become very acute. In California it appeared as if the violence started almost at the outset.

I apologize if I am disjointed. I had no opportunity to prepare a written statement.

One of the phenomena that bothers us as retailers is the growing feeling on the part of the public that we are in fact price-gouging. Say, for example, $1.40 a gallon, I think everybody agrees, appears on its face to be a little extreme. I would point out to the chairman that under present deregulations, dealers were allowed to bank during periods of flush gasoline the difference between their maximum lawful price and the price that they were actually selling at.

In some instances, that ranged from 3 to 18 cents a gallon. For high-volume operators, that can result in an enormous bank. Say, for example, in San Francisco, we have a Shell dealer who has multiple locations. He had a CPA and an energy attorney estimate his bank. His bank is $3 million. Theoretically, under the Department of Energy regulations, when he opens for business on June 1, he could charge $3 million for that first gallon of gasoline.

I suggest that for this, Mr. Chairman, a review of the Department of Energy regulations at this point may be appropriate, if only to prevent wholesale price-gouging during the period of a shortage.

That would have, say, for example—that would have a detrimental impact, I believe, on the American public. It certainly would have a detrimental impact on any retailer that wanted to stay in business after the shortage.

POTENTIAL HIDDEN COST INCREASES

Senator RIEGLE. Is that another way of saying that there are potential hidden cost increases that could come without warning because of the bank that you refer to?

You might not only get the increase in price due to just the normal demand when supply is low, but you could get a double-barreled effect that could really be substantial depending upon——

Mr. HAWKINS. Right. In all fairness to the private brander that I referred to earlier, he is probably now buying on the spot market. The spot market in California at the moment is 15 cents higher than dealer tank wagon.

Senator RIEGLE. How much would that be a gallon?

Mr. HAWKINS. Probably 75 cents a gallon; about 75 cents a gallon without the excise tax which would be another 11 cents. Not all of that $1.40 is banked.

However, substantial portions of it is banked. The California Service Station Association proposed to the Department of Energy a couple of weeks ago a gradual phaseout of the bank concept altogether.

I think it's inappropriate; and, in fact, the use of the bank would do more damage to the industry than the concomitant profits would benefit the industry.

Californians are also particularly perplexed about the shortage because we are swimming in crude. We, of course, have access to the North Slope oil. There are still substantial amounts of crude produced in California itself.

On the other hand, our refiners for the most part have cut us down to allocation fractions of about 80 to 85 percent. In view of the increased demands you noted earlier, which is about 7 percent over last year, that constitutes an overall shortfall of about 27 percent.

I frankly cannot understand why major refiners in California, given the lengthy litigation over whether or not there will even be a pipeline for the North Slope, did not have the opportunity to retrofit their refineries to handle that high-sulfur crude.

I find it difficult to understand why they didn't anticipate a situation where that crude would be the only source available particularly in view of the volatile situation in 1974.

I think the answer to the problem may lie in unreasonable expectations of refiners, probably not only in California but nationwide. In support of that, I offer a comment made by the president of Standard Oil of California at the last shareholders' meeting.

STANDARD OIL OF CALIFORNIA INCREASES PROFITS 46 PERCENT

He began the meeting with the statement that he was positively embarrassed that the corporation had only increased its profits 46 percent over the previous quarter and the previous quarter had not been particularly bad.

The response, as far as the California Legislature has been concerned, and by the California agencies dealing with energy, has been largely mixed.

As you know, Governor Brown has called for odd-even gasoline purchases.

The way that works in California, if your license plate ends in an even number, then you buy gasoline on a even day; the converse would also be true.

We feel that program helped a great deal in the last shortage to solve some of our problems, because it basically cuts the lines in half.

On the other hand, the State energy commission, we felt, indulged in a little overkill. They are requiring service stations to remain open every day which, say, for example, has—I think—particular relevance for this Memorial Day weekend.

We told the State energy commission that we would prefer to close on the weekend of the 19th and 20th, in order to conserve gasoline inventories for what we anticipated to be a weekend of heavy driving on Memorial Day.

You can ask the question why it's more important to have it on Memorial Day than in the middle of the month.

I think the answer is, if it's not available on Memorial Day, you may put people in the position where they are stranded in a given location for a period of time.

The response of our refiners is not——

Senator RIEGLE. Can I ask you then: What do you anticipate in California over the Memorial Day weekend in light of what you said?

What realistic expectation can anybody make.

GASOLINE INVENTORIES NOT PREDICTABLE

Mr. HAWKINS. I think people ought to stay home on Memorial Day in California, unless they have some way of using public transportation. The available inventories of gasoline are just not predictable.

Senator RIEGLE. They are not predictable—is that essentially a statewide assessment, or are we talking about certain areas where you know there is going to be a great jeopardy of people getting gas. Is it essentially an even problem or very uneven?

Mr. HAWKINS. Very uneven. The shortages appear to be most acute in the bay area and in Los Angeles.

As a matter of fact—and this is probably illegal—the association is trying to arrange or make a business arrangement with dealers on I-5 which, as Senator Cranston knows, is a very heavily traveled freeway which runs north and south along the State of California.

Because of the cutback and the uncertainty of gasoline inventories, those dealers are now unable to sell their allocations. I talked to two dealers who are available to make available to us about 70,000 gallons a month.

We are trying to contact all the dealers along I-5 and shift that gasoline into the bay area, Los Angeles, where it's needed more.

It has proved to be uneven. I would say, for example, in some of the mountains, in some of the mountain areas in California, gasoline is readily available; 50 or 60 miles outside of Sacramento, it's readily available; but in the populated areas, the shortage is quite acute.

Our dealers are staying open, say, for example, I was talking to a Shell dealer who, based on his allocation has 2,000 gallons of gasoline he can sell each day. He is now opening at 7:30 and is closed by 8:15.

The line has generally formed before 7:30; and, as a matter of fact, one line formed in opposite directions and resulted in a fistfight between a couple of customers.

That also is contributing to the situation. It's impossible for us to maintain the hours, because of the uncertainty in the situation.

We have recommended that the State energy commission set up hot lines in urban areas so that it would be possible for a consumer to call and find out where a service—which service stations in San Francisco are open.

Senator RIEGLE. I want to relate what you have been saying to what we have just heard from Virginia.

Would it also be true for California that your dealers now would not yet know what they are going to be receiving as allocations for June; is that correct?

Mr. HAWKINS. Right. Allocations are set on a monthly basis. The refiner estimates his production run for that month. Based upon

that production run, he takes a look at the historical purposes which constitute base-period allocations and then determines the fraction.

It's impossible for a dealer to predict if he is going to have 75 percent of his base-period allocation or 85 percent.

Senator RIEGLE. Is there any way California dealers draw against the June allocation, if they want to gamble, in order to have more in May or not?

Mr. HAWKINS. As I understand it, some refiners have allowed that; but as I read the Department of Energy regulations, that would be a violation of the regulations.

As a matter of fact, what we are doing, by moving gasoline from I-5 to San Francisco is also probably a violation of the regulations. It's one of the inherent inflexibilities in the whole concept of the base period allocation.

I think the adjustment program is working with some success; but you have to remember to the extent you adjust in one area, you are reducing allocation fractions in other areas.

I will give you an example.

Let's say, for example, that I adjust my base period allocation from 60,000 to 100,000 gallons. Let's assume that numerous dealers do that in San Francisco. Just by adjusting doesn't create more gasoline.

What happens ultimately is that he is awarded a higher base-period allocation; and then some of that is taken away by virtue of a lower overall allocation fraction, which is then distributed among everybody in the State or everybody—or everybody, as a matter of fact.

Senator RIEGLE. I hope you mention in your comments the odd-even plan, in the sense that California may be the first case of what we may be seeing in other places, if the forecast for Virginia is borne out.

We may well find ourselves with California's problem arising in equivalent forms there.

I just wonder how your plan seems to be working.

As soon as you finish, I think it's important Senator Cranston have a chance to engage you on this issue, before we go to our New York State witness.

Mr. HAWKINS. The Governor's proclamation was only issued last week.

While we are supposed to be complying with it now, it hasn't been distributed to all the retailers in California. Compliance has been spotty. If this shortage is going to be like the last shortage, once the progam gets started, we found compliance was generally pretty good, not only among retailers, but also among consumers.

No. 1, it reduced the overall size of the lines. It created some certainty with regard to when gasoline would be available.

I think that, as much as anything else, has exacerbated the problem. The lack of certainty in California has exacerbated the problem.

My experience has been that last Sunday I drove around San Francisco trying to find an open service station. I wasted gasoline trying to do that.

What we suggested is that the State energy commission create greater certainty; establish a hot line; have dealers—require dealers to inform the State energy commission when they will be closing, what their allocation is, what they anticipate their hours will be.

At least even though a motorist may be required to wait in line, he will be able to drive directly to that line.

That would cut out some of the waste, as far as gasoline is concerned.

I just want to touch on one point I was making earlier with regard to the shortage in California.

I will discuss that at the end of the presentation.

I think one of the problems that this committee should look at is, are the major refiners' expectations with regard to profits reasonable? Even if we assume that the DOE regulations really discourage refinery retrofit or refinery expansion or construction, 46 percent return on your money doesn't seem to me to be a bad investment.

Forty-six percent increase on last quarter profits, when the previous quarter was pretty good, doesn't seem to me to be a reasonable expectation with regard to the profits.

I would ask the committee when—if, in fact, they have an opportunity to discuss this with the major refiners, how much profit the major refiners expect to make from the refining and production of crude.

I think that may be the crux of our problem.

Senator RIEGLE. I might just say to you we are not going to have all those answers today.

We started down that road.

DOE REGULATIONS CAUSE OF BUILDING SMALL REFINERIES

One of the problems is that DOE regulations are structured in such a way as to actually cause the building of smaller refineries, the sort we don't need, and away from building the larger kinds of more sophisticated refineries that we do need.

If you take a look at the actual refineries built over the last 2 or 3 years, you will find they are almost all small ones. Basically, there has been nothing done to get at the gut problem of providing the highly refined product we are here talking about today.

It's a very complicated problem.

Mr. HAWKINS. Yes. I expect if you want to solve that problem, what you will have to do is, aside from providing in the regulations a small refiner bias, you will also have to subsidize the construction of new refineries.

As I understand it, a state-of-the-art refinery presently costs upward of $100 million before you can begin to really, let's say, engage in hydrothermal cracking in order to obtain more gasoline out of crude.

That is particularly true in California, because Alaskan crude tends to be so heavy.

The sulfur content, as I understand it, it's not all that difficult to retrofit a refinery in order to take care of the sulfur problem.

Senator RIEGLE. Let me say on this point that if it becomes obvious we need to recommend public investments in refineries, the state of the art is such that there are some refineries that are so advanced that you can literally turn an entire barrel of crude into gasoline.

That's the most expensive refinery that can be built.

I think we are going to have to take a serious look at whether or not from a strategic point of view, we want to invest public moneys to make sure we have the refinery capacity on hand.

Maybe we can do it within the private system with the right kinds of reasonable, fair incentives.

That is what we are not sure of yet, the enormous confusion that surrounds what our policies have been and what they continue to be. It's certainly an open question.

Mr. HAWKINS. I would also ask the question: Mr. Chairman, if you have an opportunity to discuss this with the refineries, ask for a comparison of the amount of refining space built in the United States in the past 6 years and the amount of refining capacity built in Europe.

As I understand it, the effect of the adoption of the Department of Energy regulations in 1974 was largely to export terrific productive capacity from the United States to Europe.

I frankly don't understand the economic motivation for that export of refining capacity in view of the fact that the Department of Energy regulations have allowed refiners nonproduct passthroughs as well as product passthroughs.

Getting back to my point on California's response, and it may prove to be provocative, there's been a whole spectrum of responses. Assemblyman Bates has asked for the establishment of a California corporation owned by the State of California which would produce and buy crude for the State of California.

I think the—in economic terms, what he is suggesting is to create a monopoly in order to be a countervailing influence on the oligopoly that exists in the oil industry.

AIR QUALITY STANDARDS REDUCED

There's also been proposals to reduce—and I believe the Governor has agreed to reduce—the air quality standards applied to refineries in order to increase their production.

Let me explain—I don't know how familiar you are with the EPA regulations, but say, for example, Mohawk which is a local refiner in California, a small refiner, built a refinery which has the productive capacity to refine 75,000 barrels of crude per day.

He went—Mohawk went to the Air Resources Board and the Air Resources Board, in viewing the possibility for pollution, told Mohawk it could only refine approximately 35,000 barrels per day.

That may be another area that the chairman may want to inquire into, what are the tradeoffs as far as environmental quality standards.

I think it's an awful choice to make myself. I was sort of sorry—I wish we could do something technically so we didn't have to make that tradeoff. It may be germane to the committee.

Senator RIEGLE. We started down the track. We don't have witnesses today on that part of the problem, but that, too, is enormously complex.

We have already come upon some situations where rulings seems to have been counterproductive. In some cases we end up with a situation where we are shutting down facilities, on the basis of a 1-day violation and not being able to bring those back on.

PRODUCTION OF ALCOHOL FOR USE WITH GASOLINE

Mr. HAWKINS. Also, Senator Alquist, who is the California senator for Santa Clara, introduced a bill which would subsidize the production of alcohol for use with gasoline. That is a piece of legislation which we have been particularly enthusiastic about.

We are enthusiastic about that for two reasons.

No. 1, we feel if we subsidize the production of alcohol as heavily as we subsidize the production of petroleum for years and years and years through the oil depletion allowance—and indeed continue to subsidize through the foreign tax credit, that we may find that we may be able to achieve certain economies of scale with alcohol which would allow us to, No. 1, decrease our dependence on foreign crude and, two, create an alternative which would have the effect of leveling off or tugging down what appears to be an ever-rising price spiral with regard to crude.

That we are particularly excited about. I would hope that this committee would look into that as an alternative.

I frankly think if we subsidized alcohol as heavily as we have subsidized crude production that we might find that we could solve some of our problems.

Also, as far as we are concerned, it has certain indirect benefits in the sense that given the wide alternatives of biomass which may be used to produce alcohol, it doesn't lend itself to the sort of concentration that crude production does.

Consequently, it would be, let's say, impossible to lock up 92 percent of all the biomass in the United States the way the oil companies have locked up 92 percent of all the crude production.

We are enthusiastic about the California legislation. We would hope that this committee would look into that.

Senator RIEGLE. Do you have any other major points that you want to touch on? I would like to call on Senator Cranston.

Mr. HAWKINS. No. I just want to say one thing, one last point. We recently had a very unpleasant situation with the Department of Energy——

Senator RIEGLE. Welcome to the club.

Mr. HAWKINS. I spent so much time bad mouthing the Department of Energy that I think it may be fair to make this comment, just in closing: That the Department of Energy really reflects our own schizophrenia with regard to where we are headed with regard to energy.

I feel that unless a government agency has a political consensus with regard to what direction and what objectives they should obtain, that it's easy to predict the sort of confusion and ambiguity which the Department of Energy is a perfect example of.

That would be my closing remark.

Senator RIEGLE. Senator Cranston, at this point, do you want to pursue anything with respect to the California situation?

Senator CRANSTON. Yes, if I may. Thank you very much, Mr. Chairman.

I am delighted to have a chance to hear you and to ask you a few questions.

I just came in from the leadership breakfast at the White House. The topic of conversation for most of the morning was the shortage of gasoline and crude oil not only in California, but in the nation and indeed in the world. The President, I think, is absolutely convinced that we have a worldwide shortage. Iran crude oil production fell off, as we all know. Saudi Arabia is holding back on production to some extent. Production has been declining in the United States.

One example of the shortage—or one verification of the fact that there is a shortage is the fact that Kuwait just announced that beyond what they saw as the OPEC price, they are making available further oil on the so-called spot market. The OPEC price is $16 a barrel presently; they announced they will not entertain bids of less than $30 a barrel which indicates that there is a competitive shortage if they think they can get that kind of price. Prices like that apparently have been paid on the spot market by other nations.

Since there is a shortage and there is no instant remedy, rather plainly, we are going to have problems for some time to come. There is no instant solution. The Government or the oil companies or people themselves cannot suddenly implement a solution to make the problem go away.

Presumably there are a number of steps that can be taken which added together can be helpful to some extent. In regard to something you talked about, I strongly support the gasohol idea. I hope we can make progress on that.

In regard to transfers from along the I-5 route to places of greater need, what regulations do you feel stand in the way of that?

Mr. HAWKINS. The concept of the historical pattern of purchases.

Senator CRANSTON. To a given place?

Mr. HAWKINS. Right. To a given location. The supply of gasoline in that period was quite certain. The purchases and consequent sales reflect that certainty. I would think that the Department of Energy has gone a long way with this adjustment procedure.

Senator CRANSTON. The May 1 adjustment procedure?

Mr. HAWKINS. Right.

Senator CRANSTON. Have you received evidence of that helping?

Mr. HAWKINS. Yes, if you have a willing supplier. What I found is—theoretically under the adjustment procedure, if you have a willing supplier, once you have filed for an adjustment, he is lawfully allowed to supply you with the gasoline that you have requested in the adjustment. Refiners on the west coast, with the exception of Shell, have been reluctant to deliver gasoline though an adjustment has been filed.

I went to an advisory committee at the Department of Energy about 3 months ago when the shortage first started to hit. They indicated prior to the shortage, they had been processing about

20,000 pieces of paper and that in the first month, they were processing 60,000 pieces of paper.

What I would think one way to solve the problem would be to allow the Department of Energy to grant what would be, from a lawyer's point of view, interim relief, let's say, for example, a stay on the adjustment, an initial review, a very preliminary review; and then a stay issued to the major refinery indicating that he is to supply that adjustment.

Pending a resolution of the adjustment itself. That would be one way, I think, to encourage refiners to comply with the adjustment procedures. I think there is a tendency among refiners to want to pick and choose among the people they want to give additional gasoline to based upon whatever portents or expectations the local marketing department has.

Senator CRANSTON. The Governor has the power to allocate some within the State. Is that authority being used to help on the I-5 matter?

Mr. HAWKINS. Yes. The State set-aside allows the State of California to allocate 3 percent of what their refinery runs are for California for that month. Last month, the State energy commission released 80 percent of that State set-aside back to the refiners.

We have talked with the State energy commission, and we have asked them not to do that in the future, because you may find—you know—once they release it back, they lose control over the allocations. They should go to Los Angeles and San Francisco where the shortages are most acute.

Senator CRANSTON. In your opinion, why are the refiners operating at only somewhere close to 80 percent of capacity in California?

REFINERIES CUT BACK PRODUCTION TO ENCOURAGE PRICE DECONTROL

Mr. HAWKINS. Well, Senator, you are probably asking the wrong person. I have a very paranoid view about refineries, our major refiners. I think they are trying to get decontrol and are using a cutback on production in order to politically encourage decontrol.

Senator CRANSTON. Do you think they have supplies of crude that they could use that they are not using?

Mr. HAWKINS. Yes.

Senator CRANSTON. Do you have any evidence to substantiate that?

Mr. HAWKINS. No, but we are looking into it as quickly as we possibly can.

Senator CRANSTON. Do you expect to be able to come up with a finding on that subject?

Mr. HAWKINS. I don't know. The Government agency is trying to come up with findings on that question. They seem to be unable to do so. The only thing I can say is we are trying to talk to as many people as we can in the industry to substantiate our feeling that crude is being held off the market.

I will say this: The common talk in the industry—and you may want to talk to Jim Campbell, the executive director of the California Service Station Association—is that not a drop of domestic

crude is going to come online and no additional drop of domestic crude will come online until 1981 when the prices are decontrolled.

Senator CRANSTON. Why would that be? Some decontrol starts on June 1 of this year. Why would it take that long?

Mr. HAWKINS. Well, I think it gets back to the question of what is a reasonable profit by a major refiner's standard? I think 46 percent return on my money, I would be happy with that. Chevron apparently isn't.

I think it is a result of the industry structure. Basically you have seven major refiners involved in joint ventures all across the world. There has always been in the oil industry a sort of sluggish parity of competition from the wellhead to the refinery.

In my mind, this is just more of the same.

Senator CRANSTON. Where would that crude be?

Mr. HAWKINS. Probably in the ground. Probably in the North Slope.

Senator RIEGLE. Would the Senator yield on that point just for a minute?

Our information—and we want to try to verify this—is that while the refineries are operating somewhere in the mid-80 percent range in terms of capacity, assuming all the ones that are available are running, production of gasoline is very near the top of that particular refined product versus the mix of other things that come out of a barrel of oil.

Unless our information is incorrect, and I want to verify that, apparently the refineries in California, inadequate in number as they are, are very close to capacity in terms of the gasoline part of the refinery capacity.

If our information is at odds with that, then I would like to have that. I want to pin that down.

Mr. HAWKINS. Our information is that quite the reverse is true. They are not producing as much gasoline—and they are producing greater amounts of diesel.

When I go back to California, I will discuss this with Jim. I will give you the information.

Senator RIEGLE. Let's try to nail that down. One other thing: It seems to me that with phased decontrol, as long as the increase in price that one can gain by waiting out the decontrol period is higher than the rate of inflation, if you could get away with holding off the supply from the market, that the financial incentive would be to wait and get the higher dollar later.

It would seem to me that that is the basic argument.

Mr. HAWKINS. I also think, though—and this is something—oil companies are vertically integrated for a very good reason.

The oil depletion allowance assists them.

Even though you are decontrolling the price of domestic crude, you have not yet established the oil—reestablished the oil depletion allowance, although I would anticipate you would offer legislation along these lines. Even though you are decontrolling the price of crude, they are not going to receive the same sort of favorable tax treatment that they are presently receiving by importing from the OPEC countries. Oranco, which is jointly owned by the Government of Saudi Arabia and the major refineries, their income is

characterized for foreign taxes and can be used as a credit against whatever taxes the oil companies might otherwise pay.

Even by decontrolling the price, it still—it obviously will prove to be advantageous to continue to export foreign crude because you receive better tax treatment that way.

Senator RIEGLE. Thank you, Senator Cranston.

Senator CRANSTON. Is it your impression that the companies engaged in the refining business made a deliberate decision not to increase their refining capacity at the present time or in the recent past because they anticipated a decline in demand in the early eighties as automobiles start getting better mileage; and they therefore did not want to have an investment in increased capacity that they might not find usable?

That's one theory that's been advanced. I wondered what your view of that is.

Mr. HAWKINS. I would have to think about that. I never considered that. The only thing I can say is that just prior to the shortage, there was a concerted attempt on all the refiners parts in California to get the retail price down. We have marketing representatives from Arco, marketing representatives from Shell, marketing representatives from Chevron telling our dealers go out there and get the volume, give it away, we'll make it up to you later.

That wouldn't seem to be consistent.

As I said, I have to think about it.

EXCEPTION RELIEF FOR CALIFORNIA

Senator CRANSTON. Have you been satisfied with the pace of exception relief or adjustments from the San Francisco regional office of DOE?

Mr. HAWKINS. No, we haven't. There is apparently no way to predict when those exceptions are going to come. I heard of them coming as quickly as 2 weeks. I know we had several on file for a couple of months now.

Senator CRANSTON. What about DOE's Office of Hearings and Appeals, in Washington?

Mr. HAWKINS. That's where exceptional relief must go. Only requests for adjustments are done in the local office in San Francisco.

Senator CRANSTON. As late as yesterday afternoon, an official of DOE asserted California is no worse off than any other place. DOE figures continue to indicate California ranks above average in the Nation receiving 93 percent of last year's supply of gasoline.

My question about that—which I would like you to comment on is—Do you feel this accurately reflects the real supply-demand situation in California and the economic hardship experienced by individuals and businesses; and does it adequately reflect the growth in California population that means this 93 percent in California is not comparable to 93 percent in some other place which is growing less rapidly?

Mr. HAWKINS. My comment to that is that would be representative if everybody that moved to California brought their gasoline allocation with them.

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That is not true. Our population continues to grow so even if we are receiving 93 percent of the allocation for last year, our demands just by sheer population growth would be substantially larger.

Senator CRANSTON. What's the effect—and is this regulation observed—of the regulation that if you sell unleaded gas and run out of unleaded gas, you have to close down your station completely until you have a resupply of unleaded even though you have an ample supply of other gasoline?

Mr. HAWKINS. I would say it's been mixed. I think that previously if you ran out of unleaded—unleaded was the first product that really began to—became short. At that time, I think people were remaining open; but now—or they would close when they were out of unleaded. Now I think they are remaining open.

Senator CRANSTON. Despite the regulation?

Mr. HAWKINS. Despite the regulation. Well, I think it's difficult—given the lines in San Francisco, I would think it would be difficult to justify——

Senator CRANSTON. Do you think it's an absurd regulation?

Mr. HAWKINS. I think it is.

Mr. SHIPLEY. Senator, could I interject? It seems to me there are a lot more people writing regulations than enforcing regulations. I think in this area that's particularly true. Very little enforcement on that particular regulation, especially at this time.

Senator CRANSTON. I think that's unfortunate in many, many ways. It breeds disrespect for regulations. Obviously, if regulations make no sense at all under the strain and stress of the circumstances, it has to be expected that they are not going to be observed.

STATE REGULATION AGAINST TOPPING

What about the state regulation against topping? What do people do when you find somebody taking 2 or 3 gallons?

Mr. SHIPLEY. Are you talking the new proposal on the $5 minimum?

I would suggest that the person that put this together would recognize it makes good sense, except if you are a 130-pound service station attendant and you put $2.20 worth of gasoline into somebody's car and tell him that he owes you $5, and he's the defensive end of the Los Angeles Rams, you may be in some kind of difficulty.

Mr. HAWKINS. I would also point out under the Governor's regulations we are theoretically not allowed to sell gasoline to an individual unless he has less than a half a tank of gasoline.

Senator CRANSTON. As I understand it, that's not really being checked?

Mr. HAWKINS. Again I have the same feeling that you do. If you are not going to enforce the regulation, this creates a disrespect for the regulations generally.

Senator CRANSTON. How does the economic impact on California service stations differ for self-serve and full-serve stations? Do you have a breakdown on the percentage of self-serve, full-serve, and mixed-serve stations in California and how that affects gasoline supplies?

Mr. HAWKINS. We don't have a breakdown yet, but we are working on it. Our observation right now is that the shortage period tends to kill full-serve operations simply because there is no related business generated by the sale of gasoline.

Everybody just wants to drive in, get their gasoline, and leave. They don't want to wait in line while somebody checks their oil, their tires, whatever.

Self-serves, on the other hand, are probably doing better than they would otherwise do. They can reduce their cost of operating for shorter hours and selling gasoline quicker.

Senator CRANSTON. Thank you very much. I want to assure you I will do my best to stay in touch.

Mr. HAWKINS. Thank you.

Senator RIEGLE. We are very pressed for time this morning. I want to go to the New York situation.

Some of the questions I will ask for the record.

Before we go to New York, however, I would like to ask you to do some work together, if it's not being done, as a national collection of retail operators and representatives of retail operators to think in terms of the most sensible way to handle the serious shortage.

Whether it's a 125-pound person dealing with the defensive end of the Los Angeles Rams or whoever, I think it would be helpful to us if we could get some suggestions, some recommendations from you as to how we might better manage the shortage; if that is what we are going to face.

We still have not been able to pin down—and I am not sure we are going to be able to this morning—the extent to which we are going to have a shortage which takes us through the summer and beyond. I think we have to develop for ourselves the most rational kind of method for responding to the problem that actually dovetails with the realities of pumping gas out of stations to customers across the country.

If your organizations could collect themselves—as difficult as that problem is to work through—to come up with a series of recommendations that you could make to us and to others, that would be very helpful.

I am prepared to ask you back to talk about just that subject, if it's clear to us that we are moving into a period of shortage, so that we devise the most intelligent scheme.

It sounds to me like we are getting a very mixed reaction to what is being attempted in California.

It's interesting that you are now trying to move gas around within the system from area to area. It sounds like the dealers themselves are trying to make an accommodation, an adjustment that is beneath the level of the government, whether State or Federal, trying to do this.

I would like to pursue that. We are not going to be able to do it at the length I would like this morning.

Mr. SHIPLEY. Mr. Chairman, I would comment in this area we have made presentations before the House and the Senate during the standby regulations as proposed by the President. Some of those are matters of record and could be made available to the committee, if it's pertinent to the economic affairs.

Certainly, we have diverse opinions amongst ourselves on some of the tough problems individual dealers may have; we may have the same disagreements some Congressmen had amongst themselves in trying to decide some of these issues a few weeks ago.

We probably could offer, as we did, too, both the Energy and Power Subcommittee and also the Senate Energy Committee, our views on at what point we cease to be able to manage this program.

We think up to a given point, a fair allocation program and let the retailers who have to respond to the customers in their area are the best people who can handle it.

If we are faced with a 30 percent shortfall down the road, if we reach that point, there's no way that we as small businessmen can respond to this, unless we get some directions and some sensible rules, not only out of Congress but out of the Department of Energy.

Senator RIEGLE. I would agree with you.

Can I ask you in light of the pressure on time—we have refinery people on our next panel to get at some of these questions you helped to get onto the table here today. I would like a summary, from your vantage point, of the situation in New York, that would be helpful to us.

Also in doing so, maybe you could touch on this item which others of you may want to respond to after he finishes:

The Washington Post of last Thursday suggested that dealer profits were up because of the rise of profit margins, they estimated about 45 percent per gallon, and also because of the layoff of the service station attendants.

I am wondering if there's truth to the story that some retailers would be profiting from the shortage, and especially in light of the fact that there may well have been substantial layoffs of the sort that you cite.

I would like you to go ahead now.

I want to move on to our next panel soon.

Could you touch on that to the extent that you can?

Mr. VICTOR. Thank you, Senator.

I apologize for being late. It's the first time I spent 2 hours in a shuttle plane.

I understand he went to the wrong runway.

I am Mac Victor, executive director of the New York State Association of Service Stations.

Following California the way I have, our problems are very, very different this time, as opposed to the last so-called shortage.

We are not in the same situation, although we do have reduction in the amount of supplies available.

We have not had the same types of problems of California.

We have not had the long lines. I suppose the only time we could see any kind of line not beyond the street level would be coming toward the weekend, on a Friday afternoon.

SERVICE STATION DEALERS REDUCE HOURS

Our service station dealers have reduced their hours during the week.

A great many of them have closed on Sundays.

I think 75 percent of the dealers have closed on Sundays, whereas the main highway and throughway stations have been open on Sunday.

I understand that in our State it averages out to about a 91 percent gasoline available rather than the 80 percent or 75 percent that you hear about in other areas.

Very few of our dealers have run out for any long periods of time, except in between deliveries, because of the way gasoline has been spaced out throughout the month according to what they are entitled to as a delivery.

Senator RIEGLE. Are you saying in terms of Memorial Day weekend that's upcoming in New York, that you think you are going to be all right in New York?

Mr. VICTOR. Yes. I think we will not have the terrible problem that is going on in California.

I do believe you will find quite a number of stations closed for the 2 days, Sunday and Monday, and some of the people may have a little problem finding stations open coming back home; but they still should have enough available.

It has been a problem.

The way we put it: the consumers will have all they need, but they may not always get all they want.

There are some dealers that we have found at 100 percent, and some of the unbranded stations had unlimited supplies.

If it wasn't for the tugboat strike that we have in our area right now, the private brands would have had such a tremendous oversupply, and their hours of operation were extended——

Senator RIEGLE. Why do you think that is happening?

Mr. VICTOR. It seems they are getting it on the spot market. They are getting refined gasoline on barge loads. We are hearing there are barges sitting out there that can't come in because of the tugboat strike.

Senator RIEGLE. Are they paying premium prices to get that gas or not?

Mr. VICTOR. Some are. Some of the companies are paying—I know of service station dealers, private brands, paying as much as 88 cents a gallon for the regular, for the house brand. That would be the——

Senator RIEGLE. Who is selling that gas sitting out there in those barges?

Mr. VICTOR. To the private branders?

Senator RIEGLE. Right.

Mr. VICTOR. I have no idea.

Senator RIEGLE. Would it be important for us to find that out?

Mr. VICTOR. I think so, yes.

Some of the evidence that we see, the problems that we see, we have no way of getting to it.

We feel and see what goes on. That's why we call it a so-called shortage. It can't possibly be a real shortage.

If you look back prior to the other energy crises, we heard about the prices in Europe; we heard about the tightening of supply; then suddenly it came about. We heard about the major oil companies saying that the motorist in this country is getting away with it; they are running along on cheap energy.

At the same time they were advertising "Drive America."

Their public relations departments were putting out all kinds of ads throughout all of the media: "Drive America."

It was like giving the public a shot of heroin pretty cheap, getting them hooked on gasoline.

Now they are stuck with it.

They have to pay the big price for it.

It's that sort of comparison. We see it today.

PLENTY OF GASOLINE AVAILABLE IN THE NEAR FUTURE

I still feel that there won't be many months in the distant, near future that you will see plenty of gasoline. You will see the oil company representatives coming down saying "Stay open 24 hours, sell more gasoline. We have plenty available."

Senator RIEGLE. Let me just ask on that point: Mr. Shipley, is that your expectation, too?

Would you agree with what he just said? Is your expectation different?

Mr. SHIPLEY. Mr. Chairman, I think we are looking at the problems for a good many years. I think when we analyze the world situation, what we do see, as Mac so well described, during periods when production levels are high, the pressure to move volume is constantly there for all retailers.

We saw it following the 1974 embargo where we knew we had a problem. Congress has been wrestling in this. This is the third administration that has been working with the problem.

During the period from late 1974 to and including December of 1978, the thrust of every major supplier in this country was to move volume.

Senator RIEGLE. On the basic point of whether a higher price will stop the supply problem, Mr. Victor is prepared to say that it will; once prices get up, you will have all the supply you necessarily want, you do not agree necessarily?

Mr. SHIPLEY. Not necessarily.

Senator RIEGLE. How do you feel from the Virginia point of view? Where do you fall within that spectrum of anticipation?

Mr. HEIZER. If you will forgive me, Mr. Chairman, I was looking at some notes on that famous article in the Washington Post.

Would you ask me that question in a little more detail?

Senator RIEGLE. Let me get the reaction of the man from California.

Do you think that once the price is high enough, the supply problem is going to be solved?

Is that your belief, similar to what you just heard from New York?

Mr. HAWKINS. Yes. I think once profits are high enough, I think the supply problem will be solved.

Senator RIEGLE. This suggests that you think the problem is being managed by whoever to restrict the supply until the price is driven up to the point where suddenly there will be gas to go around?

Mr. HAWKINS. Yes.

Senator RIEGLE. Would that be a fair summary of the views of the dealers in California?

Mr. HAWKINS. I hear it often.

Mr. HEIZER. I would respond to that by saying I have been one of those who consistently said I do believe there is a shortage and have responded by citing the figures consistently for months that have shown our inventories below that of the corresponding period of a year ago.

However, at the same time, I would have to say perhaps when the prices do get high enough, wherever that figure may be—and I don't think anyone can really say at this point or really knows—once the prices do get high enough, I think there will be additional gasoline available.

TANKER SHIPS DIVERTED TO EUROPE

For example, it disturbs me when I read in the Oil Daily, which is one of the most popular trade publications, that tankers are being diverted to Europe rather than coming to the United States because they can get better price for the product in Europe. Then that does disturb me. I feel that even though the profit motive may be strong, that nonetheless those tankers should come on to the United States and that refined product be made available to us.

Senator RIEGLE. Did you have an additional comment?

Mr. VICTOR. Just a few short comments. I don't know if this was brought up.

The oil companies will work a certain fraction. Right in about the middle of the month, they will change that fraction, drop it, when a service station dealer expects so many gallons for that month. He suddenly is told he will get less. They change it from 90 percent down to 80 percent in the middle of a month.

That throws off the amount that the service station dealer can sell, the amount of hours he can stay open. It puts him at a tremendous disadvantage.

As far as gasohol is concerned, we find there is one small area of New York State that has gasohol available, out at the tip of Long Island. How they got it is difficult to understand. They have it available. They are selling it. The price seems to be slightly higher than gasoline.

As far as topping off is concerned, odd-even days, even though it is another regulation to live with, I think it has been effective. We found it effective in New York during the last energy crisis, even though there are those people who will always break laws or never follow regulations. I think a great percentage of the motorists will respect it. It has some effect when you get 60, 70 percent of the motorists staying back and not filling up, when they are down—or when they are above a half tank, I believe that it does have some effect and does cut the lines a lot shorter.

Senator RIEGLE. Can you just do two things? I want to ask you to respond to some questions for the record. We have a lot of detective work to do based on a number of things that have come up today.

Can you give us a breakdown of the proportion of the retail price of a gallon of gasoline that goes into the following items: Procure-

ment, getting the supply in the first place, operating costs, taxes, and finally retailer profits? How does that split out?

Mr. SHIPLEY. Mr. Chairman, as retailers, we do not have the luxury of shopping for gasoline. Our people buy gasoline at the dealer tank wagon price which is a rack price plus added charges for the use of credit cards, rental, training, things of that nature. It would probably be outside of any realm of expertise we might have in trying to tell this committee what the cost production and transportation and refining might be.

If we could talk from the point that we purchase it——

Senator RIEGLE. Exactly. That's what I am after.

Mr. SHIPLEY. This is one of the problems that we have difficulty in relating to various levels of government; sometimes even amongst our own people. Most of you are probably well familiar with the national AAA price survey that is reported once a month showing what the price of gasoline is in the various cities throughout the country.

The big item that warps that report is the great differences between the tax package from State to State. We received some very harsh words from leaders in the Michigan House of Representatives a few weeks ago noting that the price of gasoline was 6 cents higher in the city of Detroit than the reported price by the auto club in the city of Dallas.

The State Legislature of the State of Michigan has seen fit to put 11 cents a gallon tax for highway use, making the total tax package on the average today about 18 cents in the State of Michigan as compared to the 9-cent package in Texas.

When they would take the time to understand we are actually underselling the retailers in the city of Dallas by 3 cents, but that's not what the motorist was paying.

We will start at the wholesale—or the dealer tank wagon level that we are talking about.

Senator RIEGLE. All right.

Mr. SHIPLEY. In that regard, we have seen an average of 10 price changes from most suppliers since the first of this year.

Senator RIEGLE. Have they all been increases?

Mr. SHIPLEY. All of them. I hope your question was serious.

The Marathon Oil Co. raised the price to its dealers by 10 cents a gallon since January 1.

Senator RIEGLE. There have been 10 different price increases?

Mr. SHIPLEY. There could have been a dozen, some 1½ cents. As reported in U.S. Oil Week 2 weeks ago, Texaco increased the price 16 times in the last 12 months equating to a total of something like 13 cents.

When I say Marathon increased the price 10 cents, we apply at least four-tenths of 1 cent sales tax in the State of Michigan to that. It means a consumer price increase of 10.4 just passing through that price increase on the part of Marathon plus the State legislature gave the people of Michigan the benefit of a 2-percent highway tax increase making a total of 12.4.

Senator RIEGLE. Do you use the same numbers that we tend to use? An increase in the cost of a gallon of gasoline of a penny costs the consumers across the country something slightly over $1 billion?

Mr. SHIPLEY. This was a figure equated in 1974. I would say it is probably $1.2 or $1.3 billion today with the increased growth since that time.

Senator RIEGLE. So——

Mr. SHIPLEY. Sales today of about 1 billion, 100 million today as compared to 1974. It could cost $1.1 billion for every penny increased.

Using Marathon as an example, that's equated nationwide 10 billion. Amoco, 9.5 cents since the first of the year; Shell Oil Co., 11.5 since January 1; Mobil, 9 cents since January 1; Sunoco, 9.5 cents since January 1; Gulf, 9.5 cents since January 1, and on and on.

It has been a constant growth. I would like at this time to respond to your question as reported by the Washington Post on the exorbitant profits at retail outlets.

President Carter declared a—the moral equivalent of war. The fact is it has been fought on the driveways of the service stations of this country. It is the retail dealers that are the ones engaged in it, not the Congress, not the President, not Schlesinger, certainly not the oil companies.

The fact of the matter is the Department of Energy along with an orchestrated program from many of the major suppliers to open many direct outlets, many jobbers open direct outlets, in theory retail operations; and we have seen the price of those direct operations since the 1st of March escalate far faster than the retail price through independently operated retail outlets.

The story in the Post is absolutely inaccurate. Retailers, if they have increased margins whatsoever, it was because they were selling far below a legal ceiling price the first of this year.

In my prepared testimony, I pointed out that these moves on the part of the major suppliers were done completely outside of any competitive factor.

I used Texaco as an example, where they allowed their wholesale price to get 5 and 6 cents higher than competition. It was not unusual for most companies to be off as much as 2 cents.

RETAIL PRICES CLOSE TO FEDERAL CEILING PRICE

Now as a retailer that had to face street competition in times of plenty such as existed up until February of this year, many of those men were selling at almost nonexistent levels. They are now faced with an allocation fraction of as low as 80 percent, and seen fit to move their price somewhat closer to a Federal ceiling price.

If these numbers are as inaccurate as many of them that come out of the Department of Energy, then certainly the Department of Energy has been negligent. The Department of Energy did, in fact, allow huge direct operation stations to come onstream during the 1975–78 period. They came on and offered extremely low prices to the consumer.

As described by Mr. Hawkins from California, they opened these outlets, established a high ceiling price for themselves; sold at considerably below that and in fact said come on in, we are offering you a bargain.

With the use of the banking provisions as he described earlier, they are saying to the public, we give you a bargain, but it, in fact, was a loan. We are calling in our chips. All the self-service wonders that were doing great things for the American motorist are being told today, come and pay us back; we have gasoline, we have the money in the bank, and we are going to charge it to you.

Those were not the people we represent and certainly we don't see the increasing margins as reported in the media.

Senator RIEGLE. If we were going to take the average profitability of the retailers that you represent, would it be the same as, higher, or lower than 1 year ago at this time?

Mr. SHIPLEY. I would say that due to the fact that many of them are on decreased fractions today, where they are receiving only 80 percent, that they could have moved up to or close to their ceiling price; but certainly well within the Federal guidelines.

If this is not true, the Department of Energy has the responsibility of seeing they get into those lines. We will help them with it.

Senator RIEGLE. If they have done those two things, if the prices have gone up and the volume has gone down, how would you say these two have been offset? Does it mean profitability is higher, lower, or on the same level?

Mr. SHIPLEY. Somewhat in parallel with the allocation fraction. I think if they increased their margin by 2 cents in the last year they might—given all the factors—be breaking about even to what they were about 1 year ago.

Senator RIEGLE. Your testimony today—and if anybody dissents or agrees, I would like to have it done on the record here—your assertion to us would be that the retail dealers, the ones you represent, have not seen increased profits in this recent period. Their profitability would be about the same as it was last year.

Mr. SHIPLEY. Or lower because of the fractions. Yes, sir. That is my position.

Senator RIEGLE. Do you all agree with that?

Mr. HAWKINS. I would take this exception: Let's say you were a full-service operator in 1973 and went self-serve; and during the historical base period, because of your low price margin, had a very, very large allocation—say 150,000, 200,000 gallons a month—those profits are going to go up.

Full-serve operations, on the other hand, you have to remember you are looking at—as far as overall profit, you are looking at two profit centers.

No. 1, gasoline and related sales. A full-service gasoline station is going to be making more on gasoline than on what he sells.

The allocation fraction may reduce that somewhat. On the other hand, his related sales are going to be for the most part nonexistent.

Probably the most painful example would be carwashes. Carwashes in California, because of the shortage situation, under normal circumstances, 90 percent of the people who drive through a carwash are going to get their car washed.

Now they are driving in, getting gasoline, and leaving. To the extent the carwash—in the overall picture of the profitability of retailing at our level, his profits are going to be down and down substantially.

I would say you have to define your terms as far as determining the answer to the question.

Senator RIEGLE. You want to make a comment?

Mr. HEIZER. I would say there are some dealers, some of them my members, who may be making more at this point than they were last year or the year before. They have told me their profits have been steadily declining in recent years and that last year and the preceding year they did not look too good to them.

I would also hitchhike on Mr. Hawkins' remarks in regard to the profitability at the self-serve stations, the carwashes, and particularly the company-operated, refiner-operated service stations, certainly within our State. Because I would point out to you, Mr. Chairman, that where the average dealer has perhaps gone up around 8, 9, or 10 cents a gallon on the average, due to increased product costs from his supply, there has been a noticeable increase in Virginia at the stations that are the self-serve, gas-and-go-type operations, the refiner-operated-type service stations, the chain, unbranded operations, the convenience stores also, in particular—the Seven Eleven stores, the Hop-In stores, and so forth whom I have personally seen go from an average of about 59.9 a gallon posting on December 31 to where they are now posting—as of yesterday—75.9, 76.9, 77.9, where they have gone up to the consumer 16, 17, and 18 cents a gallon.

PRICE GOUGING

If you want to look for the price gouging, look there.

Would this be an appropriate time for me to respond to this Washington Post story?

Senator RIEGLE. Yes. I wish you would. Then I want to thank you. I have other folks who want to come forward and speak.

Why don't you go ahead and make your comments?

Mr. HEIZER. I would particularly like to respond to the article in the Washington Post. I have approximately 400 members in this northern Virginia area, a part of the Greater Washington Metropolitan area.

I would certainly like to go on record as saying at this time that the quotations attributed to the oil company representatives in this Washington Post article, if correct, are certainly malicious and untrue.

For example, a direct quotation attributed to a district manager for Amoco says the average Amoco dealer in the District of Columbia makes well over $100,000 a year. It refers then to 174 dealers in the Washington area, implying that all of those 174 dealers are making over the $100,000 figure.

Shell executives, with 165 stations here, also said they believed the average dealer here makes more than $100,000 a year.

Then another quotation from Exxon executives saying if a dealer is pumping 1 million gallons a year and his inside repair business is good can easily make $100,000 a year.

I tell you, Mr. Chairman, I am certainly surprised that I am suddenly representing all of these people who are making $100,000 a year. I can assure you that it is not the case. I will also say that

we do have a few members who may be making that kind of money; but it is very unusual circumstances where they are.

I will also say that in this particular area of our State, the service station business as a rule is a little more profitable than it is in many of the other parts of the State. I would say to you, sir, that the average dealer in this State probably is making somewhere around $18,000, $20,000, up to $25,000 to $30,000 a year if he is running a profitable operation.

There are always exceptions: The dealer who might make $100,000. They are few and far between. In contrast with that, for example, I have in this folder right now in front of me a request which I plan to take over later today to the Office of Hearings and Appeals of the Department of Energy.

This poor fellow has been in business 22 years in the same location in another city in Virginia. Due to highway work and other construction work in his particular city, where formerly he pumped about 50,000 gallons of gasoline a year, in 1977—and you have a copy of his Federal tax return to verify it—he had a net loss in 1977 of $1,012.10 and in 1978, he only made $1,622.21 net profit.

He has had to reinvest $35,000 in his business hoping that now that all that construction work is over that he may again make the station profitable; and I'll be damned if they didn't come along with new changes in the regulations where instead of his being entitled to an allocation based upon what he sold in 1972, they now say, "You will be entitled to an allocation on what you sold in 1978; and, therefore, your allocation is only going to be about 9,000, 10,000 gallons a month."

There is no way in the world that man can make it on that basis. So you have exceptions to the rule. Those who might hit that magic $100,000 figure; you also have people losing money in this business.

I certainly take strong exception to this article. I would also add, too, if the station business was so doggone profitable up in this area, how come these district managers and sales representatives for these oil companies aren't taking over these service stations when they are available for lease?

You will see them advertised in the paper. Sometimes they search for weeks and weeks to find a new operator. I assure you that these remarks cannot be substantiated. In fact, I suggest that maybe your committee subpena some of these folks before this committee and have them bring the proof that all these dealers are making over $100,000 a year.

I would like to see you make them prove it.

Senator RIEGLE. I want to thank all of you for coming today. You came on short notice. I think it's very helpful. It gives us some idea of what we can look forward to, or the people can, in terms of the coming weekend, the balance of the summer.

You put a lot of issues on the table. We will pursue them. We will be in touch with you. We want to work through these things together.

Again I want to thank you for your testimony.

I want to call to the table Mr. John Dosher, president of the Pace Co. in Houston, Tex.; Mr. Joseph P. Downer of Atlantic Richfield; and Mr. Ronald Whitfield, vice president of Data Resources, Inc.

STATEMENTS OF JOHN DOSHER, PRESIDENT, THE PACE CO.; JOSEPH P. DOWNER, EXECUTIVE VICE PRESIDENT, ATLANTIC RICHFIELD OIL CO.; AND RONALD WHITFIELD, VICE PRESIDENT OF DATA RESOURCES, INC., AND HEAD OF THE HYDROCARBONS DIVISION

Senator RIEGLE. Let me welcome the witnesses at the table. I want to say how much I appreciate the fact that you have all been able and willing to come today.

I appreciate your appearing on such short notice. As I said in my opening statement which may have been delivered before you were present in the room, we are interested in the subcommittee and the full committee in trying to pin down the facts on the oil and gas supply situation.

We are not looking for scapegoats. We want to try to find the information and make sense out of it. Therefore, we appreciate your being here.

We welcome the interest that you are expressing by being willing to come and testify. We know it is an urgent matter, one very hard to deal with.

Mr. Dosher, why don't we start with you? As we discussed previously, we are very interested in your assessment of the refinery situation. We just heard from the dealers. We want to try to work back through this problem now. We will hear next, after this panel is complete, from David Bardin, administrator for DOE who hopefully can answer all the remaining questions.

He may well leave on hearing that comment.

Mr. Dosher, we would be interested in your view of the problem on the refinery side and any additional observations you could make with respect to the availability of crude making its way in the United States through the process to customers.

Mr. DOSHER. Thank you, Senator.

PROBLEMS WITHIN THE REFINING INDUSTRY

The Pace Co. makes a quarterly analysis of refined products. Our analysis made at the end of 1978, prior to the Iranian crisis, was that during 1978 refinery capacity would be barely adequate to meet our anticipated demand.

The shortage we foresaw in the refining industry was primarily in the area of octane. What we were anticipating was spot octane shortages during the year. All of this was on the assumption crude was available as you could anticipate prior to the Iranian crisis.

We saw refining capacity barely adequate to meet demand for 1979.

What we see now as the prime factor of the current shortage is about a 3-percent crude oil shortfall which unless some response is made to the major oil companies being allowed to go into the spot market, we expect to persist throughout the year and probably on into 1980.

Senator RIEGLE. Could I just ask you: You say 3 percent. Is that in terms of U.S. requirements rather than a world shortfall?

Mr. DOSHER. It's approximately the same proportion worldwide. We feel that the United States is going to get about its proportion share of the shortfall. It's about 3 percent on either basis.

What we see then is—and again the possibility does exist now that the major oil companies have more or less been encouraged to go into the spot market—they may be able to find spot supplies. I tend to doubt that they will be able to.

What we would see then for the more or less remainder of the year, well into 1980, is that this 3 percent crude shortfall will persist. We as a nation can end up meeting our demand for distillates, which will then result in a 4- to 5- percent shortfall in gasoline; or conversely we can meet our demand for gasoline and have a 10-percent shortfall of distillates. Probably the real case will be a combination of the two.

Looking a little further down the road, we do see a very definite buildup of an inadequate ability to process crude in the United States. The octane problem with the unleaded gasoline is getting worse. We see octane shortages continuously growing over time.

We also foresee that the refineries will be unable to process the increasingly heavy, higher sulfur crudes that will become the predominant crudes as time goes by.

We see the refining industry needing to make investments to offset these two problems of around $5 billion in direct facilities, and another $5 billion in auxiliary facilities inside the refinery.

In light of some of the comments made earlier, I would like to make a couple of comments about the profitability of the refining industry.

Under DOE regulations, the profitability of the refining industry was frozen at 1973 levels. Shortly after the embargo, demand fell off and refiners were not able in the marketplace to sell at their full allowed prices. They built up these banks of unrecovered costs. In the last year as the supply and demand tightened, the banks have tended to be worked off considerably. It is our impression that most refiners are selling at a ceiling price that reflects very little bank.

Under this, I think it's a little unreasonable to assume that very much of this growth that has occurred in oil company profits have been derived from the refining sector. Our analysis is that in 1973, an investment in a new refinery under the conditions at which prices were frozen would have a profitability, index which is a return on investment before taxes, on the cost of the refinery of around 17 percent. This we would say is barely adequate within the framework of financing, expansion, and so forth.

What we have had, since 1973 is a continual inflation in the investment cost of refineries; and the margin that the refiners are allowed to earn has been basically frozen.

Today we would see that the return on investment is basically cut in half because of the inflation in refinery investment costs. It's been our experience that with the price controls, the profit margin is generally not adequate to justify investments in additional unleaded gasoline capacity, and certainly not in just adding new net capacity to the industry.

One other comment I would like to make that has some bearing on the gasoline shortage: As you may know, EPA regulations require a phased-in reduction in the amount of lead used in leaded gasoline. The law calls for a 0.8-grams-per-gallon average currently;

although waivers have been granted. The average lead content, the best we can tell in the country today, is about 1.2 grams per gallon.

Our analysis shows that if the lead content were reduced back to the statutory limitation of 0.8, it would take out about 250,000 barrels a day of gasoline supply which would roughly double today's shortage.

In California, the lead regulations are at 0.7 grams. We think that is contributing to their shortage, and it's one way of possibly alleviating that shortage to a degree.

My recommendation on alleviating the shortage—we see the shortage is there. It's going to persist. It's in the neighborhood of 5 percent.

I feel the impact of the shortage has been disparately accentuated by the topping-off-of-the-tank concept. I think any type of regulation that would, in effect, impose a minimum purchase at the pump would go a great way toward making the shortage more manageable.

Senator LUGAR. Let me follow up for a moment on the refinery problem.

Is it your contention that the basic problem as far as additional construction of refineries in the country is the lack of profitability, the lack of anticipated profitability from the refineries?

Frequently the case is made that refineries are not being built in this country because of environmental difficulties, zoning difficulties, the unpopularity of having a refinery in the community.

What appears to be the truth of the matter as you see it?

Mr. DOSHER. Well, I think the problem you mentioned certainly contributes to the lack of construction. We are finding that that problem is contributing to a lack of construction throughout industry.

ECONOMIC PROBLEMS OF EXPANSION

I think right now the prime problem is the economics of the expansion.

Senator LUGAR. There are enough sites available in America?

Mr. DOSHER. Certainly the first thing that would happen would be extensions and modifications within existing sites. This, from an environmental standpoint, from a permitting standpoint, is the easiest thing to do, compared to going to a grassroots site.

I think once the economics were clearly there, certainly there would be problems and delays associated with obtaining permits and so forth for new sites.

Senator LUGAR. What rate of return on refinery operations is going to bring adequate capital into that type of investment?

Mr. DOSHER. When you talk about rate of return, you have to be very careful that you are talking about the rate of return on replacement costs. That's what you have to pay.

Senator LUGAR. On new investment.

Mr. DOSHER. I think in general it's in the neighborhood of 15, 20 percent.

Senator LUGAR. Fifteen, 20 percent?

Mr. DOSHER. Before taxes, which cuts that in half. It would be 7 to 10 percent.

Senator LUGAR. That would be adequate to get that degree of money into that area?

Mr. DOSHER. Yes.

Senator LUGAR. Is it a fact that more refinery capacity will have to occur simply because of obsolescence of current capacity? The case was made that we are not going to have a great deal more crude oil in the country in any event.

We are at a rather stable situation; maybe in decline? If that is the case, why would more refinery capacity be required?

Mr. DOSHER. I don't know necessarily that there will be additional net capacity being added. There is a glut of capacity on the world markets. I would expect that under these circumstances, we could have our increased product demand coming from increased imports.

However, the $10 billion that I mentioned earlier is basically to modify the existing refineries with no new capacity. We have to increase the octane capacity.

Our analysis is that the octane capacity would just barely be adequate this summer. We would have had shortages had there been no Iranian crisis.

With the plans presently announced, by the mideighties we will be short by two octane numbers in the total gasoline supply. That's a major shortage.

On the problem of sour crude, we need approximately half a billion barrels a day of additional desulfurization capacity within the existing refineries. Since most of this is within existing refineries, I think some of the environmental problems are reduced compared to grassroots.

The grassroots refineries are needed to hold down import products.

Senator LUGAR. What sort of time frame is required to simply move these modifications? In other words, to increase by a point or two the octane rating of your whole supply, is that something that can occur this year in calendar 1979?

Mr. DOSHER. No, but I think under the proper circumstances, we could catch up by 1985.

Senator LUGAR. 1985?

Do either of you other two gentlemen have comments?

Mr. DOWNER. I am Joseph Downer, an executive vice president of Atlantic Richfield Co. I agree essentially with everything said by my colleagues. I would like to look at it from the point of view of one refiner.

We are essentially a domestic, integrated oil company and represent about 4 to 5 percent of the U.S. petroleum business.

We operate in excess of 800,000 barrels a day of refining capacity.

In 1978, the return on refining and marketing in the Atlantic Richfield Co. was 4 percent after taxes. This year we are hopeful we may raise that return to 8 percent after taxes.

We are one of the few companies in America that in the past 7 years has built a grassroots refinery, namely our refinery at Cherry Point, Wash.

We have gone to enormous lengths to be able to process sour crude.

As recently as a month ago, despite these unfavorable economics, we announced a $105 million expansion of our Philadelphia refinery to enhance gasoline production.

MINIMUM-SIZED REFINERY COST $500 MILLION

Let me tell you what the considerations are for a refiner when he has to make a decision as to whether or not he is going to build a refinery.

A minimum-sized refinery that's economic in this country at this point is at least 100,000 barrels a day. The minimum cost is at least $500 million; a sizable sum by any criteria. The minimum time required for permitting, design, construction, shakedown, et cetera, is on the order of 4 to 5 years.

A refiner faced with that kind of a decision and looking, as I said, Senator Riegle, to your associates, at a 4 percent return on refining and marketing as we did last year in the Atlantic Richfield Co., 8 percent we hope this year, looking at that kind of an investment, he has many considerations.

One is what is demand going to be in the future? A very, very difficult thing to estimate, particularly when regulations are changing every day; when gasoline mileage requirements are changing every day; when the—a great deal of uncertainty exists with respect to the future demand trend.

Second, a refiner is concerned with crude oil supply. Crude oil supply which I will get into in my remarks more fully, is enormously short. Witness the spot market prices Senator Cranston quoted just a moment ago; and without adequate crude supply, a refinery cannot be backed up.

Next, a refiner is confronted with enormous environmental requirements. There have been, I believe—my associates tell me—something on the order of 30 grassroots refinery projects proposed over the last 10 years.

I believe two have finally become an actuality. The others have collapsed, in many instances, on the basis of environmental restrictions where communities have said we want refining capacity but we don't want it in our community.

Those, sir, are the considerations. I would submit that if adequate incentives—and incentives of the order my colleague has mentioned—I have gone on record that we have just made a decision to put $105 million into a Philadelphia refinery expansion.

I would submit if returns of—on the order of 10 percent after tax are available in the refining business, refining additions, modifications, et cetera, will be forthcoming.

I hope I have recited a series of factors that make it terribly difficult to make that positive decision at the present time.

Senator RIEGLE. Let me ask you this: Did you indicate—I am sorry I had to leave for a vote—did you indicate before I returned the degree to which there is, in your perception, a refinery shortfall in the country that either exists today or that you see over the next 1 to 5 years that we need to move aggressively to solve?

Mr. DOWNER. Yes. My colleague reviewed that in detail. We would agree that additional refining capacity is required in this country. Additional incentives are needed in order to bring that

forth. Which incentives are entirely equitable in terms of our stewardship of stockholders' funds.

Senator RIEGLE. The two of you agree as to the percentage of increase in refinery capacity needed?

Mr. DOSHER. I will repeat what I said when you left, Senator. Our analysis was that for this year, refining capacity was just barely adequate. Had the Iranian crisis not occurred, we foresaw a shortage in unleaded gasoline which we thought would only be a spot-type shortage.

Looking into the future, we see a shortage of octane capacity, as unleaded demand builds up, of approximately two octane numbers by the mideighties. The total shortfall will be two octane numbers. We foresee a very definite shortage of ability to process the heavier and higher sulfur crudes which we think will be available on world markets.

Without adding any new capacity, we foresee a need for approximately $10 billion in investment just to have the present capacity make the octane and process the crude that's available.

Our assumption is that the remaining growth in product demand would come from increased imports. If you want to hold imports of products at today's level or lower, additional refining capacity would be required.

Senator RIEGLE. In terms of the relationship with the Department of Energy and the need to reconcile these problems in order to make investment financially viable from your point of view, to deal with the environmental issues and so forth, is there a way today that companies like Atlantic Richfield, could move ahead if it made economic sense? Is there a way to go somewhere and sit down with the players you need to talk with, get straight answers and get the things settled or is it an endless catch-22 type situation?

Mr. DOWNER. No, sir. Our experience is that the key individuals in the Department of Energy are fully aware of this problem and have, in fact, been public advocates of increased incentives for refining capacity. The gasoline tilt provision was the first concrete move in that direction. We made a pledge if tilt was forthcoming, we would move ahead with Philadelphia. We are moving ahead.

Senator RIEGLE. Are other companies also moving ahead?

Mr. DOWNER. We live in a world of tremendous antitrust considerations. I am the last person who can speak to another oil company.

Senator RIEGLE. You would be aware, would you not, if other major companies are moving ahead with refinery capacity?

Mr. DOWNER. I literally can't speak authoritatively. I think there is some momentum but the momentum is not adequate to the need.

Senator RIEGLE. The increase that you are anticipating was how much?

Mr. DOWNER. We are adding essentially gasoline manufacturing capacity there. It represents an investment of $105 million in a fluid cat cracker.

Senator RIEGLE. How much will be produced?

Mr. DOWNER. That is a 108,000 barrel a day plant. What it will do is take more of the heavy end of the barrel, namely, residual oil, and convert that to gasoline and heating oil.

Senator RIEGLE. How long will it take you to have that on line?

Mr. DOWNER. A minimum of 3 years and probably 4. There are enormous leadtimes and enormous capital requirement in this industry.

Senator RIEGLE. Is there any way to speed that up, even with Government help?

Mr. DOWNER. I don't honestly believe so unless we get into labor difficulties of some sort.

Senator RIEGLE. To the extent we have a refinery gap, is there nothing we can do anything about within less than a 3-year time frame?

Mr. DOWNER. There is also—and the industry is ingenious in this regard—an ability to tinker with a refinery and somehow increase output or increase product characteristics by minor changes. The sum accumulation of those is considerable. I think you'd agree with me on that score.

Mr. WHITFIELD. May I speak to that?

Senator RIEGLE. Have you finished your statement?

Mr. DOWNER. On refining, yes.

Senator RIEGLE. Mr. Whitfield.

Mr. WHITFIELD. Thank you very much. I would like to add a few comments about our analysis of the refinery capacity issue. I am going to have to make it unanimous here that 2 years ago we predicted because of the EPA lead regulations and the ban of MMT that there would, in fact, be an extremely tight gasoline situation this year on the order of half a million barrels per day in the summertime.

That really was an analysis done almost 2 years ago. We would have also stated the same conclusion, except we had Iran which entered the picture in November of this last year.

In our analysis, we would have had a problem anyway. Iran stepped in and made the problem even more acute.

Senator RIEGLE. Why don't you go ahead and make any additional comments you intended to make?

Mr. DOWNER. I have only discussed refining. I am prepared to answer the questions your staff provided me with.

Senator RIEGLE. Should we go to that first and wait for your presentation?

Mr. WHITFIELD. Fine.

Mr. DOWNER. What I would like to do, just speaking directly from notes, because I flew from California last night, is make a brief statement on the current and future energy situation as we at Atlantic Richfield see it.

Mind you, we are only one company. We represent only 5 percent of the American petroleum industry.

Before opening up—before making these remarks, and opening up to questions, however, I would like to draw the committee's attention to three items of information.

First, is an exhaustive and excellent article in last Sunday's Los Angeles Times on the California petroleum supply and demand situation. This is newspaper reporting at its very best. We can't compliment the Los Angeles Times too much. I commend it to any student of this situation, that you read it thoroughly.

Second, is an article from yesterday's Los Angeles Times pointing out the present vulnerability to the free world of an interruption of Persian Gulf oil production. It is nothing new, but it brings home in graphic terms our vulnerability to events in that part of the world.

The third item is the report of the Atlantic Richfield Co.'s annual meeting held May 1, where statements by Bob Anderson and Brad Bradshaw, our president and chairman, give insight into their views on the energy situation.

ATLANTIC RICHFIELD ANALYSIS

Mr. DOWNER. I would like to confine myself to two points before answering your questions. I will try to be as factual as I know how to be. Our Atlantic Richfield analysis indicates that if there is reasonable U.S. consumption moderation and no political disruption of oil supplies—two extremely big ifs—the United States stands a reasonable chance of making it through the summer without additional major gasoline shortfalls and at the same time should be able to build heating oil inventories to required levels.

Second—and this is the even more important point—even if we make it through the short term, the United States and world oil and energy supply-demand balance will continue on a precarious razor-thin edge in the foreseeable future. There is no quick short-term fix for this. It does mandate that we waste no more precious time in activating appropriate energy conservation and energy development policies, both nationally and internationally.

The origin of the present problem we feel was the loss of 10 percent of the world's oil supply in December last year in Iran. This represented 6 million barrels a day out of a total world demand, including the Communist world, of 60 million barrels a day and free world demand of some 50 million barrels a day. There was absolutely no place to make this up except in Saudi Arabia.

That country, for reasons which are extremely logical from their point of view, particularly in the light of the political turmoil in Iran, increased supply only 1 million barrels per day to the 9.5-million-barrel-a-day level.

The Iranian shortfall led to the expected reaction any shortfall will cause; a scramble for short crude oil supplies worldwide; price increases, particularly on the margin; and supply dislocations magnified by allocation programs worldwide.

It must be remembered that though the world operates with about 5 billion barrels of aboveground crude in product inventory, or about 100-days supply based on the 50 million barrel a day world requirement, only about 600 million of these barrels, or 12-days supply, are actually available for consumption. The balance is required to fill the supply pipeline, this intricate, delicate mechanism that operates around the entire world.

Worldwide in this situation, crude oil became either unavailable, particularly so-called sweet crudes, or available at increased—greatly increased—prices.

In my discussion with our crude oil purchaser yesterday—and we are a purchaser and trader of probably 1 million barrels a day every day of the year—he quoted to me that on world spot markets

at the moment, sour crude, if it can be bought, will command a price of $25 to $30 a barrel.

Sweet crude, if it can be bought—and it's hardly available—will command a price of $30 to $35 a barrel. This is in contrast to the official Arabian market crude price of $14.55; and $30 a barrel, I would remind everyone, equates to approximately 80 cents a gallon in the producing country before you move it to the consuming area, before you refine it, and before you distribute it.

Senator RIEGLE. Are those all-time high prices?

Mr. DOWNER. Sir, I've been at it for 30 years. It's inconceivable, virtually.

In this environment, the United States, consuming about 20 million barrels a day of oil or about one-third of the world's oil for 6 percent of the world's population, and dependent on imports for more than 8 million barrels a day of this supply, or about 50 percent import dependent, was faced with a major shortfall and the dilemma of how high to bid up prices for crude oil.

Encouraged by the Government, the industry was somewhat restrained in bidding up prices and elected to draw down U.S. inventories of petroleum.

Senator RIEGLE. Excuse me. This is an excellent narrative. When would the time frame be that you were in effect discouraged by DOE?

Mr. DOWNER. Beginning with the Iranian shutdown, with which we were totally sympathetic. It was, how in the world do we cushion this price rise situation? Clearly individual decisions had to be made. Do you go chasing the crude or do you see if by holding off and suppressing demand, you can stabilize the price situation.

It's our judgment—I know for a fact in our company, it's our judgment that the industry in general tried its level best to stay out of the market in the hopes that they could stabilize the market.

Senator RIEGLE. You were asked to do that by DOE?

Mr. DOWNER. Exactly right. Recently, as recently as I believe today, in the Wall Street Journal, it's published.

They are now encouraging the industry—I presume on the assumption that efforts to dampen price have been futile—they are encouraging the industry to acquire more crude oil. I can assure you we are aggressively pursuing this route.

Senator RIEGLE. When DOE gives that signal to the major oil buyers, is it in writing or verbal?

Mr. DOWNER. Sir, I'm not—I am not so directly involved in that operation that I can answer definitely.

My impression would be that it's in individual conversations with individual companies.

They are unable to bring companies together on a subject of this kind.

Senator RIEGLE. To your knowledge then, it would not come in the form of a written directive?

Mr. DOWNER. No. There have been, however, published newspaper reports of several months ago in which the—it is attributed to the Department of Energy that they requested refiners to refrain from bidding the price up.

Senator RIEGLE. You are confirming that with respect to the experience of Atlantic Richfield? That you were encouraged by DOE not to go out and buy additional crude?

Mr. DOWNER. That's right. Would I have been in their position, I would have been encouraging the same policy, which I feel was in the national interest.

The lastest American Petroleum Institute figures, which figures are the industry figures that are available and which figures, after a great deal of scrutiny have proven to be very reasonably accurate, indicate that crude oil inventories for the entire United States are now down 7 percent from a year ago, gasoline inventories are down 7 percent, and most critically of all, heating oil inventories are down 17 percent.

It's the worldwide crude supply shortfall, plus the drawdown of U.S. crude and product inventories in the face of a rise of 3 percent in nationwide gasoline demand and 15 percent in unleaded gasoline demand that has led to the institution of allocations under the Government system.

Any system of allocations, no matter how equitable it attempts to be, further worsens the dislocations and causes problems per se.

On the other hand, again I would have done exactly what the Government did.

Most of the United States, with the exception of California, has thus far, under these conditions, avoided serious gasoline lines.

California, of course, has been impacted by all of the above factors, plus several others that are peculiar to California.

I should point out we are headquartered in Los Angeles. I am a resident of the Los Angeles basin. I am a veteran of at least three gas lines.

SWEET CRUDE OIL ESSENTIAL TO CALIFORNIA INDUSTRY

One, in California there is a higher than average requirement for gasoline out of the barrel, and yet the close-at-hand crude oil, namely, California crude oil and Alaskan crude oil, is both heavier and contains a higher percentage of sulfur than what we would call sweet crude.

As a consequence, sweet crudes are essential to the California refining industry, in order to produce an adequate gasoline for the California market.

It is those sweet crudes which I have just indicated are in the scarcest supply of all worldwide and are demanding the largest price.

That, in large measure, indicates why California refineries have been crude oil-restricted to a greater extent than the country, as a whole.

In addition, California, and in the California capacity figures, there are certain—there is a certain refining capacity designed purely to make the heavy ends of the barrel and is not gasoline manufacturing capacity at all.

Second, in California there are more stringent than national environmental requirements which require more barrels of crude oil to make a comparable number of gallons of gasoline.

Third, California, as you all know, has had a booming economy, and it's been fired in part by today's inflationary trends.

Fourth, there is no question but what California has a greater dependence on the automobile due to geographic dispersal and the lack of public transportation.

I would like to quote a few figures which will factually define this problem.

Senator RIEGLE. Before you do that, I am wondering before we leave the refinery issue as it relates to California, which I think you put in perspective here, is retrofitting an answer that we should turn to or not, in your opinion?

Mr. DOWNER. Yes.

Senator RIEGLE. As opposed to building new facilities?

Mr. DOWNER. Yes. There will have to be modification of refineries in California to help handle sour crudes and to help produce more gallons of gasoline out of each barrel of crude oil.

Senator RIEGLE. Is that happening, insofar as you can judge?

Mr. DOWNER. It is happening in my company, where we are totally self-sufficient in terms of meeting our market requirements and handling our Alaskan oil, and where we have the ability to refine 60 percent and above of sour crude versus an industry average of below 50 percent.

Again, the incentives have not been there to bring this trend along as rapidly as it should be brought along.

Senator RIEGLE. The Department of Energy regulations have an economic effect that would be a disincentive to other people to not retrofit?

Mr. DOWNER. There is just no question about it. We have been operating on exactly the same margin that existed in 1973, despite the inflationary trends.

As I quoted to you—and I don't know the figures for other companies, but I think we are entirely competitive, entirely representative.

We earned 4 percent after taxes on refining and marketing in 1978.

The stockholders funds cannot be invested for long for those kinds of returns.

Senator RIEGLE. Did you have to retrofit to get to the capacity you have today?

Mr. DOWNER. Yes, sir. The term "retrofit" is a layman's term. We have done an enormous number of complicated and technically adroit things.

Senator RIEGLE. That's significant, because you didn't start out with the kind of facility you now have. You had to change the facility to make yourself relevant to the situation.

Mr. DOWNER. We took a refinery in Carson, Calif. that's 30 to 40 years old and have made it into a modern, completely up-to-date refinery. We built a grassroots refinery in Cherry Point, Wash.

Senator RIEGLE. Why would you do this when, in the face of those return-on-investment numbers other companies did not?

Mr. DOWNER. We did have adequate crude supply, namely due to the enormous risk we had taken and the good fortune that we had of discovering the Prudhoe Bay oil field in Alaska.

Second, the Richfield Co., one of the predecessors of the present company, had a strong marketing position in the State of California.

We felt strongly that we could take the risk, because we had the crude supply; we had the demand, and we were hopeful that reasonable returns would come forward.

Mind you, we built Cherry Point in 1972. We have been modifying Carson over the last 10 years.

You asked me why are we doing it in Philadelphia? I'd say we are doing it with a minimal return relative to other economic returns that are available in our company, but with a deep sense that unless the industry does meet the consumers' requirements, the industry's very lifeblood is in jeopardy.

We are prepared to make a decision which may be marginal economically, but we feel is necessary for the well-being of our company.

Senator RIEGLE. Mr. Dosher wanted to comment. Would you mind if he interjected here?

Mr. DOWNER. No.

Mr. DOSHER. A part of our work we maintain a running analysis of the economics of the prototype refinery.

Our analysis just prior to the Iranian situation and just prior to the tilt regulation, was that the return on investment for a new refinery was approximately 4 percent after taxes. The tilt regulation would certainly improve that; and in our work with a large number of oil companies, where we do feasibility studies and so forth, I would tend to support what Atlantic Richfield is saying.

We feel with some of these modifications in regulations, these oil companies are looking much more favorably on the various types of investments it takes to upgrade our capacity, in terms of retrofit, to meet the demand.

Senator RIEGLE. That's still a 3-year lag to retrofit?

Mr. DOSHER. Yes. It is not going to happen tomorrow. No way.

Mr. DOWNER. These are huge complicated installations.

If I could go on with the California situation, I have given you some points which I think make California different. Now I would like to illustrate a few figures.

Total U.S. gasoline demand in the first 4 months of 1979 versus 1978 is up 3 percent. In the west coast, what is called in our jargon, PAD district No. 5, demand is up 7 percent, more than twice the national average.

In California, our figures indicate that demand is up 8 percent.

In California, this contrasts to a 4.8 percent increase in California automobile registration over the same time frame. I'll get into why we think demand has gone beyond the registration figure and beyond the national figure.

I should interject there that in the fact of a 3 percent increase in demand for gasoline in the United States, our figures indicate that gasoline supply by the industry in the district west of the Rocky Mountains has risen by 2 percent; and in the light of the California situation, gasoline supply has virtually kept up with that increase in demand.

Now I will illustrate a few complications. For our own company—before I get into that, let me speak about unleaded gasoline.

Across the United States unleaded gasoline is reported to be up—the demand for it—15 percent. We have no figures for the west coast alone for the industry; but our gasoline demand is up some 46 percent. The distillate demand in the United States as a whole——

Senator RIEGLE. You are saying your demand is up 46 percent just for unleaded?

Mr. DOWNER. Exactly right. As a matter of fact, that's an industry figure for PAD district No. 5, 46-percent increase versus a U.S. increase, in total, of 15 percent. I will get into some of that.

Senator RIEGLE. That's an incredible difference.

Mr. DOWNER. Wait until you hear some of these other figures.

Distillate demand in the United States in total has been flat to date versus a year ago. In PAD district 5, it is up 14 percent; and ARCO's distillate demand is up 46 percent. These are enormous surges in demand that would have taxed supply under any circumstances.

I have some additional figures re ARCO gasoline sales which I think you will find to be of interest. In the State of California in the first quarter of 1979 versus 1978, Atlantic Richfield Co.'s total gasoline demand increased 20 percent and our unleaded demand increased 52 percent. In Oregon, 12 and 48; in Washington, 10 and 48.

In contrast, in the East, in Pennsylvania, our gasoline demand was down 5 percent and our unleaded requirement was up 19 percent. You can see that the figures for demand have been a multiple of what they are in the eastern portion of the Nation.

Go along, Jersey, total demand for gasoline down to 10 percent, unleaded up 17; New York, total demand for ARCO gasoline up 8 percent, unleaded 38 percent; Illinois, up 6 percent for total gasoline, unleaded 30 percent.

One additional set of numbers which indicates topping off and fear buying did take hold in California: Last year nationally, in March through May, 3.7 percent of our credit card sales were for 6 gallons or less. In May of this year, our national figure for 6-gallon purchases or less rose from 3.7 to 6.9 percent.

In California, a year ago the figure was 4.5 percent; and in California this first quarter, the figure was 25.4 percent. That is a sixfold increase in California in topping off.

So much for the past. What about the future?

Senator RIEGLE. Is the inference we draw from that that topping off is to some extent a national phenomenon?

Mr. DOWNER. Yes, sir, but they went up relatively modestly. The national figure for us was 3.7 percent a year ago. It is 6.9 percent now. If it remains at a level of that kind, perhaps we can cope with it.

Senator RIEGLE. That's a measureable percentage? California is skyrocketing.

Senator PROXMIRE. If we leave California out, there's not that much of an increase?

Mr. DOWNER. Probably true.

POLITICAL INSTABILITY OF IRAN

To talk about the future very briefly.

We feel more significantly with Iran now back to production of perhaps 3 to 4 million barrels—but you know better than I the political instability of that nation—and with Saudi Arabia at perhaps 8.5 million barrels a day, and with some modest increases from other producing areas in the world due in large measure to the attractiveness of current crude oil prices, wherein nations such as Nigeria, Algeria, et cetera, budgetary problems exist, and these prices are very tempting to them, we see a chance for a possible raise or thin balance of crude oil supply over the balance of this year.

This supply we feel stands a chance of being in balance with world demand. Even taking into account the necessary inventory buildup. I should point out to you the caveats are enormous there. That's a terribly optimistic statement, I feel; but on the other hand, I spent a fair share of yesterday reviewing these numbers with our people who deal with the worldwide situation constantly; and our best analysis indicates that there is a chance for a balancing of world production and supply particularly as the summer seasonal lowering of demand comes into effect and traditionally our industry does have a lower demand in the summer than the winter because you pile heating oil on top of an almost stable gasoline demand even worldwide.

We see some chance of this supply-demand situation of worldwide crude oil being in balance; but I cannot possibly emphasize too much the need for conservation worldwide and the prayers for lack of political disruption in order to have this come about.

If this is true re crude supply, and with more active crude buying by the U.S refining industry, with Government encouragement—which I just mentioned—U.S. refining runs could be lifted from their current national level of about 84 percent to, say, something about 90 percent which is essentially full capacity when you take down time into account.

Currently crude runs are down because of the lack of crude supply and because turnarounds are necessary particularly in the spring to keep equipment in shape.

Assuming no more than a minor demand increase in the United States for gasoline this summer, stepped up runs may be able to meet gasoline demand and rebuild heating oil stocks to a figure which we feel would be reasonable; namely, 220 million barrels as opposed to the Government's target of 240 million barrels. We would suggest that the 220 is a reasonable figure and that we seek to reach that goal by October 1 rather than by earlier in the fall.

This is a razor-thin margin. It takes into account only the balance of this year; and it will require strenuous conservation and hopefully political stability.

For the longer term, clearly the problem is acutely serious. I refer you to today's New York Times article relating to the International Energy Agency meeting that took place yesterday where responsible people from all over the world factually indicated their evidence and their concern and had hard evidence to support it. The United States is dependent on oil for 40 percent of its energy.

Fifty percent of that supply comes from abroad with OPEC controlling 50 percent of the world's oil supply. This situation threatens the entire U.S. economic base and security base.

We must—and time is running out—get on with the job as a nation to develop our indigenous resources of oil, coal, gas, oil shale, nuclear, solar, and any other technology we can bring forward. We must do it in the context of more efficient and conservation-minded utilization of energy.

We, as you well know in this Nation, use about twice as much per capita energy as such high-standard-of-living nations as Germany and Japan.

Sir, that concludes my remarks. I hope they are helpful in your investigation.

Senator RIEGLE. Well, you made an excellent presentation. I just have two questions. The others may have questions. I would like to go to the last witness to get his perspective on the table with both of yours.

First of all, this high spot price that you say you have never seen before, it's hardly even conceivable the price could be as high as it is today.

If that continues for any length of time, isn't that likely to pull the overall price level up? Are we likely to find we will have a basic change in the price structure that can have a multibillion-dollar effect?

OPEC TO VIEW SPOT MARKET PRICES

Mr. DOWNER. OPEC meets on June 26. They undoubtedly will take this spot market into account. Their current market crude price is $14.55. A number of the nations have officially gone up to $20 as their so-called contract price.

There is no supply force at the present time that can modify their control of price other than the concern amongst the more rational members of OPEC that they not drive the entire world's economy to ruin in that their assets would be as threatened in that case as would be anybody else's.

Senator Riegle, I have to say that undoubtedly the next meeting of OPEC will bring forward a substantially higher official OPEC price than the $14.55 current level; $20 crude oil is 50 cents a gallon in the producing country.

That can mean nothing but increases in prices in this country. On the other hand, it may have some minor impact on reducing consumption and hopefully, if policies of a rational nature and of a stabilized nature can be forthcoming nationally, it could perhaps bring on increased supplies of conventional oil and gas, shale oil.

I spent all day Friday reviewing our shale situation. With the right circumstances, we are where we can show a return that we can logically live with. We are prepared to move ahead in that area.

Coal, coal liquefaction, gasification are fields we are active in. We are active in solar. The country has the capacity. It's going to take time; it's going to take money; but most importantly, it's going to take will.

Senator RIEGLE. What is the price per barrel at which shale becomes feasible? Is it above or below $30?

Mr. DOWNER. It's a very difficult thing to answer precisely. We are dealing with a technology that has never been put in being. Our plea is that the Government create a condition which would permit at least the early plants to show a reasonable return and get them started and test both the capital costs, the output, and the technology.

We feel that at foreseeable world crude oil prices, that the currently mentioned $3 per barrel tax credit for shale oil would perhaps provide an incentive which would start a few shale projects.

Now the timeframe there from start to finish, 8 years, $1.4 billion for a 50,000-barrel-a-day plant.

Senator RIEGLE. One other thing. Then I will go to my colleagues and on to the next speaker. We have the Department of Energy waiting patiently.

It sounds to me like you are describing an authentic emergency.

Mr. DOWNER. I hope I have left that impression.

Senator RIEGLE. If what you say is accurate and the consensus among responsible observers in and out of industry and at all points along the line would be that we are in that kind of situation, then we ought to treat it as such. We ought to have a plan that's as serious, sweeping, and comprehensive as all the players involved, that matches the scale of the problem.

It seems to me we don't have that. If you take a look at what we have in place today versus what you are describing as the reality, we are almost years behind in terms of really gearing ourselves to face that kind of set of consequences.

In terms of the economic effects, the dislocations, are so horrendous that perhaps we can cover that at our next hearing.

Mr. DOWNER. I would submit, sir, that the most horrendous thing would be for this Nation to have a significant shortfall of energy. The implications of that are enormous.

Senator RIEGLE. That's essentially my point.

Mr. DOWNER. That's right. On the other hand, this Nation has the basic capacity to meet its energy requirements; and it would seem to me it's thoroughly logical to feel that that very transition could provide an enormous economic stimulus which, with good management, good planning, could see us through with a perfectly viable lifestyle and a perfectly viable economy and hopefully a viable security posture.

Senator RIEGLE. Isn't that going to take a consortium effort? Isn't EPA, DOE, the President, the leaders of Congress, the private sector, all segments of it are going to have to get together in the same room?

Mr. DOWNER. My last scratched notes were government, business, labor, citizens must join to meet the challenge. I thought that might sound a little trite, so I didn't say it.

Senator RIEGLE. I don't know if you have questions?

Senator LUGAR. Just a quick question. I was intrigued with the fact that demand was up by 20 percent in California, 12 in Oregon, and 10 in Washington; but if I heard you correctly, for gasoline overall, that is Arco sales, it was down 5 percent in Pennsylvania in the first quarter and 10 percent in New Jersey?

Mr. DOWNER. Yes.

Senator LUGAR. How can this be? What is occurring in Pennsylvania and New Jersey that would lead to sales results of that sort?

Mr. DOWNER. I believe the conservation ethic is a bit stronger the closer you are to Plymouth Rock, perhaps. [Laughter.]

Senator LUGAR. A second question——

Senator PROXMIRE. That leaves Indiana right in the middle.

Mr. DOWNER. In fairness, enormously greater public transportation sources; an economy that is much less robust than California. All of those things have to be taken into account. A winter which disrupted, in the early part of the year, motor traffic.

Senator LUGAR. It may be too early for your analysis to take a look at this, but clearly there has been in that first quarter an escalation of gas prices that has been substantial.

Mr. DOWNER. Yes, sir.

Senator LUGAR. Are you able to gauge, in any of those situations, whether people are price-responsive? Is there evidence about the elasticity or inelasticity of demand in any of these cases?

Mr. DOWNER. Industry as an economic user of fuel for their facilities are enormously price-responsive. Our company has reduced its energy consumption by 25 percent from 1972 forward based on what its projections would have been had we not instituted the conservation measures.

So industry does respond very promptly and very acutely to price. Industry also responds very early to stashing away inventories. There's a great deal of evidence that industry in the west moved very promptly to fill storage tanks.

Our commercial and industrial sales rose at rates that are—where the rate of increase was as high as our retail increases, if not higher.

When you get to the consumer, we find it much more difficult to find an immediate response of the magnitude that is reflected in industry. It is argued, however, that if we can start moving in the direction of more fuel-efficient automobiles to a greater extent, to more fuel-efficient homes, heating systems, more fuel-efficient offices, et cetera, that price will have an impact, witness Germany and Japan who sustained an enormously productive and high per capita standard of living with per capita fuel consumption at half the level of ours.

They have lived for 15, 20 years with inadequate indigenous crude and energy and have built their entire capital stock on the basis of very high-cost energy and, hence, they are much more fuel efficient than we.

Senator LUGAR. Thank you.

POSSIBLE BALANCE BETWEEN SUPPLY AND DEMAND

Senator PROXMIRE. I just have a couple of questions to ask quickly. Did I understand you to say, sir, that we might have a balance between supply and demand over the next year?

Mr. DOWNER. If you are referring to world crude oil supply?

Senator PROXMIRE. Yes, sir.

Mr. DOWNER. The analysis that my company completed as recently as yesterday, and our data is far from total, because we are

only one entity, and you are dealing with many sovereign nations, and individual decisions that are made there; you are dealing with a huge number of entities around the world.

Our figures indicate that if due to Iran coming back to a 3- or 4-million-barrel-a-day level, and on the assumption that that production continues to flow into world markets, given that Saudi Arabia does not reduce below their current reduced level of 8.5 million barrels a day, and given some indication that higher prices are bringing forth some more production in small increments from various of the OPEC nations, and given the fact that traditionally there has been—there is a bit of a decline in world demand in the summer relative to the winter, that we do see a chance—and I have to emphasize the word "chance"—crude oil supply and demand can be in a precarious balance through the summer.

Senator PROXMIRE. I think it might be more helpful instead of the words if you would give us what the weathermen give us. If you were Jimmy the Greek, how would you handicap this? Would you say it's a 50-50 chance we will have a balance? Less than that? More than that?

Mr. DOWNER. Sir, there are so many variables. As a consequence, I don't bet on things of that kind.

Senator PROXMIRE. I'm not asking you to bet on it.

Mr. DOWNER. You are asking me to state odds. I tried to state the facts. I have tried to state the variables.

Senator PROXMIRE. Is there a 50 percent chance in your view? A 40 percent chance?

Mr. DOWNER. What is your assumption re Iran crude production?

Senator PROXMIRE. You have gone over all these assumptions.

Mr. DOWNER. I am sorry. I cannot offer you that.

Senator PROXMIRE. What you are saying is there is a prospect you might have a balance. Whether that's 1 chance in 100, 1 in 1,000, 1 in 2?

Mr. DOWNER. I don't believe I would have offered the numbers if I didn't feel that there was a reasonable chance.

Senator PROXMIRE. What is that? One in three, four?

Mr. DOWNER. I'm sorry. I can't define it.

Senator PROXMIRE. One assumption you didn't make was what are your assumptions with regard to the economic outlook? One of the reasons California is using so much is because she enjoyed more prosperity. Obviously if we move in a recession, and there is a world recession, the demand will drop; isn't that correct?

WORLDWIDE ECONOMIC ACTIVITY WILL SLOW

Mr. DOWNER. Our assumption is worldwide economic activity will slow.

Senator PROXMIRE. That would help achieve a balance?

Mr. DOWNER. That would obviously have some impact on demand. There are more qualified people than me here to speak to that.

Senator PROXMIRE. What do we need to secure more production? Is the price significant? Will a higher price help? I am talking about the price of crude oil production worldwide.

Mr. DOWNER. Worldwide, as I have said, there is a world price which is significantly higher than the price of the United States for crude oil. That worldwide crude oil price will undoubtedly bring forth a considerable finding effort worldwide.

That's going to take enormous time. How much more crude can be found and developed is a very difficult thing to assess.

Meanwhile, the only spare capacity really in the world is in Saudi Arabia where the country reportedly has a capacity to produce in excess of 12 million barrels.

Senator PROXMIRE. Are there any policies in your judgment that this country could adopt that would elicit a greater production, have a significant effect on production?

Mr. DOWNER. This country's impact is really on the United States. We fully support President Carter's program with respect to decontrol and are prepared to accept the windfall profits tax if it's politically necessary.

Senator PROXMIRE. You think as far as more production, that a windfall profits tax and decontrol is the best way to go; is that right?

Mr. DOWNER. We feel the windfall profits tax from an economic point of view is not necessary; but if it's politically necessary, so be it.

Senator PROXMIRE. Decontrol you think is important?

Mr. DOWNER. Absolutely. We cannot continue to replace our declining reserves at the controlled prices that currently exist.

Senator PROXMIRE. How about in the conservation area? How can we achieve this conservation which we all agree is so important? You pointed out how much more we consume than other countries. Rationing, price?

Mr. DOWNER. It's evident price has been a very, very effective conserver of energy in countries such as Germany and Japan. Certainly that will have to play its part. You cannot have it suddenly happen.

It should be phased. The sooner the United States takes into account the real costs of energy today, the sooner we will start adjusting.

Senator PROXMIRE. Meanwhile, you favor, you say, rationing? Do you think that would help?

Mr. DOWNER. Rationing is a last resort in my judgment. There are other forms of energy such as shale, coal, solar, nuclear; and there are enormous forms of conservation. Incentives can be built that will both bring forth that production and dampen demand.

COAL, AN ALTERNATIVE SOURCE TO OIL

Senator PROXMIRE. One more question. You talked about alternative sources, coal, oil shale, nuclear, and so forth. Is there anything in the next 2 years or 3 years that would increase the availability of energy significantly in this country in the way of an alternative source to oil?

Mr. DOWNER. No.

Senator PROXMIRE. How many years out is the most likely alternative source?

Mr. DOWNER. Coal offers the best near term.

Senator PROXMIRE. What is that? Five years away? Ten years away?

Mr. DOWNER. We are building coal capacity.

Senator PROXMIRE. When you talk about liquefying, gasifying?

Mr. DOWNER. That's the highest cost alternative at the present time.

Senator PROXMIRE. How about shale?

Mr. DOWNER. That's a 7- to 8-year—if we were to go today, the first shale production would be 7 to 8 years.

Senator PROXMIRE. There's no real alternative to oil over the next 5, 6, 7 years?

Mr. DOWNER. Conservation.

Senator PROXMIRE. Thank you, Mr. Chairman.

Senator RIEGLE. It sounds to me like you said we could implement a saving by conservation that, while it's significant, will not solve the problem?

Mr. DOWNER. Five-percent conservation is 1 million barrels a day. That's half the production—that's almost equal to the production in the North Slope of Alaska.

Senator PROXMIRE. Could I ask one more question?

Senator RIEGLE. Sure.

Senator PROXMIRE. I want to ask you how you expect to get through the Memorial Day weekend?

Mr. DOWNER. Me personally?

Senator PROXMIRE. Yes. Do you think we will be in pretty good shape this Memorial Day weekend or not?

Mr. DOWNER. The lines when I left California were shorter. I genuinely believe that a fair share of people in California have their gasoline tanks filled.

There are undoubtedly going to be outages and disappointments. How severe they will be, I just don't know. I think we would recommend to the Department of Energy—Memorial Day, unfortunately, falls at the end of a month which is the transition period between one allocation period and another—that they might want to allow a little bit of flexibility to smooth that transition.

On the other hand, excessive freeing would, in my judgment, be irresponsible policy if the message to the Nation should be one of conservation.

Senator PROXMIRE. By and large, do you think we will get through fairly well, but there will be some spot outages here and there?

Mr. DOWNER. Yes. The dealers who were here earlier who are even closer to that than I am indicated the same thing.

Senator RIEGLE. They did and they didn't. We had a situation where the fellow from California said, "Don't drive on Memorial Day weekend."

Mr. DOWNER. I would say that nationwide.

Senator RIEGLE. The fellow from Virginia said, "We don't know if we can get you home."

Mr. DOWNER. Shouldn't the ethic be that energy is the base of jobs and productivity? To the extent recreation driving can be reasonably restrained, isn't that—so that energy is available for productivity and jobs, isn't that what we should be driving for?

Senator RIEGLE. Certainly one would be inclined to say that, although there are parts of the country—and there would be Senators who would come and speak passionately to the fact that there are parts of the country where the largest part of the economy is the tourism industry.

You have a whole economic infrastructure built around that. Quite apart from the merits of whether a vacation period has as much social value or intrinsic economic value as some other use of energy, you've got a very major, uneven part of the economic structure depending on it.

Trying to devise a plan that really is fair is very, very difficult.

Mr. DOWNER. I agree completely.

Mr. DOSHER. I would like to make a statement. Senator Proxmire left, but I will be dumb enough to attach odds.

I think there is a 60-percent chance we will have a shortfall of approximately 3 percent and about a 30-percent chance we will be on the razor's edge as Mr. Downer said on crude supply.

Senator RIEGLE. I am not quite sure what you mean by your second number?

Mr. DOSHER. I am just saying I think the odds are one out of three we will be on the razor's edge of the adequate supply of crude and two out of three that we will be short by about 3 percent.

Mr. DOWNER. I will break my rule and say I wouldn't disagree.

Senator RIEGLE. Let us hear from our economic, data resources person.

Mr. WHITFIELD. Thank you, Senator Riegle. I will make the odds, too, but I am not going to state them here at the moment. In terms of our analysis, we really started with Iran, which we did in January of this year.

That's the heart of the gasoline situation. Assuming normal demands which were defined as assuming we didn't have the increases in oil cost and prices due to the Iran curtailment, we would have expected the demand for petroleum to be 53.3 million barrels of oil a day in 1979.

U.S. SHORTAGE OF OIL PUT AT 2.6 MILLION BARRELS A DAY

Because of the Iranian curtailment, our analysis indicated that supply would only be 50.7 million barrels a day, indicating a gap of 2.6 million barrels a day.

Let me restate the assumption on demand which assumed the December announcements from OPEC would continue throughout the year which would be less than a 15-percent increase in oil prices over the year.

Our analysis now, of course, looking after the fact, is that the 2.6-million-barrels-a-day gap is now down to about 1 million barrels a day, slightly over 1 million barrels a day.

That is mostly due to allocations here and abroad, in other words, rationing, and due to price increases.

In terms of the United States, our analysis indicates that the amount of oil which we are shy amounts to slightly more than half a million barrels of oil a day this year.

That's petroleum, not gasoline.

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Turning to refining capacity, we talked mostly—I am skipping some of the economic analysis. We did this looking at Japan, Canada, Europe, and the United States in terms of looking at the economic impact.

I am attempting to highlight only the gasoline use here today.

Turning to refining capacity, we talked about the lead additives policy and the banning of MMT having an impact on octane capacity. This is another contributing cause of the problem today.

Turning to Government policy as a third—let's say—cause of the problem today, we have a number of conflicting regulations, a few of which have been rectified.

To start off with, in the aftermath of Iran, the Department of Energy urged oil companies not to enter the spot market for oil in hopes of not contributing to inflation here and in hopes of not supporting the spot market. In hindsight, of course, it was a futile attempt not to do so. We more or less altered the policy now by asking companies to enter the market if they can and if they choose to. However, we don't think that this is a short-term nor a long-term solution to the problem.

There just is not enough oil out there to balance supply and demand.

Second, decreasing the use of lead and other octane-boosting additives have forced increased utilization of more fuel-intensive technologies in refineries. This is a policy which ought to be looked at in light of the current gasoline situation, although DRI clearly feels this is a very difficult road to follow. There are clearly conflicting policies with regards to the environment and gasoline use.

Fourth, we heard a little bit about allocation formulas. Our analysis supports the position of the gentleman from Arco who stated we have to look at expected levels of demand as opposed to historical levels of demand in trying to design allocation policies.

A fifth element which I don't believe was mentioned is that we do have a small refiner bias in the entitlements system which encourages the building or investment in a segment of the refining industry which is octane-deficient and usually quite incapable of producing the kind of gasoline that we need.

With regard to hoarding, and topping off the tanks, I think the issue is quite clear. We have quite a lot of gasoline in inventory in people's cars. We would estimate this to be about 2 million barrels of gasoline additional in consumers' cars in the State of California.

Nationwide, if we continue to see panic buying, we could estimate this to be about 15 million barrels of gasoline in consumers' cars which is just withdrawn from stocks and put into cars.

We need to develop policies that will discourage hoarding.

In terms of what the Government can do, we know that stocks of oil are down; we know stocks of gasoline are down; we know stocks of unleaded gasoline are particularly pinched. We also know about the stocks of distillate. I won't review those. They are within my testimony here.

In terms of what can be done, we need to consider a number of things. One of them being temporary waivers on the lead phasedown issue and MMT regulations.

We need to consider instead of a maximum limit on gasoline purchase, a minimum limit in terms of enforcing it. That's a problem I think we have to come to grips with.

We need to liberalize the goals on distillate stock rebuilding. There's a tradeoff between building up distillate stocks and consuming gasoline.

NEED TO ENCOURAGE STRICT CONSERVATION

Last, certainly not the least—in fact, it's probably the most important—we need to encourage strict conservation.

DRI's estimates of the elasticity, by the way—which was mentioned earlier—let me address that question now.

The elasticity of demand for gasoline is very, very low. Our quantitative estimate of that is −0.12—on an annual basis, which means that 100-percent increase will only reduce demand by 12 percent or an 8 to 1 ratio.

That's over the course of a year. Over the course of a month, the ratio is, of course, quite smaller. It would take a 15-percent increase in price to reduce consumption by 1 percent.

Senator RIEGLE. Hasn't that also been the experience in other industrialized countries where the base price is much higher? I am told, for example, in France where the price, I gather, is close to $2.50 a gallon that the sales are up?

In other words, the price elasticity just doesn't bite in at that level. If it doesn't bite in at the $2.50 level in the European countries, it's hard for me to imagine it will bite into it here.

Mr. DOWNER. Because they have lived with prices of that nature for a long time, they built their entire automobile fleet on a much more efficient basis.

Senator RIEGLE. I understand. Even so, it's significant that there is no more price elasticity at those levels, even given the higher efficiency. Any car they can buy, we can buy. It's getting harder to buy those cars at the moment.

Mr. DOSHER. The only impact we see is when they come to buy a new car. They will buy a more efficient car but not buy less.

Mr. WHITFIELD. I had one comment which will end my remarks, if I could.

That is in the longer term, we do see that the price of gasoline does have an impact on the turnover of the capital stock. That's where we can see some longer term conservation effects coming into play.

In conclusion, it's DRI's analysis the problem is not just of this year. It will continue for several years with gasoline. Of course, with energy in the longer term.

Our basic point of view is that we have a continual, gradual embargo of the petroleum. We have to learn to live with that and adopt policies to live with it.

This is a basic change in the structure of the petroleum markets.

[Complete statement of Mr. Whitfield follows:]

TESTIMONY BY DR. RONALD M. WHITFIELD, VICE PRESIDENT,
DATA RESOURCES, INC.

Gasoline shortages in 1979 are a reality, and the specter of long, angry lines at the gas pump have brought the energy crisis back into living rooms of U.S. families and the board rooms of U.S. corporations. The fact that the U.S. is suffering from a continuing gradual embargo must be recognized by consumers and policy makers alike, and appropriate steps taken to deal with this situation. I would like to present DRI's analysis of the current crisis, indicating the primary causes and extent of the problem, and outlining some of the steps that could be taken to get us through the summer and winter of 1979.

Major Causes of the Shortage

Even if nothing had gone wrong in petroleum markets in 1978, the U.S. was in danger of a gasoline shortage in 1979, due primarily to inadequate refining capacity and the impact of EPA regulations on lead and other gasoline additives. Two years ago, in DRI Autumn 1977 Energy Review, we forecast the following:

"Fluctuations in the gasoline market could surface in 1979 . . . If, as expected, the EPA implements the full lead reduction program, and bans MMT (a substitute for lead in producing high-octane gasoline), there would be a gasoline shortage of from 300 mbd to 500 mbd by 1979 because refiners would be unable to produce sufficient low-lead gasoline at the required octane levels." (James Osten, "Petroleum Cycles and Trends," Data Resources, Inc. Energy Review, Autumn 1977, p. 23)

Our analysis in subsequent forecasts repeated the warning, indicating that planned capacity expansions and more flexibility in EPA gasoline additives policies could avert a crisis. Unfortunately, another unanticipated event intervened that made the problem acute and a shortage all but unavoidable. This event, of course, was the political disruption in Iran and the subsequent crude oil shortage.

There are four major causes of the current gasoline shortage:

Iran
Inadequate gasoline refining capacity
Government policy
Hoarding

Iran

The political turmoil in Iran and the subsequent interruption in crude oil production is the primary reason for the current problem. Increased production from other OPEC nations have not been sufficient to satisfy worldwide demand for petroleum. Tables 1, 2, and 3 present DRI's February 1979 analysis of a partial cutback in Iranian oil production on the supply/demand balance of petroleum. It shows that prior to the January 1979 price increase, the shortfall in world oil supply would have amounted to 2.6 mmbd this year. Given large increases in price, DRI estimates that the shortfall in world crude oil supplies is approximately 1.0 mmbd, of which the U.S. share is 0.5 mmbd.

TABLE 1

Free World Petroleum Demand
(Under Normal Conditions,
Million Barrels per Day)*

	1973	1977	1978	1979	1980	1981
U.S.	17.3	18.3	18.7	19.0	19.4	19.8
Canada	1.7	1.8	1.9	2.0	2.1	2.2
Japan	5.5	5.4	5.5	5.6	5.8	6.0
W. Europe	15.2	14.2	14.6	15.1	15.6	16.0
Other	6.9	8.0	8.4	8.8	9.2	9.6
OPEC	1.7	2.3	2.6	2.8	3.0	3.2
Total Demand	48.3	50.0	51.7	53.3	55.1	56.8

Source: Historical data from International Energy Statistical Review, National Foreign Assessment Center; projections by James Osten of the DRI Energy Service for the partial cutback case.

Normal conditions assumes that the price trajectory of the December OPEC meeting is followed.

TABLE 2

Free World Petroleum Supply
(Million Barrels per Day,
Partial Cutback Scenario)

	1973	1977	1978	1979	1980	1981
Supply, Non-OPEC						
U.S.	11.5	10.1	10.7	10.7	10.5	10.7
Canada	2.1	1.6	1.6	1.8	1.8	1.6
W. Europe	0.4	1.4	1.8	2.4	2.7	3.0
Mexico	0.6	1.1	1.3	1.5	1.9	2.2
Other	3.1	3.8	3.9	4.1	4.2	4.4
Net Communist	0.9	1.0	1.0	1.0	1.0	1.0
Total Non-OPEC	18.5	19.4	20.3	21.5	22.0	22.9
OPEC Production						
Saudi Arabia	7.7	9.4	8.3	9.5	9.5	9.5
Kuwait	3.1	2.0	2.1	2.3	2.3	2.3
Libya	2.2	2.1	2.0	2.1	2.1	2.1
Iraq	2.0	2.5	2.6	3.4	3.6	3.8
UAE	1.5	2.0	1.8	2.0	2.0	2.0
Algeria	1.1	1.2	1.2	1.2	1.2	1.2
Qatar	0.5	0.5	0.5	0.5	0.5	0.5
Iran	5.9	5.7	5.1	1.5	4.2	4.2
Venezuela	3.4	2.3	2.3	2.3	2.3	2.3
Nigeria	2.1	2.1	1.9	2.3	2.3	2.3
Indonesia	1.3	1.7	1.7	1.7	1.7	1.7
Grabon	0.2	0.2	0.2	0.2	0.2	0.2
Ecuador	0.2	0.2	0.2	0.2	0.2	0.2
Total OPEC Supply	31.3	31.9	29.9	29.2	32.1	32.3
TOTAL SUPPLY	49.8	51.3	50.2	50.7	54.1	55.2

Source: See Table 1; projections relate to partial cutback case.

TABLE 3

Free World Petroleum Balances
Under Assumed Iranian Shortfall
(Million Barrels per Day)

	1973	1977	1978	1979	1980	1981
World Demands (Under Normal Conditions)	48.3	50.0	51.7	53.3	55.1	56.8
World Supplies						
Non-OPEC Supplies	18.5	19.4	20.3	21.5	22.0	22.9
Available OPEC	31.3	31.9	29.9	29.1	32.1	32.3
Iran	5.9	5.7	5.1	1.5	4.2	4.2
Saudi Arabia	7.7	9.4	8.3	9.5	9.5	9.5
Other OPEC	17.7	16.8	16.5	18.2	18.4	18.6
Total Supply	49.8	51.3	50.2	50.6	54.1	55.2
Inventory Change/ Shortfall	1.5	1.3	1.5	-2.6	-1.0	-1.6

Source: See Table 1

Oil production in Iran during April reached well above the 4 million barrel per day (mmbd) mark at times, but the official level that will be sustained will be lower: either 3 or 4 mmbd, according to varying public pronouncements. The exact level of exports has not yet been verified, i.e., whether all oil in excess of the 0.7 - 0.8 mmbd domestic requirement is being exported.

Early reports indicate that world production during the two months of the Iranian crisis -- January and February -- actually exceeded that of the same period a year earlier, despite the lack of Iranian oil. However, we feel that more complete data, when available, will show that this production was insufficient to offset world demand growth and thus prevent the current supply tightness.

Refining Capacity

Given sufficient crude oil, refining capacity appears to be barely sufficient to meet the demand for motor gasoline, particularly unleaded. As discussed below, refining capacity is strongly influenced by government policy, particularly cost passthrough regulations that appear to discourage investment in new gasoline capacity, EPA regulations that phase-out lead and ban MMT, and persistent growth in gasoline demand have put increased pressure on gasoline supplies and limited refinery expansions that would increase production of high octane stocks. Table 4 illustrates the pressure put on gasoline production, as most refinery investment has been made in small refineries and upgrading existing ones.

TABLE 4

Gasoline Demand Growth and Refinery Capacity
(Million Barrels Per Day)

	Demand		Domestic	Domestic Production as a Yield (Percent) on Crude Runs	Refinery Total Crude Oil
	Total	% Unleaded	Production	to Stills	Capacity
1971	6.0	--	6.0	46.8%	13.3
1976	7.0	21.6%	6.8	45.5%	15.9
1978	7.4	33.9%	7.2	44.1%	17.2
Annual % Change	3.0%	--	2.6%	--	3.7%

Source: Department of Energy, American Petroleum Institute and the Oil and Gas Journal

Notes:

(1) The last large grass roots refinery was started in 1971.

(2) Total refinery capacity includes many very small refineries which produce a low yield of gasoline. Consequently, the production of gasoline has fallen relative to crude oil runs. The elimination of MMT and phaseout of lead additives also reduces gasoline yields.

Refinery runs have been averaging from 83% to 87% of capacity in 1979. There have been a few production problems, not uncommon in any industry, that have lowered these rates, but they have not been significant. It appears that even without Iran, the U.S. would be pinched to produce sufficient gasoline to meet demand. Unleaded gasoline demand is growing faster than supply, and stocks of unleaded gas are uncomfortably low.

Government Policy

A number of government policies have contributed to the current gasoline problem. First, in the aftermath of Iran, the DOE strongly urged U.S. oil firms to refrain from buying crude oil on the spot market at prices well above official contract price levels. Figure 1 indicates the magnitude of the price fluctuations for spot cargoes in Rotterdam. The basic notion behind this stand was the desire on the part of the U.S. Government not to subsidize the spot market through the entitlements system. This policy has recently been reversed.

Second, decreasing ease of lead and other octane-boosting additives have forced increased utilization of more fuel-intensive refinery processes, thereby increasing the crude required to produce a given product slate.

Third, the last passthrough regulations for gasoline have generally discouraged investments in the process units required for the production of high octane blendstocks. The recently enacted "tilt" mechanism at least partially addresses this problem, by allowing a greater percentage of refiner costs to be passed through to gasoline prices, recognizing that gasoline costs more to produce than average refinery product.

Fourth, the allocation formulas have generally become out-of-date, have failed to reflect recent population shifts, and have been based on historical as opposed to projected demand levels. The DOE has recently revised the formulas. High growth states, like California, tend to be penalized vis-a-vis slower growth states.

Fifth, the small refiner bias in the entitlements program has encouraged investment in a segment of the refinery industry that is octane deficient, that is to say, most small refiners cannot produce much gasoline.

Hoarding

The current situation in California is clearly a case of panicky consumers hoarding gasoline, which only makes a bad situation worse. It is analogous to all customers asking to withdraw their money from the bank at the same time. Total U.S. gasoline demand (as measured by disappearance from primary stocks) grew by 3% in the first quarter of 1979. In California, the rate of growth during the same period was 8%. In California, the average purchase per fill-up has dropped from about 14 gallons to 4, so that the average inventory of gasoline in customers' cars is increased by as much as 5 gallons per vehicle. Depending on the timing of this build-up, this panic "buying" could explain as much as 30% to 40% of the apparent higher California demand growth.

Where We Stand Today

Analysis of the current data suggests the following:

Crude Oil. Stocks dipped precipitously following Iran, and have been rebuilt to slightly more than 320 million barrels as of the middle of May. This is a very tight supply position, especially when one considers the increase in required working stocks of crude due to the Alaskan pipeline (Figures 1-3), and the large quantity of crude oil in transit or awaiting shipment.

Motor Gasoline. Demand for gasoline has been higher than anticipated for the first four months of 1979, which has caused a greater-than-expected drawdown in stocks. Gasoline stocks today are about 15 to 20 million barrels below normal levels at this time of year. Unleaded stocks at 63 million barrels, are 27% of total gasoline stocks but unleaded demand is nearly 40% of demand (Figures 4-7).

Distillate. Demand for distillate fuel is following the normal seasonal pattern, but stocks of distillate at 115 million barrels are about 25 million barrels below normal. Distillate stocks are normally increased by 100 million barrels between April and October. To reach a desired level of 240 million barrels by next October, stocks will have to be increased by 125 million barrels this year, thus further reducing gasoline production. Distillate imports, after showing a counter-seasonal drop in the winter months during the peak crude disruption, are now showing a sharp counter-seasonal rise, indicating that U.S. buyers are contributing to the sharp rise in foreign spot prices (Figures 10-13).

What Can Be Done?

There are several steps that can be taken to avert a crisis, although probably nothing can be done to avoid some spot shortages.

Crude Shortage. U.S. companies are more actively entering the market for spot crude cargoes, with predictable results on prices. Since the spot market is so thin, this can only be done sparingly and should not be considered a viable longer-term option.

Government Policies. Several government policies should be considered:

- Temporary waivers on lead phasedown and MMT regulations.
- Minimum gasoline sales as opposed to maximum limits, in order to discourage hoarding by consumers.
- Liberalize goals to rebuild distillate stocks.
- Conserve, by strict enforcement of speed limits, and any other policies to discourage fuel use.

On the price question, let me add that our estimate of the short-term elasticity of demand for gasoline is very low, so that price increases alone cannot be expected to clear the market in the short term.

In conclusion, let me add that DRI's assessment is that some spot shortages of gasoline this summer are inevitable. However, if we are living in a world of a continuing gradual embargo of crude oil, then we must expect this problem to recur again next summer and probably again in 1981. In the short run, price increases cannot be expected to clear the market, but in the longer term, higher gasoline prices will result in noticeable demand reductions and a switch to more fuel-efficient vehicles. Let us not forget that the real price of gasoline in 1978 was no higher than it was in 1967, five years before the embargo.

FIGURE 1

Average Bulk Gasoline Price
Barges F.O.B. Rotterdam

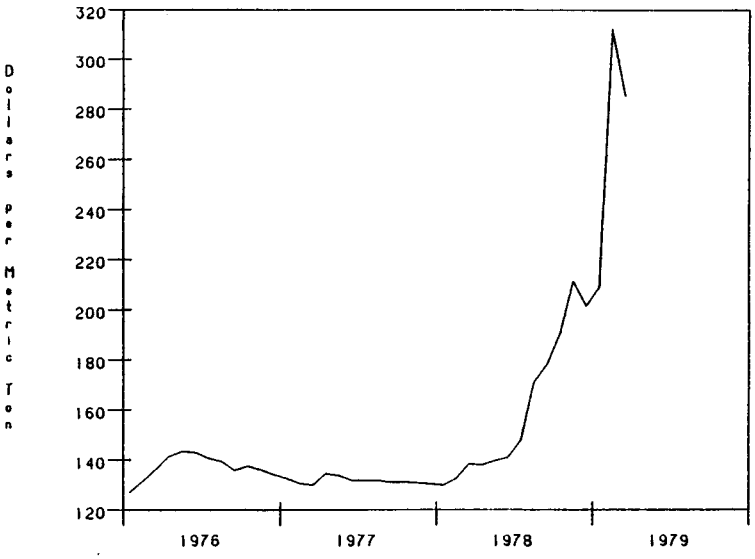


FIGURE 2

Average Regular Gasoline Sport Cargo Price
New York Harbor

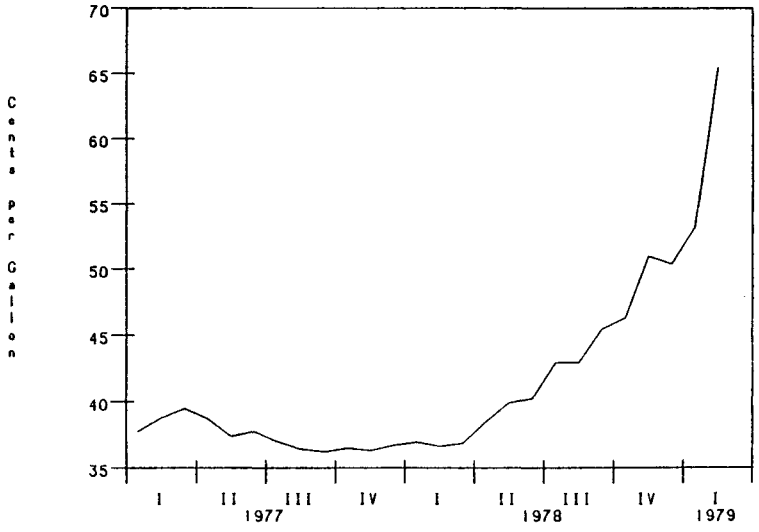


FIGURE 3
Crude Oil Stocks

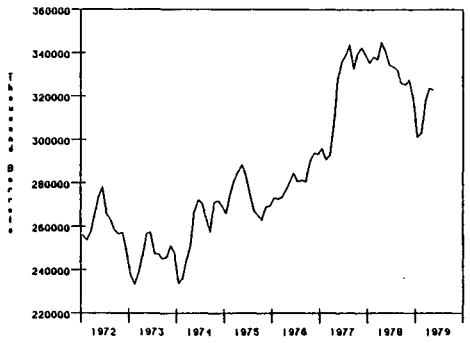


FIGURE 4
Average Daily Crude Oil Production

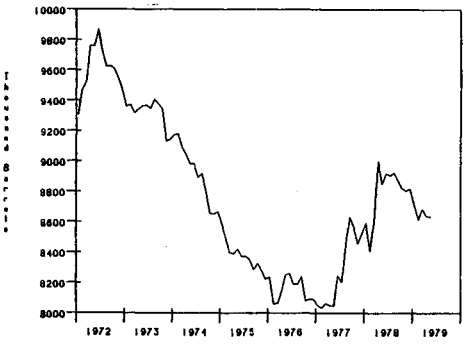


FIGURE 5
Average Daily Crude Oil Imports

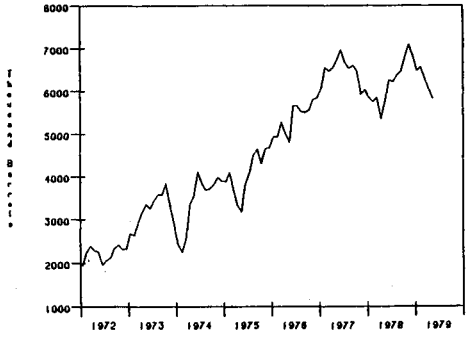


FIGURE 6

Average Daily Distillate Fuel Demand

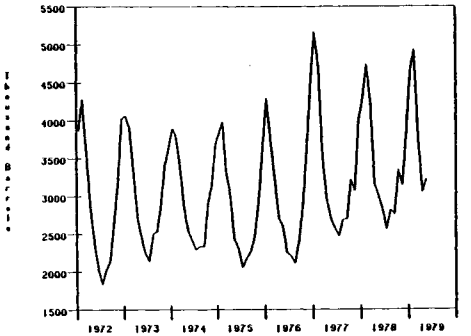


FIGURE 7

Average Daily Distillate Fuel Production

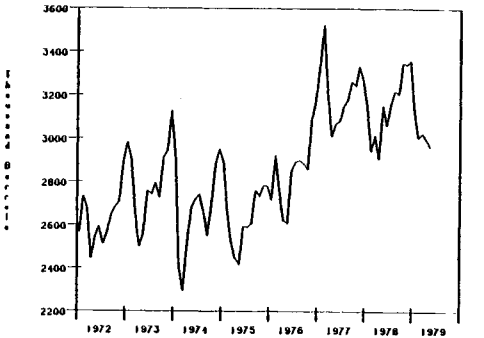


FIGURE 8

Stocks of Distillate Fuel

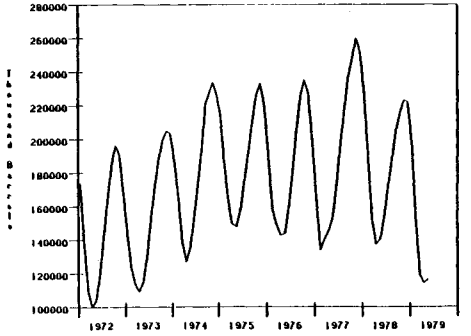


FIGURE 9

Average Daily Imports of Distillate Fuel

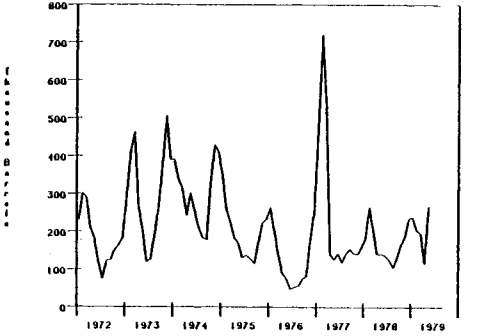


FIGURE 10

Average Daily Motor Gasoline Demand

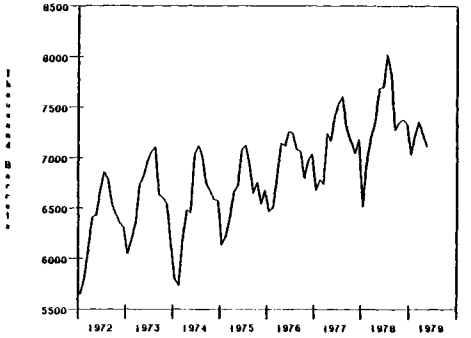


FIGURE 11

Average Daily Motor Gasoline Production

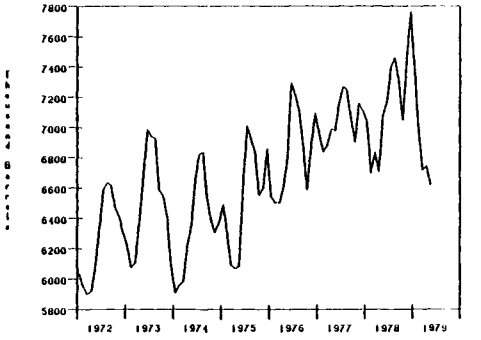


FIGURE 12

Stocks of Motor Gasoline

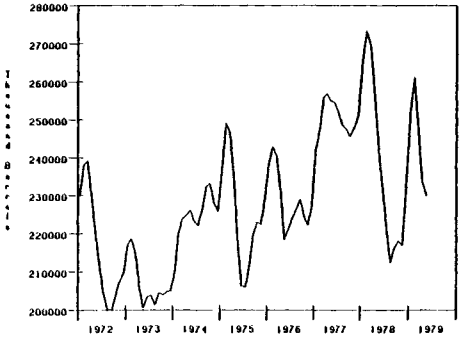
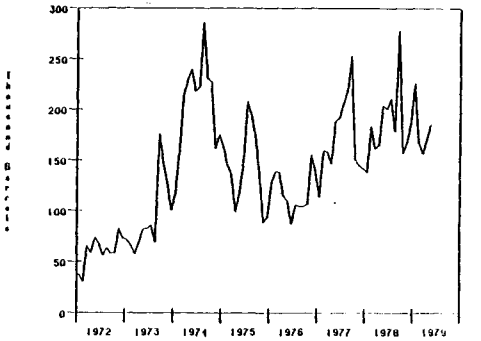


FIGURE 13

Average Daily Imports of Motor Gasoline



Senator RIEGLE. I am interested in having each of you indicate what you think is likely to happen in light of the uncertainties. What would you anticipate in the way of retail price levels for gasoline by the end of this year?

Some of the retailers said there were cases where the price at retail was as high as $1.40 a gallon. It was above $1 in a number of places.

Where are we headed in terms of retail prices of gasoline at least on the average? What can we foresee?

Mr. DOWNER. Well——

Senator RIEGLE. Not necessarily in terms of your own firm, but overall.

Mr. DOWNER. May I say with respect to our own firm, we are under the Department of Energy regulations. We are under the Council on Wage and Price Stability regulations. Basically we are unable to raise our prices for petroleum products for gasoline, at least; the other products are decontrolled at this stage of the game.

We are unable to raise those in excess of our cost increases taking into account the cost tilt.

We still also have to stay within the guidelines of the Council on Wage and Price Stability, which guidelines provide for the pass-through of increased raw material costs; otherwise, we'd have been out of business.

OPEC MAY RAISE OIL PRICE TO $20 PER BARREL

If you assume that the OPEC price settles on something on the order of $20 a barrel, that's a $6 increase in the price of crude oil which translates to 15 cents per gallon.

We are an importer of almost half of our petroleum, so that world price is going to be reflected in that one-half.

There is a portion of uncontrolled oil in this country which will reflect that price. We are looking for a price which will track the rise in the world price of crude oil.

Senator RIEGLE. The OPEC meeting that is upcoming, the pressure, the spot market price all pulling up the base price, if we get up in the range of $20 a barrel in terms of the base price—which I gather is not out of the question—that maybe we are talking about how much over 6 months period of time as it would work its way through to the retail price of gasoline?

Mr. DOWNER. I haven't made that calculation, but it could be fairly precisely made, because it would be a reflection of the amount of OPEC or world price oil that came into this country and the amount of deregulated domestic crude oil. Those prices would be passed through.

Senator RIEGLE. Would it be fair to say that that price ought to be less than, say, $1.25 a gallon? $1.30 a gallon? Would it be below that level?

Are there circumstances under which it could be higher than that?

Mr. DOWNER. No. In contrast to our friend from California who talked about $1.40 gasoline at the pump, this Los Angeles Times authoritative article quotes the average price of gasoline in the State of California at 85.5 cents.

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My observation of service stations indicates that that sounds like it's about right. If you get a $6 per barrel crude price increase in the world outside of the United States, as I said that's 15 cents a gallon, a portion of that due to the extent that we use foreign crude, and use crude oil that moves with the world oil price domestically, a portion of that is going to reflect the rise.

Senator RIEGLE. It sounds to me, recognizing that that is not by any means certain, that $1 a gallon gasoline is not far away?

Mr. DOWNER. Yes, sir.

Senator RIEGLE. It sounds to me like we might be there before the year is out? You are all nodding in the affirmative?

Mr. WHITFIELD. Our estimate is about $1.10 by the end of the year, on the average. It will be less than $1 for the full year.

Senator RIEGLE. DRI says $1.10 by the end of the year?

Mr. WHITFIELD. In June, we have it up to $16.50 a barrel. About $19.80 by the December meeting of OPEC.

Senator RIEGLE. We have to make a calculation of what the economic effect of that would be within this 6-month time frame. There is data accumulating to the effect that the predicted recession may be taking shape. This certainly will add to the recessionary pressures if we have that kind of price increase and outflow of dollars.

Mr. DOWNER. Let me say that a huge portion of that increased revenue in fact typically, the petroleum industry in the United States has been spending on capital expenditures in excess of their internal cashflow with the result that their debt ratios have risen from a sound level to one that in many instances—and in the instance of my own company—threatens our bond rating.

So to the extent that those revenues are reinvested in our economy—and that has been the pattern of the energy industry, the petroleum industry—those dollars go back into the productive process in this country.

Senator RIEGLE. That's, of course, not true of the dollars that go to OPEC?

Mr. DOWNER. Not at all.

Senator RIEGLE. The increment we are——

Mr. DOWNER. We have $15 billion flowing out because of our purchases. To the extent we become more self-sufficient and encourage that, we would rectify that problem or ameliorate it at least.

Senator RIEGLE. One other thing. You may not feel comfortable with responding to this. Obviously from the picture that develops, the situation in Saudi Arabia is really crucial.

If there is one decision center upon which the whole situation seems to hand, it's there. Do any of you have any sense for what may be happening there, that you are seeing through your own windows, as to what is likely to take place or what is taking place?

We obviously have our own sense for it here.

Mr. DOWNER. Your views are as complete, I would think, as mine and those of my company. We have no direct operations in Saudi Arabia. Obviously we try to follow the situation as closely as we possibly can.

SAUDI ARABIAN LOGIC

I believe if you look at the Saudi Arabian logic, particularly after seeing the experience in Iran where a country attempted to move forward industrially at an extremely rapid pace, and when you consider—I believe our economists would indicate to me that Saudi Arabia, at prices which were prior to the recent surge in prices, could meet all of their foreseeable internal capital requirements to bring a relatively sparsely populated nation forward, with something on the order of 4 million barrels a day of production, as opposed to their present 8.5; and when you consider that to the extent they produce that oil, turn it into dollars which are depreciated dollars and expend barrels of oil which are appreciating barrels of oil, I have to admit that there is a great deal of logic in their point of view of restraining production to reasonable levels.

On the other hand, I would like to say to their credit that their conduct has been enormously responsible. There have been a series of episodes over the past few years where Saudi Arabia could have blown the whole ballgame.

So I think in our dealings with them, we must give them enormous credit for their basic stability and recognize their point of view and hopefully develop balanced policies which will compromise the two points of view.

Senator RIEGLE. Just as a final item, would you all agree with this statement, this assessment: That, in fact, we do have an energy emergency on our hands; that some days in some ways, it may be hard to see. On other days, it may be easy to see.

The basic fact of the matter is we are really in a supply emergency situation that is going to be with us for the indefinite future and that the economic consequences of this are also what you might call emergency-type conditions?

If that is so, that there really is no higher priority in the country right now to getting a competent effort together that really gets all the principal players involved intelligently in an overall plan that can work?

By that, I mean not just the Department of Energy or just the Federal Government principals in terms of the Congress and the executive branch, but I would gather that that also needs to include the private sector, it needs to involve the refinery people, it needs to involve the producers within the country?

It obviously has to include the dealers as well, other experts in and out of the private and public sectors?

Unless we get that kind of team established—and fast—so that we can find a way to start cross-wiring so we don't have to run through all of these bureaucratic difficulties that exist or the lack of linkages between these various sectors, it seems to me that we have to get the players together immediately and operate in the most sophisticated way and on the basis of the most accelerated time frame?

Everything I have heard today confirms the need for that kind of an approach to this problem. Anything less than that is just not going to do it?

Mr. DOWNER. Senator Riegle, I couldn't agree with you more. We have to build a national consensus; and we have to lift this issue above the day-to-day political rhetoric.

The skills and resources are available in this country. It's a question of our mobilizing them equitably.

Mr. DOSHER. I agree also, Senator. One point I would like to make in light of this teamwork concept, all our work indicates after certain incentives are provided for additional energy, then you immediately run into the stone wall of the very, very difficult environmental permitting process in which you could have incentives tomorrow and not a darned thing would happen.

It would still be 2, 3 years before—with the present regulations, the intervenors, the courts, before anything would happen, just strictly due to the environmental problem.

It is going to take a total teamwork effect.

We are going to have to take some risks with the environment, I think, or we are going to have some hellish risks with our economy.

We have to make a choice.

Mr. WHITFIELD. You have all the interest groups intertwined in this tremendous problem which cannot be easily unraveled. It takes an element of statesmanship, an element of cutting through the interest groups to get the parties to talk to each other in a way which can make long-term sense for the U.S. economy.

POTENTIAL RECESSION CAUSED BY ENERGY

We are facing, I think a potential recession this time, caused by energy, by long lines at the gas pump, causing consumers to pull back in terms of retail spending, consumer spending.

It's a psychological impact which can't be measured quantitatively very well, but you have that kind of situation.

Right now it's a short-term problem. It's much more of a long-term issue.

Senator RIEGLE. A subcommittee like this one can hold hearings to try to establish need and to try to get the principal players at least in the room to discuss it and cross-reference the situation; but the President, or the Presidency, has to take the lead in pulling this consortium effort together.

You have got problems with antitrust, if the industry tries to do it on their own, just as we do in the automobile industry.

Certainly, Congress is not well-situated to do that. You really have to look to the executive branch to spell out an overriding national priority that requires that kind of a consortium effort.

The concern that I have is that I am not sure that that perception has made its way to the decisionmakers who would have to decide that, who can assemble the players.

I think it's also fair to say that that team of players is not presently assembled. There is no consortium of that sort today.

I suspect that when one pursues it a little further, that even the question of whether or not to go out and buy world crude at a given time is not necessarily done in writing.

I suspect they are done verbally.

That may be one way to do it, but I think if it's not followed by a piece of paper that locks people in, so we know what we are doing and why, that that is not a very good way to operate.

In any event, I gather you are also saying you are all willing, to participate.

Is it your sense that all the principal players within the energy area would be willing to come forward and take part on this basis, if they were asked?

Mr. DOWNER. Absolutely no question but what that is the case.

Senator RIEGLE. In other words, the national decision has to be made, and somebody has to pull this together?

Until that time, I gather we are going to continue to slip further behind in terms of really addressing this thing?

Mr. DOWNER. Time is precious.

Senator RIEGLE. Well, I thank you very much.

You have been very helpful, coming on such short notice. I appreciate it very much.

We will have additional questions we will want to have you respond to for the record.

We will try to get those quickly to you.

I want to now call our last witness to the table. In so doing, I want to thank him for his patience this morning.

Our hearing has run longer than we anticipated.

Mr. Bardin.

STATEMENT OF DAVID BARDIN, ADMINISTRATOR, ECONOMIC REGULATORY ADMINISTRATION, DEPARTMENT OF ENERGY

Mr. BARDIN. Thank you very much, Mr. Chairman.

Senator RIEGLE. What I would appreciate, being from the Department of Energy, is an assessment for the Memorial Day weekend, for the balance of the summer?

Where are we headed? What steps need to be taken?

I would welcome your testimony.

Mr. BARDIN. With your permission, I would ask that my detailed statement be introduced in the record as if read.

Senator RIEGLE. It will be.

Mr. BARDIN. I am David J. Bardin, Administrator of the Economic Regulatory Administration of the Department of Energy.

You heard, I am sure, that our basic problem is that the crude supplies, the crude oil supplies available to this country, the refineries in this country, are constrained.

There has been something like 200 million barrels or less produced since the Iranian turmoil in the fall of last year than would otherwise have been produced.

This is a burden on the world oil supply and a problem for ourselves.

We ought to keep that in proportion.

The shortfall is measurable, but not extraordinary. This is a problem that is within the capacity of this country, the economy of this country, and world economies, to cope with.

It's exacerbated, of course, by the price index on the international oil prices.

INCREASE IN CRUDE OIL SUPPLIES

Looking ahead, in all likelihood, we will see some increase in the crude oil supplies to our refineries, subject to the decisions that have to be made by the oil producing countries in the months ahead.

We believe that we bottomed in April about 4 months after the Iranian situation developed, just as happened in the case of the oil embargo back in 1973-74.

It takes about 4 months for the worst to work through the transportation and delivery system.

The increases in supply will be moderate. They will not be spectacular. They will not be a panacea in our judgment.

The problems should be understood in terms of the inventories that the various refiners have at the secondary inventories or terminals.

The inventories of distillate are too low. They were drawn down heavily in the second half of the winter which turned out to be colder than normal, although the first half of the winter had been warmer than normal. We have to build up the distillate inventories.

The inventories of gasoline and crude oil are more satisfactory.

In understanding what is happening, we ought to give some attention to the dynamics of petroleum refining and marketing.

We produce almost all of our petroleum products, with the exception of residual oil. The imports of residual fuel oil, heavy fuel oil, used by utilities, industries, and others, are substantial.

The imports of gasoline, the middle distillate oils, and others are relatively small.

The supply, which is basically refined supply in the United States is fairly steady in the case of distillate the year round, a little higher in the winter.

The consumption is much higher in the winter.

In the case of gasoline, the consumption is highest in the driving season, which we tend to think of as a summer driving season, although it's become more and more spring, summer, and fall.

The production goes up substantially, as we enter the driving season.

There is going to be an increase in the production of gasoline that's taking place now. It is a normal way of managing the petroleum supplies and the refining facilities of the country. That must be tempered, however, and managed in a way that meets the other needs, notably the middle distillate needs not only for diesel fuel now, for farming, transportation, and other purposes; but for home heating oil next winter.

As we look ahead, there is a good chance for some measured increase in gasoline supplies over the next few weeks. We do not, however, anticipate that we will have sufficient added gasoline supplies to allow for the kind of growth in consumption of gasoline that took place last driving season or would normally be expected to take place in driving season.

In other words, in order to cope with the situation, we as motorists will have to use about 5 percent less gasoline throughout the

driving season than we would otherwise have used if we hadn't had this problem striking the U.S. economy.

That means that we will have to use a little less gasoline than we did in the last year; not spectacularly less, but noticeably less gasoline than we did last year, perhaps 2 or 3 percent less gasoline than we did last year.

How we do that involves decisions by 150 million motorists, by hundreds of thousands of business firms, by thousands of county and municipal governments as well, of course, as State governments and Federal organizations.

Because there are so many decisions to be made by so many people, it would be physically impossible to dictate those decisions out of Washington even if we as a democracy wanted to do that.

The decisions have to be made at the State level, at the local level, at the business community, chamber of commerce level, the municipal government level, and ultimately the individual family and motorist level.

We are asking the American people to cut down somewhat on the use of our cars throughout this driving season. That can be done. I think it is being done in many situations; and with that, we can minimize the danger of the very difficult problematic kind of lines that we have seen in various places in California and for a while were beginning to build up here in this metropolitan area.

The lines are a function of two different problems: One, you have the slight shortfall in petroleum product, in gasoline.

Two, you have people reacting—understandably—by trying to top the tank, trying to keep it full all the time. We had one dealer in California who told us about a 37-cent sale of gasoline. The delivery system is simply not capable of managing that adequately. We live for a 2, 3-day turnaround in gasoline. We simply cannot get gasoline from the refinery to the terminals to the filling station pumps quickly enough to keep everybody's tank full all the time or to have them served from the filling station.

You have the same kind of situation in diesel fuel, though. We can't keep every tank on every farm, in every terminal, in every truck stop, in every bulk customer's shop, every utility, generating station filled to the brim with diesel all the time. It cannot work out that way.

Senator RIEGLE. Let me just stop you there. There is a certain logic to what you are saying. If everybody fills up, whether it is a storage tank, or their own gas tank, you get a big one-shot drain of supply in the system. Isn't it a one-time adjustment basically?

After you have digested that, you are back to a more normal replacement routine?

Mr. BARDIN. If you look only at the first problem, Senator Riegle, I would agree with you: The problem on the constraint of overall petroleum supply of the one-time fill-up phenomenon. It would drain it once, cause a strain, and wouldn't be that serious; although in the case of diesel, for example, when we start with stocks which are already too low, below the acceptable level at the end of winter, that's a very severe and unfortunate strain.

However, if people keep returning to the pump for half a gallon, or a gallon rather than the normal way of letting the tank go

down, that means an awful lot of extra customers hitting those pumps more and more times.

You have the transaction problem of managing the millions of motorists involved. It is what the analysts call a queueing problem.

My analogy would be of a cafeteria. Even if there is enough food coming into the kitchen, and enough cooks to cook it on a normal schedule, if all of us came on line and asked for the bread separately, paid for it, went back to our seats and went back for fish, then went back a third time for peas, and a fourth time for potatoes, a fifth time for coffee, and a sixth time for pie, that line at the front of the cafeteria would get to be awfully long. You couldn't physically manage it.

Our problem in the energy cafeteria of America is that they are delivering just a little bit less food to the kitchen than we might otherwise want.

It is the sort of thing we can easily diet down and live with; but if we all queue up for separate orders of each dish, each part of a meal we want, the system for filling the plates and charging at the cash register just can't handle us. That causes the long lines.

If you have ever been in that situation, you know that logic is one thing and the feeling inside is another. People who know the logic, people in this business will tell you that when they are actually driving the car down the street, even though the gas tank is just about full, the temptation to go in for another gallon or two is enormous.

SELF-CONTROL NEEDED

It takes either great self-control or the return of calm as one sees the system beginning to work in the usual way.

It is very important that we have this kind of return of calm which is beginning to catch on according to our reports from Los Angeles, for example, over the last weekend. A great reduction in the amount of driving going on over the last weekend. I have heard statements of as much as 25 or 30 percent reduced driving in Los Angeles.

That means that the lines on Monday get much shorter. That means that the stations can remain open for more hours and have gasoline to sell. Then it is not so important to get there first thing in the morning.

Now you asked me, Mr. Chairman, about Memorial Day weekend. We've got to show the same kind of self-restraint that we are beginning to see from places in California and reports over the last weekend from the Washington, D. C. area and others.

Think twice whether a trip is really necessary. Isn't there some way of combining two trips into one? Or eliminating an unnecessary trip altogether.

Isn't there a way of doubling up with two families going together, or two commuters going together? That's true on the weekend. That's true during the working week.

As we just cut into our driving a little bit, we are going to lick this problem. The Department of Energy estimates that if everybody in the country could cut 15 miles out of his or her driving a week, that would do the trick for the rest of the driving season.

That's not very much. Different people have different opportunities. If you live in a town with good public transportation, get on the bus or another means of public transportation. You are saving gasoline for your other needs when you want to use your car. You are also saving gasoline for those folks who have no choice but to use the car to go to work.

Senator RIEGLE. Let me ask you this: It seems to me Memorial Day weekend is different in one basic respect. It's the first major holiday weekend when the weather has improved. Traditionally it's a weekend where a lot of people vacation or travel to visit family members or what have you.

Some of the adjustments that you talk about aren't necessarily relevant to somebody who's trying to decide whether they are going to travel up North in a State or they are going to visit somebody in a neighboring State or take a 2- or 3-day driving weekend.

What would be your advice to them? What are they likely to find?

Mr. BARDIN. My expectation, Mr. Chairman, is that Americans are going to show great self-restraint this Memorial Day weekend. That's obviously in the public interest. When you go about your family business or your recreation activity on foot or by public transportation, where it's available, that's obviously very much in the public interest.

Make sure that where you are traveling by car, you are doing it in a full car; that is going to church or going to visit relatives. That will help a great deal.

Senator RIEGLE. Is there going to be gas out there? Let's say you go with a car with six people in it, four people in it, two people in it, if you are traveling away from your home area, are you likely to find gas stations open? Are you likely to find gas in those gas stations?

Mr. BARDIN. As you look around the country, the pattern that's developed for several weeks now is that most of the gas stations are closed on Sundays. That is a fact of life and one that should be checked with the local AAA or other similar organizations anyplace that you are thinking of going or have to go to.

The filling stations are, in many cases, closed on Saturday or parts of Saturday; so that if we have shorter hours and less availability of gasoline, that's a serious consideration that people have to weigh as they make their plans.

The American driving public must recognize that there is less gasoline available. There tends to be less available in many situations toward the end of the month as stations have used up their allocations; and one just cannot assume either Memorial Day weekend or any other weekend in this driving season that we are going to have all the gasoline that we would otherwise want.

Frankly, we have a little less gasoline than the American public would want in normal times.

As we reduce our unnecessary use of the car, or we minimize the uses which we can best get along without, that situation may balance itself out much better. That's something that all of us are going to have to watch closely in our own community.

When you have parking lot operators reporting, here in Washington, D.C., as we saw in the papers last weekend, a 20 percent

cutback in the number of cars coming into their parking lots the week before, that means a more favorable overall gasoline situation.

So what's the bottom line?

CAUTIOUS AND CAREFUL

My advice to the American motorist would be to be cautious, be careful. We are in a tight gasoline situation. We will be in a tight gasoline situation throughout the months of this driving season. It is not a catastrophe. It is not a very large shortfall; but it's enough so that we have to cut back about 5 percent of the gasoline consumption we would otherwise like to have.

Senator RIEGLE. I think the weekend upcoming is profoundly important for many reasons. Not just because it's the first weekend where you have a lot of recreational driving. I think it's going to deliver a powerful signal to the country as to what the situation is.

It's one thing if you have people staying home because there is a fear that there will not be gas.

It's something else if somebody decides they are going to try to conserve this weekend and stay home because they want to try to do something to help the country.

What concerns me is that on Tuesday of the week ahead—and I am not aiming this at you personally, the whole Federal Government, the Congress, as well as the executive branch—the people of the country ought to be able to get an assessment of the supply situation. Should people go ahead and act as they normally had with a minor bit of cutback; or are we likely to find that 20 or 30 percent of the people who go ahead and take a vacation weekend are going to find themselves getting somewhere and not being able to get back?

Before you arrived this morning, we had the retailers here from California, from New York, and so forth. The California retailer was saying he thought that people ought not to take any chances on Memorial Day weekend; whereas the fellow in New York, said that you were welcome to come, but we can't guarantee we are going to be able to get you home again. He didn't quite put it that way, but that's what it boiled down to.

I am wondering, don't we have the capacity to provide somewhat clearer sense as to what people are likely to find? I know it's not easy to do that, but I feel we have a responsibility as a government to make that kind of a judgment so that people have the most tangible way they can to make some decisions.

Mr. BARDIN. As I see the situation, you are going to have enough gasoline for a reduced level of travel and not enough gasoline for traveling as much as we did last year or that amount of traveling plus the normal growth. We are going to have to cut back on travel. That means some of us will cancel trips we would otherwise make. Others will have to reduce the amount of travel.

Some families have a choice of which car to use, a more fuel-efficient car or a less fuel-efficient car.

Senator RIEGLE. Could we even identify high-risk areas? Could we say we know in this zone, the stocks are unusually low? If we

experience anything like the traditional volume of traffic in this area, we will run dry?

Mr. BARDIN. The American Automobile Association, which is the largest membership organization in the country, and is the national organization that attempts to serve the motoring consumer, does do surveys region by region, area by area which speak right to that question, Mr. Chairman; namely, what will be the gasoline supply in a given area.

[The following was ordered inserted in the record:]

Department of Energy
Washington, D.C. 20461

May 22, 1979

Honorable Donald W. Reigle
Chairman, Subcommittee on
Economic Stabilization
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

Enclosed is a copy of the information collected by the American Automobile Association (AAA) on a weekly basis that I mentioned today before your Subcommittee. I believe this survey provides the type of information you are looking for and request that it be included in the record.

The AAA disseminates this information widely to include distribution to State energy offices.

Please let me know if you have further questions.

Sincerely,

David J. Bardin
Administrator
Economic Regulatory Administration

Enclosure

NEWS RELEASE
NATIONAL HEADQUARTERS/AMERICAN AUTOMOBILE ASSOCIATION
8111 Gatehouse Road • Falls Church, Virginia 22042 703/AAA-6332

FOR IMMEDIATE RELEASE
For further information
Contact: James H. Downey
703-AAA-6332

AAA SAYS GASOLINE IS COSTLY
BUT REMAINS GENERALLY AVAILABLE

WASHINGTON, D.C., May 17 -- Gasoline remains generally available to the U.S. motorist despite fuel allocations, long service station lines in some parts of the country and scattered instances of panic buying, the American Automobile Association reported today. Drivers should expect to pay a premium at the pump, however, as prices continue to soar.

Nearly half of the 5,218 service stations throughout the continental U.S. surveyed by AAA in its weekly Fuel Gauge report indicated they were remaining open on Sundays and after 8 p.m. on weekdays. Sixty-one percent said they were open after 6 p.m. on Saturdays, and only four percent said they were limiting individual sales by dollar or gallon amounts.

Sunday service station closings were found to be a major problem in only a few isolated localities. In Washington, D.C., for instance, none of the stations contacted said they would be open on Sundays. In many states, however -- including Vermont, Michigan, Iowa, South Dakota, Arkansas, Idaho, Utah and Wyoming -- some three-fourths or more of the stations contacted said they would be open for business as usual.

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fuel gauge/2222

Tight fuel supplies, coupled with an increasing demand for motor fuel, have taken a costly toll on the motorist's wallet. The Fuel Gauge survey showed that gasoline prices have risen an average of 12 cents per gallon since Christmas, with a full six cents of the hike having been registered in the last 30 days.

AAA found average full-service prices across the U.S. to be 80.4 cents per gallon for regular grade gasoline, 86.3 cents for premium and 84.3 cents for unleaded.

Self-service prices averaged 77.5 cents for regular, 83.9 cents for premium and 82.1 cents for unleaded.

The most expensive gasoline was found in California, where full-service prices averaged 86.2 cents per gallon for regular, 91.4 cents for premium and 90.1 cents for unleaded. Texas reported the least expensive fuel, where self-service prices averaged 72.3 cents for regular, 78.5 cents for premium and 76.5 cents for unleaded.

AAA also surveyed service stations in Hawaii, where full-service prices averaged 87.8 cents per gallon for regular, 93.2 cents for premium and 92.1 cents for unleaded. Self-service prices averaged 86.4 cents for regular, 92.0 cents for premium and 90.9 cents for unleaded.

Diesel fuel averaged 73.5 cents per gallon in the continental U.S. and 77.4 cents per gallon in Hawaii.

Noting recent news of long lines at California service stations, AAA pointed out that a full one-fifth of stations contacted in that state said they were open after 6 p.m. on Saturdays, and 28 percent said they were open on Sundays. Only five percent of California stations checked said they were limiting sales by gallon or dollar amounts.

- more -

fuel gauge/3333

Much of the service station congestion in California, AAA said, could be attributed to "panic buying" and the highly dangerous practice of loading car trunks with cans of gasoline. The individual motorist can do much to alleviate long service station lines by buying gasoline only when the car's tank is at less than half capacity rather than purchasing fuel in small amounts simply to "top off" the tank.

"Common sense dictates that the motorist should avoid driving long distances late at night or on Sundays," a spokesman for the motoring federation said. "A driver who plans fuel purchases along major thoroughfares, during daylight hours and on weekdays should be able to find gasoline in almost every part of the country -- if not as conveniently as usual -- with the least difficulty."

The American Automobile Association is a federation of 199 motor clubs serving 20.5 million members with 958 offices throughout the United States and Canada.

# # #

(EDITORS: See attached charts for details)

EDITORS/NEWS DIRECTORS:

This is the first in a series of weekly AAA Fuel Gauge reports. Subsequent reports will be issued in this format each Friday. A recorded summary of the report suitable for broadcast will be available after 9 a.m. Eastern Daylight Time each Friday by calling 703-573-9320. Unless otherwise specified, the recorded summaries will be voiced by Hank Downey, AAA public information manager.

5/79

AAA WEEKLY FUEL GAUGE REPORT - May 17, 1979

GEOGRAPHIC REGION	Stations open 24 Hrs.	Open after 8pm Mon.-Fri.	Open after 6pm Saturday	Open Sunday	Limiting Sales
New England	6 %	40 %	50 %	43 %	10 %
Conn.	5	55	45	20	26
Me.	5	35	46	43	5
Mass.	6	38	47	41	11
N.H.	7	19	37	44	0
R.I.	5	40	50	25	15
Vt.	8	55	70	75	0
Mid-Atlantic	8 %	51 %	62 %	46 %	7 %
Del.	13	50	69	50	6
D.C.	0	73	73	0	9
Md.	4	32	48	37	9
N.J.	5	43	47	38	10
N.Y.	7	51	63	56	5
Pa.	10	62	69	51	8
Va.	9	45	54	40	2
W. Va.	8	50	78	41	4
Great Lakes	17 %	66 %	81 %	59 %	1
Ill.	8	n.a.	n.a.	52	3
Ind.	19	76	89	51	0
Mich.	35	56	80	73	n.a.
Ohio	9	76	80	60	2
Wis.	11	53	68	60	1
Midwest	13 %	56 %	76 %	60 %	1 %
Iowa	20	62	75	70	5
Kans.	13	41	64	45	3
Minn.	12	58	82	60	0
Mo.	18	64	82	64	n.a.
Neb.	8	58	83	62	0
N.D.	15	70	70	40	0
S.D.	10	58	76	74	0
Southeast	14 %	56 %	70 %	43 %	6 %
Ala.	0	42	67	50	8
Ark.	0	50	88	75	0
Fla.	5	64	62	31	17
Ga.	10	66	88	53	0
Ky.	15	52	73	65	0
La.	37	83	88	57	1
Miss.	8	20	51	39	5
N.C.	9	44	62	36	1
S.C.	7	44	71	32	0
Tenn.	30	46	67	48	6
Southwest	13 %	40 %	63 %	43 %	1 %
Ariz.	n.a.	n.a.	n.a.	n.a.	n.a.
N.M.	16	45	87	53	0
Okla.	21	56	75	56	0
Texas	8	37	58	40	1
West	4 %	18 %	36 %	35 %	4 %
Calif.	2	5	20	28	5
Colo.	2	24	48	39	3
Idaho	38	78	92	78	0
Mont.	5	63	75	65	0
Nev.	10	40	17	27	10
Ore.	6	34	74	43	3
Utah	21	76	97	76	0
Wash.	4	28	51	32	8
Wyo.	5	50	85	71	1
United States	10 %	46 %	61 %	46 %	4 %

* n.a.: not available

AAA WEEKLY FUEL GAUGE REPORT - May 17, 1979

GEOGRAPHIC REGION	FULL-SERVICE PRICES			SELF-SERVICE PRICES		
	REGULAR	PREMIUM	UNLEADED	REGULAR	PREMIUM	UNLEADED
NEW ENGLAND	79.9	85.7	84.4	78.9	84.6	83.8
Conn.	82.8	88.4	87.2	80.6	87.0	85.6
Me.	78.8	84.5	82.9	77.5	n.a.	n.a.
Mass.	78.9	84.5	83.4	78.9	84.0	83.2
N.H.	79.3	85.5	84.3	77.8	83.8	82.1
R.I.	80.4	86.1	84.5	77.1	84.6	83.0
Vt.	79.5	85.5	84.0	78.0	80.9	82.9
MID-ATLANTIC	79.5	85.9	83.8	77.1	83.9	81.8
Del.	79.2	84.0	82.3	75.9	80.4	77.9
D.C.	82.3	88.5	87.1	77.6	84.5	83.3
Md.	80.2	87.7	85.0	77.3	85.1	82.5
N.J.	77.5	83.9	81.9	No self-service		
N.Y.	82.3	89.3	86.5	78.8	87.0	83.6
Pa.	78.2	84.5	82.6	76.2	83.6	81.8
Va.	79.6	86.0	84.1	76.5	83.6	81.7
W.Va.	80.6	85.8	84.3	77.3	83.1	81.6
GREAT LAKES	81.7	88.6	86.0	78.1	85.2	82.7
Ill.	82.5	90.9	88.2	80.9	86.8	85.8
Ind.	82.4	89.7	86.7	78.4	86.9	83.6
Mich.	83.1	89.5	87.5	79.3	n.a.	n.a.
Ohio	79.3	84.4	81.0	75.8	82.3	79.7
Wis.	78.4	84.5	82.5	74.1	82.3	78.8
MIDWEST	80.8	86.4	84.6	77.7	83.9	82.1
Iowa	80.8	86.0	85.1	77.6	84.6	82.4
Kans.	79.3	84.8	83.3	76.6	81.8	81.1
Minn.	81.0	87.3	84.8	78.0	84.4	82.9
Mo.	n.a.	88.5	83.4	n.a.	85.9	81.9
Neb.	81.8	87.3	85.3	79.1	85.7	83.2
N.D.	80.0	84.5	83.5	76.8	82.9	80.4
S.D.	81.6	87.5	85.5	78.3	82.1	82.7
SOUTHEAST	80.2	85.8	83.7	75.8	82.6	80.7
Ala.	79.5	86.2	83.6	76.5	83.4	81.3
Ark.	81.2	86.4	85.5	74.9	81.4	80.1
Fla.	80.3	85.7	84.0	77.5	83.2	81.9
Ga.	79.8	85.4	82.0	75.5	81.3	81.6
Ky.	81.3	86.6	84.7	78.7	83.9	81.9
La.	79.5	85.0	83.3	71.7	80.7	77.4
Miss.	83.0	89.2	86.9	79.1	86.7	84.4
N.C.	79.3	85.1	83.0	75.0	82.0	80.0
S.C.	79.2	83.6	82.6	73.5	81.0	78.7
Tenn.	79.1	84.8	82.4	75.4	82.0	79.5
SOUTHWEST	76.9	82.6	80.7	74.8	80.6	79.3
Ariz.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
N.M.	80.6	87.1	84.3	75.9	82.8	81.0
Okla.	79.3	83.8	83.1	76.3	80.4	80.4
Tex.	75.9	81.9	79.8	72.3	78.5	76.5
WEST	83.5	88.8	86.8	80.1	86.2	84.6
Calif.	86.2	91.4	90.1	84.4	89.8	88.8
Colo.	81.1	86.6	84.4	78.4	84.6	82.6
Idaho	84.5	90.0	87.8	80.5	86.1	84.1
Mont.	80.6	86.2	82.3	76.1	83.7	80.9
Nev.	83.7	90.5	89.8	82.5	89.6	88.7
Ore.	83.2	85.2	84.2	No self-service		
Utah	83.9	88.9	87.9	79.9	84.9	83.9
Wash.	83.9	88.6	87.0	81.0	86.1	84.5
Wyo.	84.2	91.9	88.1	78.3	85.0	82.9
UNITED STATES	80.4	86.3	84.3	77.5	83.9	82.1

* n.a.: not available

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Mr. BARDIN. They would be the best single source I know of to get a feel for how much of a risk you are taking with a short trip or a long trip in the part of the country that you live in.

There are also retail gasoline dealers who try to report as the week progresses what they think will be the situation for the weekend.

The prudent motorist will be careful before he takes a trip, one, to understand the risks; and, two, to get a feel of the lay of the land in the area he or she is planning to drive in.

My sense is that there will be less driving this weekend than there would have been otherwise; and less driving this Memorial Day weekend than we had last year because of concern in many parts of the country not to squander the gasoline supply, not to take chances; and obviously that is a wholesome reaction in terms of making do with the gasoline that we have available.

Senator RIEGLE. I would like to just make this suggestion to you to consider: I don't know that it's enough for us to to say to people, "Look, give the AAA a call. We think they are pretty good about this. It's a unique problem. Let them give you a value judgment depending upon the region of the country."

I really think that's something we ought to be doing, we, the Government. I think the Department of Energy ought to be making that kind of assessment. I think it ought to publicize it. I think as we get down to Thursday of this week, if you have found zones of the country that look like they are going to be hazardous areas for people to drive in, unusually so that there's almost an affirmative obligation to say so.

Partly because I don't think we want to see people caught in situations that they have no way of dealing with, if they are half way through a trip and can't complete it, can't get home, what have you. Plus, I don't want to have a situation arise where you have another blow to the public confidence in a panic situation arising on a broader scale than what we have been seeing in California. I think we have to try to give people a clearer set of signals.

We are into this zone of uncertainty, we have an obligation to try to give some very specific clarity to. You may not agree with me. So I am offering this in terms of a suggestion. That is something that we ought to be doing and we run a great risk of not doing it.

LONG LINES COULD REOCCUR

Mr. BARDIN. I think in being candid with the American public, we have to keep reiterating that the long-line phenomenon could reoccur just about anywhere in any intense-use area in the country anytime during this driving season if we have a sudden run on the bank, as it were; if there is a sudden surge of tank-topping.

That could happen and could happen more than once, in more than one part of the country over the driving season.

As to the role of the Federal Government, my sense is that generally Washington is a pretty remote place as far as what the supplies are at particular pumps. Most of the trips that people take for recreation as well as commutation are within a fairly confined

area. The weekend pickup on driving is not basically cross-country trips.

My judgment is that by and large, it's the State level of government that ought to be the most helpful to the motoring public in finding out, keeping track, and sharing what the situation may be.

Some of the States are so big that they can't really do that competently on a statewide basis. The State must either provide indications on north-south, east-west, one part of the State versus the other, or turning to county government or a combination of metropolitan governments to get that information across; but frankly, I think the Federal Government should give the most accurate information it can on the national-international scene and on the broad regional situation in the United States; but when you get to the situation in Michigan and to particular parts of Michigan—I would want to see the State governments taking a very critical role.

If you are looking ahead not only for this weekend, but for the years ahead in what may be a continued constrained supply situation for petroleum for years, it's going to be important to bolster, encourage, and look to State capabilities in this area, because of the fact that the States are so much closer to the retail stations and to the individual motorists.

Senator RIEGLE. I can appreciate that point. The role that the Federal Government can best play here is understand the scale of the aggregate problem.

You ought to suggest to each of the 50 States—because your credibility is on the line as much as anybody else's—that they undertake to do this, establish a hotline phone, maybe regionalize the State into zones; but that we put ourselves in a position to start giving people information.

Public outrage is building. People don't know who to trust. Everybody says talk to somebody else. I am not saying necessarily that the ultimate job here ought to fall in your shop; but there is the absence of a rational way for somebody to get hold of information and try to make an intelligent personal decision.

That's missing. I don't think we can afford to leave it continually missing. I think it's important to get some kind of system. If we are going to have a shortage during the summer, we have to get the machinery in place to be able to talk to one another.

We have a responsibility to identify those risks. I am happy to have the State delivering the message, but somebody at your level who sees the problem has got to get the States into this or we may wake up one weekend and have a lot of people who are half way somewhere and can't get home.

Then suddenly we have a very, very bad situation on our hands.

Mr. BARDIN. Let's try to leave one message with the American people: As you use the car you paid for, that's so important to you in your life, ask on each trip, is it necessary, is it avoidable, are there trips we can eliminate?

We have estimated on the average if we cut out 15 miles of driving a week we can solve the problem. Those are decisions to make on the weekend, during the week, on Memorial Day weekend: Is this a trip which you can eliminate altogether or is this a

trip that you can combine with something else to get two trips for the price of one?

If you can, please, please cut that trip out.

Senator PROXMIRE. You may continue with your statement.

Mr. BARDIN. There are a number of measures which I think this committee must consider, apart from the gasoline situation, but which bear on it.

We have made an international commitment with the other industrialized countries to reduce our consumption of petroleum and our demands on the world's limited petroleum supply by 5 percent by the end of this calendar year; by December 31. That translates into consuming about 1 million barrels a day less than we otherwise would be consuming.

Much of that can be done with a reduction in the stationary burning of petroleum in powerplants and industrial facilities.

POSSIBLE PROGRAMS FOR REDUCTION OF OIL USE

One of the programs to do that is to transmit by wire more electricity from stations which burn coal or use uranium to displace electricity which would otherwise be generated with oil.

Another technique is to produce more natural gas in this country and use that to fuel industry or utilities and displace oil. Those two techniques alone could come a long way toward half of our total goal.

When those techniques back off oil, not only do they make more oil available for stationary purposes, industry, home heating, and the like, but they also allow refiners to use somewhat more of the barrel for gasoline, so that can alleviate the gasoline supply.

Similarly, on the conservation side, the thermostat setting plan which President Carter submitted and the Congress has approved. When we operate our offices, stores and government buildings at a higher temperature in the summer, we will be consuming less electricity for air-conditioning. We will be releasing fuel for other purposes; and that will help meet our conservation goals.

This winter when it comes to heating these buildings to a lower temperature, we will be reducing the consumption of fuel; some of that fuel will be oil which is directly available for our other oil needs.

This is a series of interrelated actions which we can take in our communities, in our businesses, and in the government world to change our situation.

Another and perhaps the simplest is just driving slower, adhering to the 55-mile-an-hour speed limit, and effective State and local enforcement of the 55-mile-an-hour speed limit is like producing extra gasoline at the cost only of a very little bit of time which most of us wouldn't even know what to do with, when we measure it out.

That's gasoline that will remain in the same communities, in the same States for other uses. When you drive on the freeway, if you see cars going at 65 rather than 55, please temper your own driving and write to your Governor, to the newspapers and to the State police, and ask for effective enforcement of that 55-mile-an-hour

speed limit. That's one way we can make the available supply go around better.

Senator RIEGLE. Let me ask you something.

Obviously, we can conserve and not use energy within certain limits, we can work around the edges, we can try to reduce this gap, we can match what is available to—what one might call certain reasonable need levels.

Certainly, that is the sensible way to deal with the problem.

What I am hearing at the same time is that there is a much bigger problem.

We are right on the razor's edge, if there were any other kind of thing taking place that was adverse, we could find ourself with the tinkering around the edges not really solving our problems—even what adjustments we can make, not solving the basic, fundamental long-run problem which gets to these bigger strategic questions of insecurity of supply, alternative sources of energy, et cetera.

Doesn't it seem that at the same time that we conserve we really need a consortium effort at the top level of this Government that includes the Department of Energy, and all the other relevant players meeting on an expedited basis to really get a fix on a long-term strategy, that can start to work us away from the edge of this serious shortfall problem?

Isn't that something that's largely missing today?

I am greatly worried that at the same time we do all of these things in the short run, we really need an effort to try to get at a serious comprehensive strategy.

LONG-TERM STRATEGY NEEDED

Mr. BARDIN. I am glad you turned from the short-run situation, this weekend, this summer, to the long-run situation of the next 10 years to the end of the century.

There is a long-term strategy.

That is to move our country through a series of orderly steps, decisive steps, toward less dependence on petroleum, a dwindling source of supply, to alternative fuels, fuels which are more abundant and available today, and fuels which are not yet available, but could be made available, including ultimately renewable resources.

This program has been presented to the Congress. A part of it was adopted last year. Part was not.

This program simply has to be translated into action.

We have made the decisions on natural gas pricing, painful decisions, difficult decisions. It took 40 years to consolidate the intrastate and interstate market into one market.

That was made last year.

We are reaching the dividend of an increased natural gas availability now which can help meet our immediate problem.

We have got to do the same thing in the case of petroleum.

President Carter has grabbed the nettle with regard to petroleum pricing and the proposed windfall tax which must be passed by the Congress to provide the energy security fund which will pay for the development of the new technologies, liquid fuels from coal, gaseous fuels from coal, a bigger solar program to move us away from our dependence on petroleum, as well as paying for mass

transit, the great increase in the bus fleets of America and other public transportation. Recognizing the particular social problems, the impact of these higher energy prices on the poor in the country, the less able to afford it, it will provide some relief for that purpose.

American industry has been responding positively to the price signals of the last few years.

It's important to recognize that we are producing more real product—not just inflationary effects but real gross national product increases—with an actual reduction in the energy consumption.

We are no longer facing a situation in our industrial productivity, where each increase in productivity is accompanied lockstep by an equal increase in energy consumption. We have it down to about a two-thirds energy increase as much as the real increase in productivity.

The plant, the residential plant, is turning over as well as the industrial plant.

The new houses are more energy efficient. Of course, this takes time to be realized. Even existing houses are being retrofitted. The new appliances are more energy efficient.

Recently a natural gas company showed us they had had a 20 percent drop in the per household consumption of residential natural gas since 1973.

That's when it is seasonally adjusted to reflect all the changes, cold and warm winters.

Because of the insulation of houses on the one hand, and because of more efficient natural gas appliances, we have made progress.

We must make a great deal more progress.

That demands a response by the Congress and the country to the kind of Presidential leadership that we have had and will continue to have to flag the issue of energy transitions, as one of the vital concerns to the American economy, to the American people, to our welfare and safety on the globe and to translate that into a series of continuing national goals.

I agree with you Mr. Chairman, that that requires not just government action, not just law; but the enlistment of American industry, the dedication of American industry, of local government, state government, of all of the forces in America.

The army, as it were, that can make our transition from the dwindling supplies of energy to the energy futures of American safe is an army which consists literally of millions.

Senator RIEGLE. Well, our perceptions are somewhat different on this problem. That is not to say that some of the suggestions you are making are not good ones. I think many of them are.

ENERGY GETTING BACK-BURNER TREATMENT BY FEDERAL GOVERNMENT

I have a clear sense, and I think it is shared by many people in the country, that energy, and the scale of the energy problem is still getting back-burner treatment by our Federal Government system. I don't want to single the President out, the Department of Energy, as apart from the Congress. I think there are a variety of ways in which we have been way, way behind on this problem.

I was at the White House last night with a group of colleagues. We spent a long evening, not talking about energy, but talking about SALT. Not that SALT is unimportant; clearly it is important.

I think we have a bona fide emergency on our hands in terms of national security, economic security with respect to oil and gasoline portions of energy supply. We are locked into a system that requires those particular products. There's no way out of that box in the foreseeable future.

We need to put ourselves in shape to make an orderly transition, we are way, way behind.

Just take the refinery situation itself. As we look at this over the past 2 or 3 years, we have seen the construction of some 24 very inefficient, very small refineries, you know as well as anybody. These refineries produce very little gasoline, almost no unleaded gasoline, which is where the big demand increases are.

Nevertheless, these refineries have a daily claim on 250,000 barrels of highly desirable light crude oil. If this oil had gone into more sophisticated refineries, we would have gotten a much higher yield with respect to gasoline. Just the refinery part alone, as you talk to people, private attorneys representing the oil companies, dealers, oil companies, it is a nightmare situation.

I don't know whose fault it is. I don't want to try to assign the fault. I simply want to use that as an illustration among many, many others that we talked about that I think we are way behind on this problem. We need a crash program of a much bigger scale. It is going to take a much larger part of the President's time, his top executive staff, the leaders of the Congress, the committees of the Congress. I am not just talking about the special interest committees that work on just one topic.

I am talking about the Congress as a whole. Unless we construct for ourselves a strategy that is 10, 15, 20 times larger and longer, I don't think we can wait, for example, to start making investments in alternative energy on an accelerated basis until we get a windfall profits tax passed.

We don't have to wait for that to start spending money. We just went through the budget process. There's over $500 billion being spent.

I don't know how we get the alarm bell sounded sufficiently so that we start designing a strategy for ourselves that works. If the Saudis cut back on production, if some unstable thing should happen in that country, that were to terribly reduce the supply of oil we are getting today, or if Iran were to go down again, isn't it fair to say that we have no current way to cope with that problem?

Mr. BARDIN. I agree with your concern, Mr. Chairman, that we would find a very serious potential disruption to our economy, on an entirely different scale from what we are dealing with today, if we had a further interruption of supply.

Of course, the failure of the Congress to approve a stand-by rationing plan deprives the President of one of the basic tools in that regard.

I happen to agree with the example you gave before of the refineries in the United States, refineries capable of handling the kind of crudes that are going to be available in the future as

contrasted with encouraging the wrong kind of refineries. On the latter, we have taken some steps administratively in the Carter administration to change the ground rules.

I must reiterate the frustrating sense on this side of the dais. I am sure you feel it on your side. We are dealing with some of the most difficult and divisive issues. They tend to be looked at parochially in terms of sectoral or other geographic interests.

Just take the question of President Carter's proposal last year on petroleum pricing. We have a situation that we inherited from the prior administration in which we are subsidizing each barrel of oil imported into this country. The Carter administration has been trying to get that corrected since April of 1977, since the first April of President Carter's term in office.

We proposed the crude oil equalization tax as a means of ending the subsidy for foreign oil in a fair way recognizing the equity of not transferring all of that income from American consumers to American producers. That proposal passed the House. It did not succeed in this body. This body was never given a chance to vote on it.

You have to remember the difficulties of coming to grips with what is admittedly a set of imperfect choices. If you think back to the natural gas debate, on which I compliment the Congress on having been able to bite the bullet and make a decision after 40 years of hiatus. Everybody knows that was not an ideal decision. You had to come up with one that would enlist the necessary votes. It was a major step forward.

We are going to have to make our remaining major step forwards equally painful I fear because of the resistance to them.

COAL SLURRY PIPELINE BILL

To give you another example: The coal slurry pipeline bill which was heavily defeated on the House floor last year. This was a measure which would have made possible an entry of a new competitive mode to move coal, an abundant, indigenous fuel, from where it is to where people need to burn it. If we had approved the coal slurry legislation, with the Federal eminent domain power, there would have been more competition between railroads and the coal slurry pipelines.

That was defeated after a vigorous debate on the House floor. What does all of this teach you? It teaches that no matter how serious we are about the energy problem, we have other concerns. Some of them are very important; some of them are very specialized which move members of the legislative branch and undoubtedly move many people in many sectors of the country.

This is not going to come easily. We are not going to eliminate, for example, our concern about inflation which is a real and serious and legitimate concern. So we will be debating, as I have seen happen in some of the administrative measures that we have been dealing with in the last few weeks.

We have been debating between the longrange, present urgency on the energy front and what may sometimes be a competing sense of urgency about the inflationary front. People argue yes, it is important to worry about our energy supply, but if a given neces-

sary step tends to be inflationary, perhaps it should be put off yet another year.

Talking specifically about the windfall tax, I just can't accept the notion that the right way to solve the energy problem is to appropriate more and more without regarding, as I am sure you do, Mr. Chairman, the concerns to bring our budget into closer balance and to overcome some of the inflationary impacts of the budget.

In the windfall tax Energy Security Fund, the administration has proposed a combination which respects the budget balancing areas, the inflationary problems, and gets the funds to work in the research and development of these technologies.

I would hope that the Senate will not let that measure languish long, but bring that up to a prompt action.

Senator RIEGLE. Well, we can discuss that at length, because our views are not the same on it. I am not sure that it is productive to do that here.

Mr. BARDIN. Yes.

Senator RIEGLE. What I am interested in knowing is whether or not we have a plan ready to go in the event that we were to experience a further substantial reduction in oil and therefore gasoline anytime soon? Do we have anything ready to go in that kind of a situation; and second, have we done anything within the Department of Energy to look at the economic implications of that?

In other words, looking at the infrastructure of our economy, if we were to find out, for example, that we were headed toward rationing, a shortfall in gas supply of 20 percent or greater, do you have any data that would indicate what that would do to the United States? What the economic effects would be?

Mr. BARDIN. We prepared data in connection with the coupon rationing plan that is a matter of public record. I will be happy to share with you and your staff, the detailed information of what a shortfall of 15 or 20 percent might cause in terms of gross national product.

It is a very drastic impact.

The plan that we developed to handle the strains of that situation was the coupon rationing plan which the Congress has failed to approve.

Senator RIEGLE. Half the Congress.

Mr. BARDIN. Which the House of Representatives voted down.

We have a number of other projects under study and some plans under development; none of them are ready in the sense of having been submitted to the Congress, much less approved by the Congress. I must remind you, Mr. Chairman, that of the plans that we submitted, only one of them, the thermostat plan which didn't generate any significant opposition was approved by the Congress.

Everything that generated one or another kind of concern was not approved. I must confess that that does not make me entirely optimistic as to the chances of congressional approval of any additional plans that the President might see fit to submit in the future.

Perhaps the problem is the basic legislation under which we are operating, which is not legislation in the form of delegating to the Chief Executive of the country the authority that goes with responsibility to go ahead and develop a plan and have it ready, but

rather is legislation of a kind which we have seen so much of in the last few years which says, well, hang your clothes on the hickory limb, but don't go near the water until—in this case—each House of Congress has approved it or, in some other cases, neither House has vetoed it.

Perhaps we have failed in our constitutional mandate to recognize what the legislative branch is best at, and what the executive branch is best at. Perhaps that is worth considering during the remainder of this Congress.

MEETING OF ALL MAJOR COMPANY EXECUTIVES

Senator RIEGLE. Do you know whether the President or people acting in his behalf at the White House level have made an effort to call together all the major company executives to discuss the problem?

To call together the people who are the dominant people in the refinery business? To call together either separately or together the retailers?

To call together all of the principal players that have to make this energy system work as it relates to oil and gasoline—include people from EPA, the Department of Energy—to call them together in an effort to get a comprehensive plan that could be followed with or without additional legislation?

Has any effort like that been made to your knowledge?

Mr. BARDIN. There is an effort under way which involves not one mass meeting but many smaller meetings. I think you can appreciate, Mr. Chairman, it would be very hard to put all of those people in one room together to deal with both short-term and long-term situations, whether it's exactly what you have in mind, I am not certain.

There has, for example, been a meeting with the automobile manufacturers in the last few days. We are engaged in a very intensive, open dialogue with the EPA on a number of problems which simply have to be solved.

Some of them are short-term problems dealing with the situation this summer.

Others are long-term problems, questions of how to implement the coal conversion legislation Congress passed last year. The Powerplant and Industrial Fuel Use Act.

We have been meeting with the EPA officials who have the clean air responsibility for the same facilities as we have the fuel use responsibility.

Senator RIEGLE. I think this energy supply problem, especially as it relates to oil and gasoline, is our greatest economic jeopardy at this time. I think it has strategic implications. I don't think 5 percent of the time of the executive branch in the last nearly 2½ years has been spent on this problem in terms of what has actually come forward.

I can add to that list all the other items we have been dealing with, foreign policy issues, and so forth. The point is it's still getting back-burner treatment. I am sure you are working day and night because you are the focus of a lot of these problems.

I don't see a serious orientation, an aggregate thrust of the Government taking place. That's not what is being talked about. That's not what the President's people are doing.

When I talked to the people from other major segments of the industry, they don't speak as if they have been approached on that basis. They have been approached piecemeal without any kind of overriding sense of urgency to try to hammer out a comprehensive strategy that can work.

There are so many different aspects of the problem: Is there enough unleaded gas, the refinery situation, where does the refinery situation exist.

The report card that DOE gets from the private sector is horrible as you know. I might also say just the report card DOE gets about Mr. Schlesinger from Members of Congress is very poor as you know.

You may feel it's deserved or undeserved.

Mr. BARDIN. We are running neck and neck with the Congress on these report cards.

Senator RIEGLE. Perhaps, but there is no excuse for such a poor relationship between the Department of Energy and the Congress in my judgment.

Mr. BARDIN. I didn't mean that.

Senator RIEGLE. I know you didn't. I meant that. I am not speaking—obviously we are able to talk to one another.

I am saying the relationship of the Department with the Congress is the worst that I have seen in my 13 years in the Congress of any agency of Government.

That includes the Defense Department during the Vietnam war. I think that's unfortunate, but that's the way it is.

UNPOPULAR MESSAGE BROUGHT TO CONGRESS

Mr. BARDIN. Keep in mind, Mr. Chairman, we have had a very unpopular message to bring to the Congress. I know how hard it's been for people at the receiving end. I know from the visits I have made.

Our message has been that there is going to be less available than people would like in the short run. It's going to cost more. The transition from a world in which the suppliers hold most of the cards to one in which competition again can adequately protect the consuming public is a tough transition which requires us to make some sacrifices in what we pay, some sacrifices in what we breathe, some sacrifices in terms of our pet industry or our pet project and or pet alternative mode.

You just can't have it both ways. All of us instinctively wish we could have it both ways. We resist that kind of message which is the one that the Department of Energy has had to carry again and again.

Senator RIEGLE. Well, I think the Congress and the American people basically do understand that.

I think they are prepared to make the adjustments. I frankly think they don't have any faith in the facts they have been getting on energy. I think there's an enormous ambiguity.

I cited in my statement today, that there are Department of Energy people saying different things. It's tough for people to know what to do.

The reason I asked the question about the weekend is I would like the Government to be a credible enough source of information that people could feel they could go to the Government and get a straight answer.

That is not the feeling people today have in the country about energy.

You may or may not agree with that. I can take you to my home State. We can go down the street, and you will find out that's the case.

Mr. BARDIN. Look what our problem is. People want a one-dimensional answer.

Senator RIEGLE. No; I really think you sell people short. I don't think people see this as a one-dimensional problem. I think they know it's a complex problem. They have to see a strategy and an approach to the problem that is fair, that makes sense, that is rational.

I can't find a segment of the industry today who feels comfortable about what the country is doing in this area. Set the citizens aside.

I think the report card from the citizens in this area, you can take public opinion polls, what you want, is abysmal. It's a shared responsibility.

If you go into the major segments of the industry itself, the marks they give the Government, the marks they give the Department of Energy, the marks they give the Congress are very poor; very poor.

How we recoup from that situation is very difficult. Until we have a strategy that is a very bold strategy that people can see, can feel confident about, we are not going to get very far.

I frankly don't think that exists today.

You may think it exists. You may think it's been sent up here. I would say the general perception of the country is it has not been developed. It does not exist. It has not been presented. People are still waiting for that to happen.

Mr. BARDIN. I would be afraid that the bolder strategy that you are hoping for, an even more demanding strategy, would enlist even less willingness to bite the bullet in the Congress and in the decisionmaking forums.

One of the complicating facts of life is that you cannot turn situations around overnight. When we talk about the long term, we have to talk about setting in motion transitions for the rest of the century.

Do them on a timely scale, an urgent scale, in the sense that we are applying ourselves to them.

I must say I find it frustrating and at times infuriating to see all the delays that we have due to decisionmaking; but, Senator, these are delays that result from programs that we as Americans have voted for.

We have elected representatives. We have asked for various kinds of programs or you thought we were asking for them. You

have enacted the laws. The laws have thousands of provisions and jots and tittles.

Then it turns out that you can't do anything without going back to the staff of this committee, that committee, and working out a change which can't be done in this Congress or that can't be opened up or what have you.

I think that is a source of frustration. It's a source of rigidity toward decisionmaking in this country. President Carter tried to cut through some of it with regard to decisionmaking in the new Executive order. It requires the Federal agencies to submit ourselves to a timetable and adhere to the timetable we set.

There's also the question of the multiplicity of crisscrossing decisionmaking activities in government which we have set up as part of the checks and balances to prevent the Federal establishment from becoming too powerful. Unfortunately, many of these checks and balances don't accomplish that objective but simply accomplish a frustration of more reasonable purposes.

Senator RIEGLE. I do appreciate your testimony today. I appreciate your coming. I know you have a tough job to do. You were very forthcoming to be here on short notice. I do appreciate it.

I don't want what I have said to be taken in a personal way. I want you to get your job done as well as you can. We will have to have further conversations on how we can sort of push this thing ahead.

Thank you for your testimony.

Mr. BARDIN. Thank you, Mr. Chairman.

[Complete statement of Mr. Bardin follows:]

STATEMENT OF

DAVID J. BARDIN

ADMINISTRATOR

ECONOMIC REGULATORY ADMINISTRATION

Mr. Chairman and members of the Subcommittee, I appreciate the opportunity to appear before you today to discuss the current oil supply situation in the United States and the outlook for gasoline and distillate oil supplies for this summer and next winter.

Reasons for the Current Supply Problem

The curtailment of Iranian production in late 1978 and early 1979 resulted in a loss of over 200 million barrels (MMB) in world oil supplies at the end of the first quarter of 1979.

The lack of readily available crude oil and refined products on the world market in the first months of 1979 prevented U.S. refiners and importers from obtaining additional imports to meet the surge in demand for gasoline and distillate oil that occurred in January and February. During the first three months of 1979, U.S. oil imports averaged approximately 8.4 million barrels per day (MMB/D). Based on the high demand during January and February for heating oil and gasoline, imports should have averaged about 9.1 MMB/D during the first quarter in order to maintain U.S. oil stocks at desired levels. Thus, the imports of 8.4 MMB/D were about 700,000 barrels per day less than would have been desirable.

The shortfall of imports was offset by using industry petroleum stocks at a faster rate than under normal circumstances.

As a result, industry stocks of crude oil, gasoline and distillate were about 70 MMB below normal levels at the end of March, and these stocks are now about 80 MMB below normal levels for this time of year.

Crude oil stocks dropped sharply during January and were below minimum acceptable levels by the end of the month. These stocks have increased somewhat since January, but are still below the normal range as shown on the attached chart on Crude Oil Stocks.

Of particular concern has been the rapid drawdown of primary distillate stocks during February and March. These stocks have remained low and, as of May 11, these stocks were reported to be 116 MMB, which is below minimum acceptable levels for this time of year as shown on the attached chart on Distillate Stocks at Primary Level. These stocks must be rebuilt to safe levels to avoid potentially serious shortages of heating fuel next winter.

Gasoline stocks at the primary level were also drawn down rapidly during the first quarter to meet first quarter demand which was running about 4.5 percent higher than demand during the first quarter of 1978. The rate of drawdown of gasoline stocks slowed in April, but stocks are still below normal levels, at about 228 MMB as of May 11, as shown in the attached chart on Gasoline Stocks. Gasoline

stocks are about 23 MMB below projected normal stock levels for this time of year.

The extremely low distillate stock levels and below normal levels of crude oil and gasoline stocks have limited severely the supply flexibility which is normally available to U.S. refiners. Rather than being able to draw down gasoline and crude oil stocks significantly now to meet current demands, as occurred in 1978, total stocks have been increasing in the past few weeks as refiners attempt to restore distillate inventories to minimum operating levels and to protect gasoline stocks in preparation for the upcoming peak driving season.

Oil imports have continued to decline since December when they averaged 8.9 MMB/D, and the full impact of the Iranian curtailment is only now being felt in the United States. Crude and product imports for the most recent four-week period averaged 7.9 MMB/D. U.S. refiners are not yet receiving the supply benefits of the renewed oil exports by Iran. This is due to the long transportation time from the Persian Gulf to the United States which delayed both the impact of the cutoff of Iranian exports and the receipt of the renewed production. As in the 1973-74 embargo, the most severe impact is being felt about four months after the start of the interruption.

Also, U.S. refiners did not vigorously pursue purchases of the very high priced oil that was offered on the spot market by Iran and other countries in March. The International Energy Agency and the Administration, in support of the objective of reducing the pressures for permanent world oil price increases, urged restraint in purchasing oil at the high spot market prices. In view of the current world oil market conditions, we have informed the refiners that while we continue to urge restraint in not building up spot prices, we understand that some companies may need to purchase spot cargoes in order to increase refinery runs to more desirable levels.

It is hoped that May will be the low point in oil supplies as a result of the Iranian curtailment. Crude oil imports averaged just under 6.0 million barrels per day in the past four weeks, and are expected to begin to increase. (See chart on U.S. Crude Oil Production and Imports.) The reduced crude oil imports, coupled with the very small use of crude oil stocks in recent weeks, are now being reflected in the low levels of gasoline and distillate output from refineries. (See chart on U.S. Refinery Output.)

Oil imports by the United States during the past four weeks have averaged about 555,000 barrels per day more than in the same period in 1978, but supplies available for current

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consumption are less than in 1978 because crude oil and gasoline stocks are lower than in 1978 and are being drawn down at a much lower rate than last year. Crude oil and gasoline stocks were being drawn down at the rate of about 990,000 barrels per day in April of 1978, while in the past four weeks of 1979 crude oil and gasoline stocks were being drawn down at a rate of about 400,000 barrrels per day due to the low level of these stocks nationally.

Outlook for World Oil Supplies

Even with the partial restoration of Iranian oil production to an average level of 3.5 MMB/D, world oil supplies are currently about 1 MMB/D below the level necessary to permit rebuilding of our depleted stocks and to restore equilibrium to world oil prices. Reflecting this continuing shortfall, world oil prices continue to move upward.

OPEC oil prices continue to reflect the confusing three tier structure which has prevailed since the March OPEC decision:

- At the lowest tier, Saudi Arabia continues to charge $14.55 for most of its oil sales, although Petromin (the Saudi Government's oil agency) has continued to expand its direct marketing, primarily to smaller developing countries which have experienced difficulty obtaining oil on world markets.

- The second tier, which includes all other OPEC countries, is characterized by surcharges, originally of about $1.80, but which now seem likely to rise to about $2.40 as a result of the price increases announced last week by a number of governments.

- The third tier is the spot market. While there is considerable uncertainty about the precise volume of oil being sold on a truly spot basis, we believe the volume may be as high as 1 MMB/D. Iran is leading the way by currently selling several hundred thousand B/D on the spot market. Iraq, Kuwait and Libya are also selling significant volumes. Prices on the spot market are averaging in a range of $22-26/barrel, with isolated sales around $30/barrel.

The net effect of these three price tiers has been to raise average OPEC prices to about $16.50 per barrel. Given the reliance of the U.S. on the higher qualities of crude oil, the average F.O.B. price for U.S. imports is therefore over $17.00 per barrel. Given the transportation costs, the average landed price of U.S. crude oil will soon rise to over $18 per barrel, up $3/barrel from the late 1978 average of about $15/barrel.

The resumption of Iranian crude exports should result in a rise in U.S. imports within the next 30 days by at least

200,000 B/D, and perhaps double that amount through the course of the summer. This will permit an increase in U.S. refinery runs and the production of refined products.

Outlook for Gasoline Supplies

Total gasoline supplies initially made available by suppliers for May are reported to be 92 percent of 1978 supply levels for the month of May. It is expected that the deliveries of gasoline to retail outlets for the month of May will increase slightly before the end of the month. This is likely to result as refiners become more certain of their crude oil supplies, as their priority delivery requirements are firmed up, and as the States allocate the gasoline which has been set aside for distribution by the States. Total gasoline supplies could increase to 94-97 percent of the 1978 supply level as the allocations are completed for the month.

Based on its review to date, the Department has no verified information that refiners or other suppliers have been withholding supplies from the market in order to push up prices, but audits of company reports have not been completed. DOE is beginning a more detailed investigation, in cooperation with the Department of Justice, of the flow of petroleum through the distribution chain to identify any problems that may exist, and will be prepared to take action to resolve any problems that may be found.

Refiners appear to have been somewhat conservative in recent weeks in their use of available crude oil and gasoline stocks. In view of the failure of U.S. consumers to restrain their demand for gasoline, refiners should help ease the immediate shortage by increasing the rate of use of available crude oil and gasoline stocks to provide time for the States to implement measures to restrain demand, and help reduce long lines at gasoline stations. Nationally, crude oil and gasoline stocks could be drawn down by a total of about 42 million barrels by the end of the summer without causing serious operational problems. That would permit an average daily drawdown rate of 380,000 barrels per day through the end of August, and could permit gasoline supplies at about 96-97 percent of the 1978 level if oil imports are not increased significantly from the current low levels.

As discussed above, crude oil imports are expected to begin to increase gradually by next month, which also would help ease the supply shortage. It is hoped that crude oil imports will increase to at least 6.1 MMB/D in June and average at least 6.2 MMB/D in the third quarter. This compares with the average level of imports during the past four weeks, of just under 6.0 million barrels per day. If crude oil imports increase to these levels it should permit gasoline supplies at 98 to 100 percent of the 1978

supply levels. (See chart on U.S. Gasoline Use and Potential Supplies.)

The reduced availability of gasoline supplies has especially impacted high growth areas such as parts of California. Although estimated supplies available to California for May are slightly higher than the national average, California has had a population growth rate of 1.9 percent in 1977-78, compared with a national average growth rate of .8 percent. Metropolitan areas in California also lack adequate public transportation systems as alternatives to the automobile and support a population which tends to travel longer distances to and from work.

In California, normally high rates of demand were accelerated rapidly in recent weeks as motorists became concerned about their ability to obtain gasoline and began topping their car tanks and filling spare containers. The lack of acceptable alternative transportation modes for many motorists contributed to the sense of urgency in obtaining gasoline.

As motorists increased their purchases, many gasoline stations quickly sold their daily or weekly quotas and began to operate shorter hours. Therefore, there was more traffic at the stations due to tank topping, and the stations were in turn forced into shorter operating hours. The inevitable result was long lines while they were open.

As evidenced in the Washington, D.C., area on May 11 and 12, the public fear of not being able to purchase gasoline, can quickly lead to lines and early closings. The lines experienced in parts of California could occur in other urban areas of the country unless motorists restrain their use of gasoline and avoid tank topping.

The gasoline allocation system now in effect is based primarily on historical supplies of gasoline to the retailers. Refiners and distributors are required to allocate the bulk of their supplies among their customers based on deliveries in an historical base period. Only certain users, agriculture and defense, are provided 100 percent of current requirements. In addition, three percent of planned supplies for each State is set aside for allocation by the State to meet emergency and hardship needs. The historical base period allocation system results in greater apparent shortages to those areas which have a high demand growth rate due to population increases or other factors. Accordingly, some areas such as southern California may be suffering from a greater gap between supply and demand than are other areas in the country.

To help minimize these problems resulting from the allocation system, the Department of Energy recently revised the allocation regulations to permit the allocation to be based

on either the supply in the corresponding month of the previous year or on the average supply in the five-month period of October 1978 through February 1979 if that average is more than 10 percent above the corresponding month of the prior year. This is intended to assist areas which have had a high rate of demand growth. The Department also recently provided that States can allocate gasoline directly to retail stations from the States' set-aside.

The Department plans to make two additional changes in the gasoline allocation system to help ease shortage problems:

- The priority allocation system for defense needs would be revised to limit the priority rating only to needs directly related to operational readiness. General defense support activities would share in shortages on the same basis as other historical users.

- The amount of gasoline set-aside which could be allocated by the States would be increased from 3 percent to 5 percent of total supplies available for a State each month, upon request by the State. This would provide increased flexibility to the States, if they desired the higher set-aside, to direct additional gasoline to those areas within the States

which have the highest growth rates and are suffering the most severe shortages.

A reduction in gasoline demand, as requested by the President on April 5, will be essential if we are to avoid significant supply shortages this summer. A 5 percent reduction from the projected demand levels for 1979 is needed. The States and individual motorists must act to reduce gasoline use immediately to avoid problems similar to the situation in California. The States and each individual motorist mus take the initiative in reducing gasoline use by such actions as increasing the use of carpools, avoiding unnecessary trips, and complying with the 55 MPH speed limit. Only a small reduction in automobile use by each motorist--15 miles per week--would end the shortage, end the lines, and provide gasoline conveniently for essential activities. Full compliance with the 55 MPH speed limit would go a long way toward ending the shortage.

Outlook for Distillate Supplies

Shortages of distillate fuel have occurred recently in certain states such as Iowa, Indiana, Nebraska, Montana and Wyoming, which require high amounts of diesel fuel to operate farm equipment during the spring planting season. These shortages have occurred primarily because of the

inability of refiners to draw down distillate stocks to meet current demand.

Projected demand for distillate in the second quarter of 1979 is approximately the same as demand in the second quarter in 1978. However, because of the reduced crude oil supplies available to refiners and the extremely low levels of distillate stocks, deliveries of distillate by primary suppliers during April were about three percent below deliveries during the same period in 1978. The Department's tracking of the distillate supply situation is complicated by the scarcity of information on distillate stocks below the primary level. DOE is attempting to develop the needed information.

The shortages reported in certain farming states have prompted DOE to take special action to assure that farmers receive adequate supplies of No. 2 distillate to run their machinery.

On May 10, 1979, the Department adopted Special Rule No. 9 which implements that portion of the standby product allocation regulations which provides agricultural users priority status. Under this Rule, consumers engaged in agricultural production are permitted to receive 100 percent of their current requirements through July 31, 1979.

In preparation for next winter's heating season, refiners and major terminal operators have been requested to take action to rebuild distillate stocks to about 240 MMB industry-wide by next October. Each of the 35 largest refiners is being requested to provide DOE with its level of distillate inventories anticipated for October. Based on this information, DOE will assess the industry's ability to achieve the target, taking into consideration the total picture, including any data that can be developed on stocks beyond the primary level.

The target established by the Department is at the high end of the normal range estimated for October to ensure that inventories will be sufficient to meet anticipated normal demand for next winter.

If crude oil imports increased as discussed earlier, and if demand for distillate and gasoline can be restrained to 1978 levels or lower this summer, distillate stocks could be built to adequate levels to meet requirements next winter, without the need for mandatory actions by the Department.

Distillate demand could be limited to about the 1978 level this summer if we get good compliance with our efforts to get major distillate users to switch to natural gas and with the mandatory plan to set thermostats at no lower than 80 degrees for air conditioning this summer.

Switching from oil to natural gas by utilities and industrial users is resulting in estimated oil savings of slightly more than 200,000 B/D. We hope that savings will continue at this level or higher for the remainder of the year and that about one-third of the savings will be in distillate.

Implementation of the mandatory building temperature controls plan should result in distillate savings of about 100,000 B/D during the third quarter if there is a reasonable level of compliance.

DOE will be prepared to take mandatory actions if necessary to assure that fuel oil stocks are built up to acceptable levels.

Conclusion

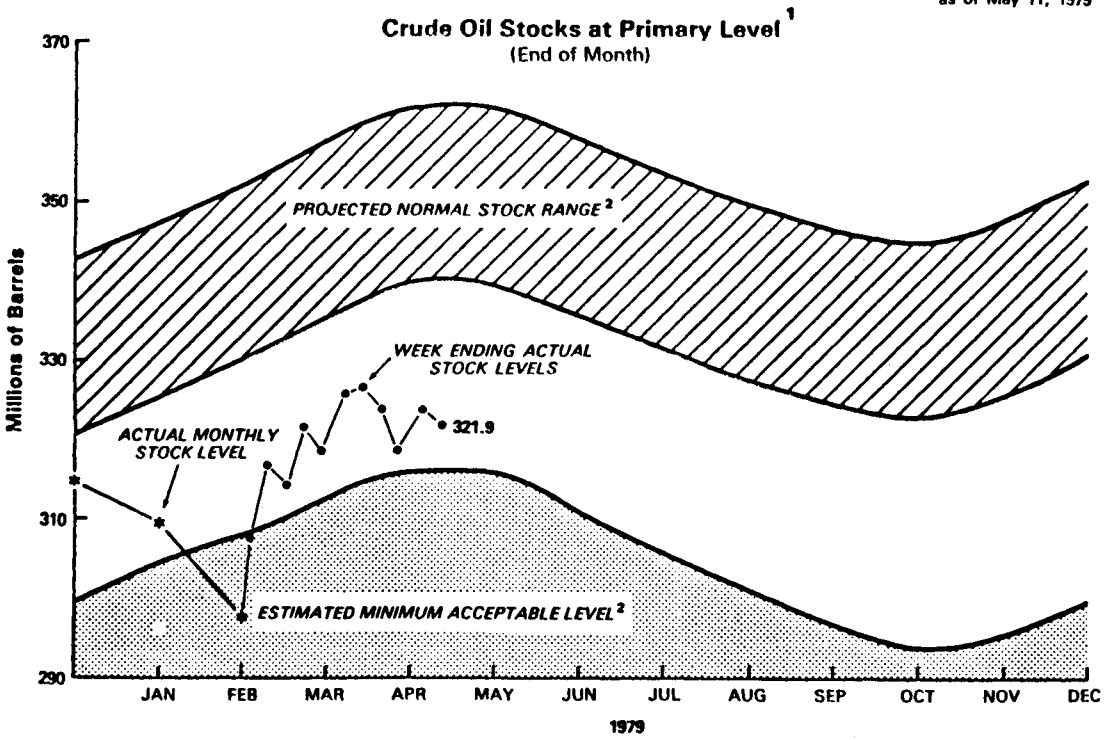
In summary, we anticipate that gasoline supplies this summer will average close to the level of 1978. If motorists restrain total demand to the 1978 level, we should be able to get through the summer without serious problems of long lines at stations. But because of the growth in population and the number of drivers, this means that each of us must reduce our consumption from last year's level by 2 to 3 percent.

Distillate stocks for heating oil next winter can be rebuilt to safe levels by next fall if demand is restrained this summer to about the 1978 level. If we have an unusually hot summer, with an increase in air conditioning use, demand for distillate for peak electric power generation could push up distillate use. This could require a reduction in gasoline supplies in order to build distillate stocks to safe levels.

There also continues to be substantial uncertainty about the level of oil imports during the next few months. If imports do not increase above the average level for the past four weeks, it is estimated that gasoline supplies this summer would be about 96 to 97 percent of the 1978 level.

That concludes my statement, Mr. Chairman. I will try to answer any questions you or the committee may have.

as of May 11, 1979



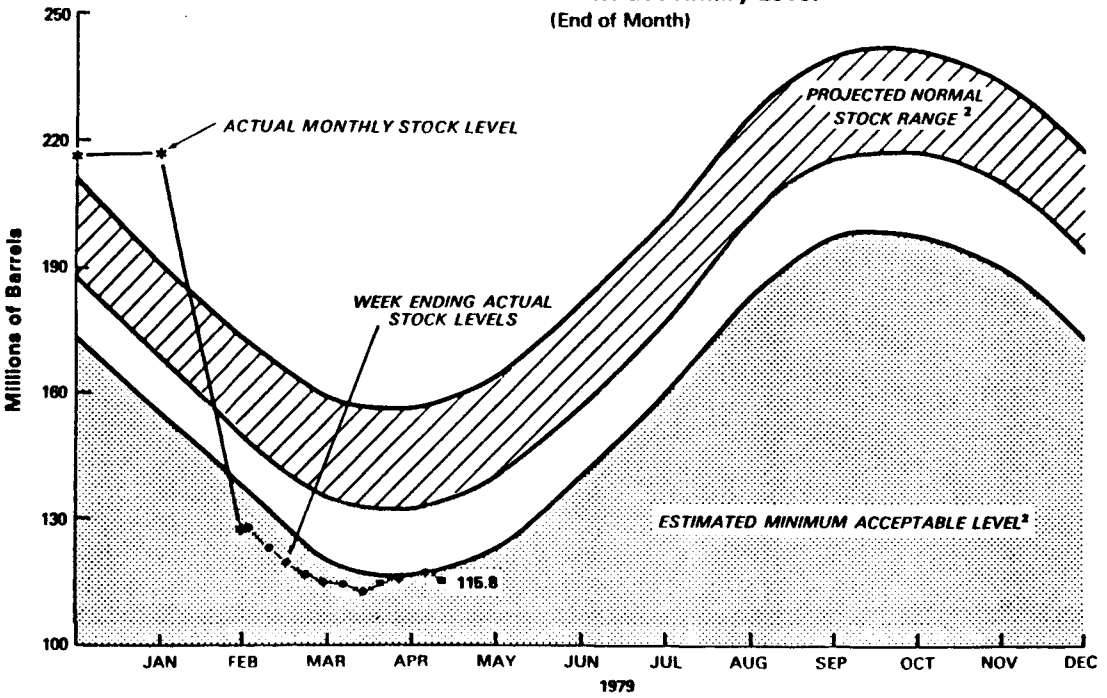
1 Product stocks at the Primary Level include those held at refineries, in pipelines, and at major bulk terminals.

2 See notes 2 and 3 of U S Petroleum Stocks at Primary Level

Source Week ending average data: American Petroleum Institute (API), "Weekly Statistical Bulletin"; projections and estimates through 1979: DOE Emergency Policy Committee, Iranian Response Plan. Actual Monthly Data December 1978, EIA Energy Data Reports, "Petroleum Statement, Monthly"; January through February 1979 EIA "Monthly Petroleum Statistics Report"

as of May 11, 1979

Distillate Stocks at Primary Level[1]
(End of Month)



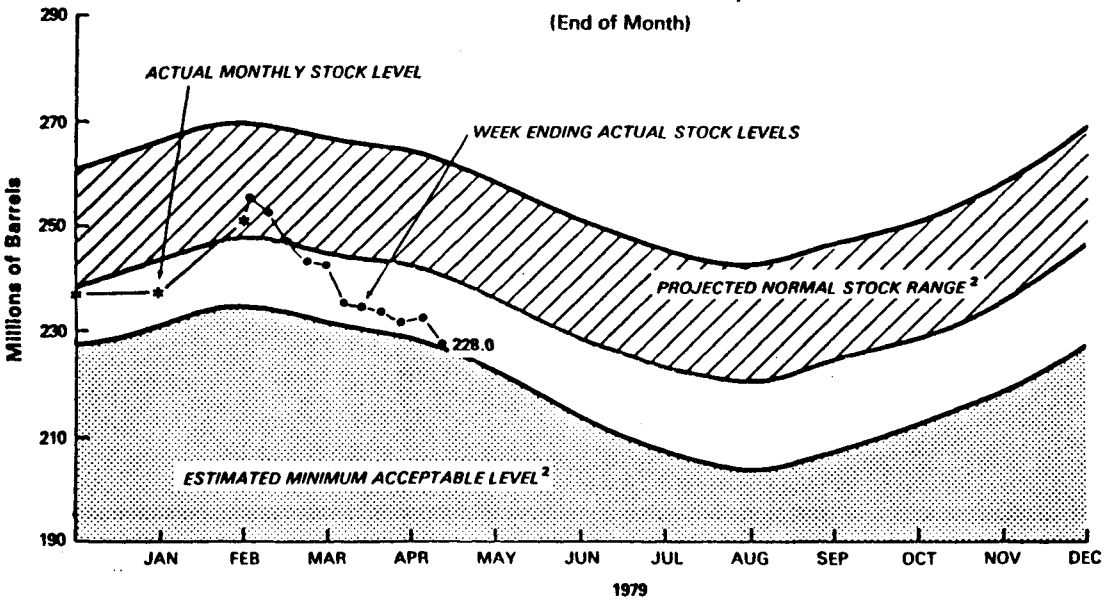
1 Product stocks at the Primary Level include those held at refineries, in pipelines, and at major bulk terminals

2 See notes 2 and 3 of U S Petroleum Stocks at Primary Level

Source: Week ending average data: American Petroleum Institute (API), "Weekly Statistical Bulletin"; projections and estimates through 1979: DOE Emergency Policy Committee, Iranian Response Plan. Actual Monthly Data: December 1978, EIA Energy Data Reports, "Petroleum Statement, Monthly", January through February 1979: EIA "Monthly Petroleum Statistics Report."

Gasoline Stocks at Primary Level [1]

(End of Month)



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Source: Week ending average data: American Petroleum Institute (API), "Weekly Statistical Bulletin"; projections and estimates through 1979: DOE Emergency Policy Committee, Iranian Response Plan. Actual Monthly Data: December 1978, EIA Energy Data Reports, "Petroleum Statement, Monthly"; January through February 1979: EIA "Monthly Petroleum Statistics Report."

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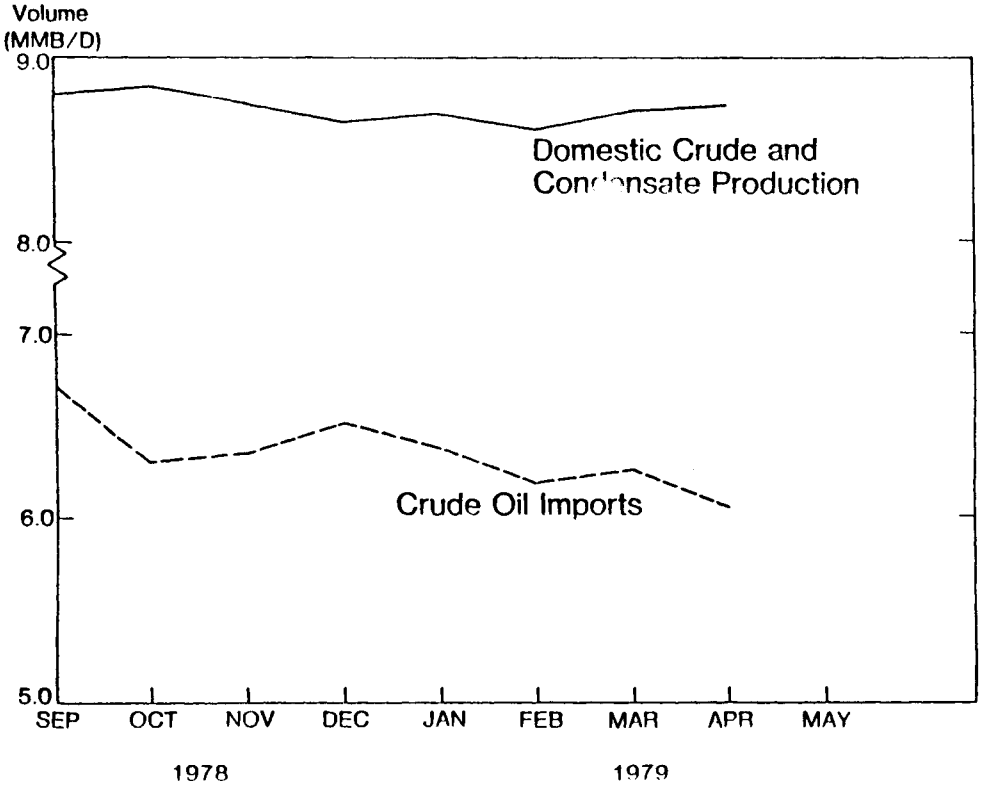
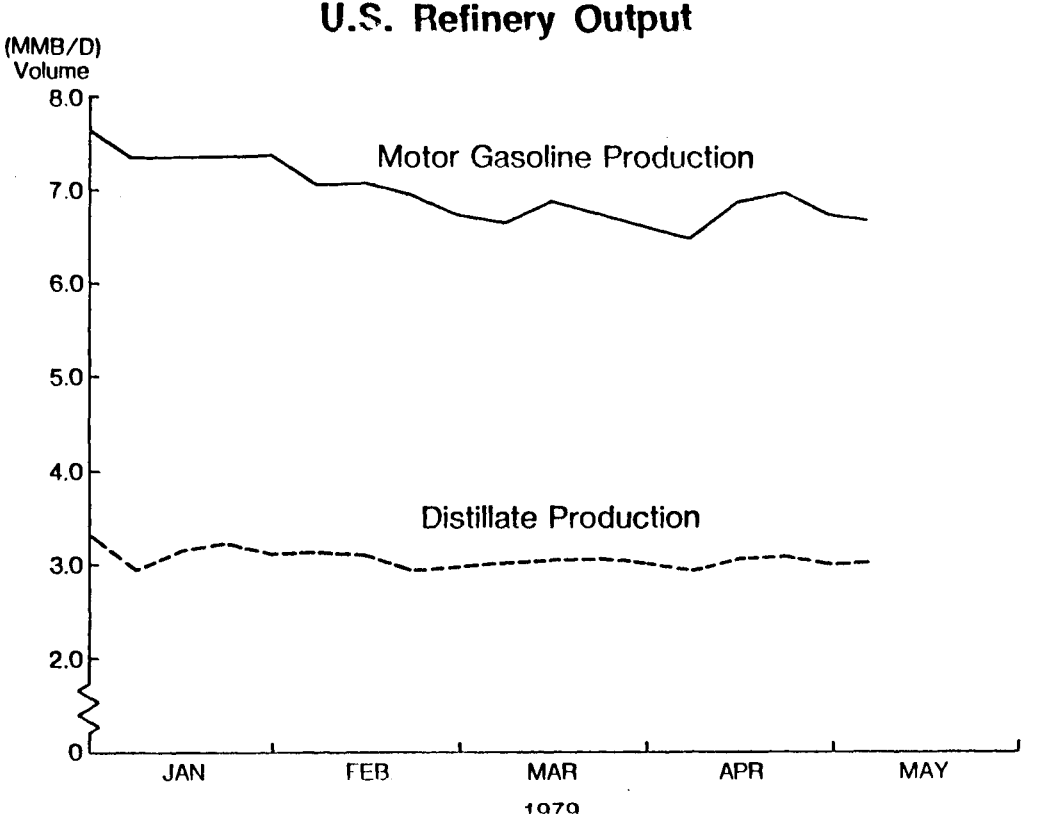
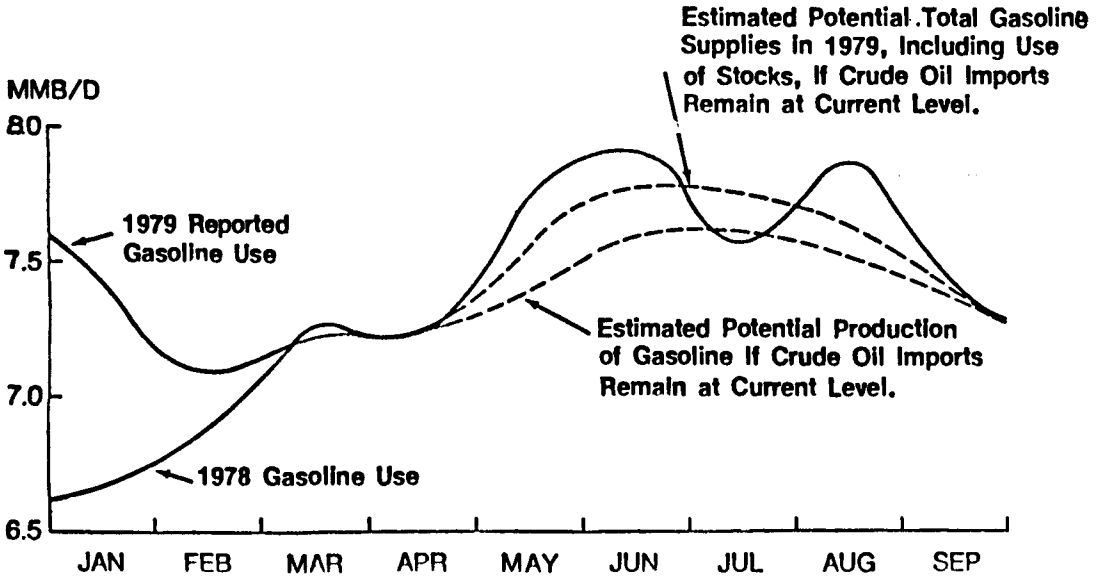
U.S. Crude Oil Production and Imports





U.S. Gasoline Use and Potential Supplies



Senator RIEGLE. The committee stands adjourned.

[Whereupon, at 2:03 p.m., the subcommittee was adjourned, to reconvene at the call of the Chair.]

GASOLINE SHORTAGES

WEDNESDAY, JUNE 6, 1979

U.S. SENATE,
COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS,
SUBCOMMITTEE ON ECONOMIC STABILIZATION,
Washington, D.C.

The subcommittee met at 10 a.m., in room 5302, Dirksen Senate Office Building, Senator Donald W. Riegle, Jr., presiding.

Present: Senators Riegle, Stewart, and Lugar.

STATEMENT OF SENATOR RIEGLE

Senator RIEGLE. The Economic Stabilization Subcommittee of the Senate Banking Committee will come to order.

Today is the second of two hearings that this subcommittee is holding on the economic stabilization aspects of the petroleum supply problem. At our first hearing on May 22, our principal focus was on the immediate problems created by the gasoline shortage that engulfed the Nation in May. Today our focus is on the economic consequences if the recurrence of such shortages stretches out over the months and years ahead.

The month of May is now over but the petroleum supply problem will be with us throughout the foreseeable future. Recently we learned of a huge shortage of diesel fuel in various parts of the country and there is the likelihood of the gasoline shortages this summer increasing the risk of creating heating shortages next winter.

There are several unhappy facts of life that we must face that provide the jumping off point for today's hearings. First, despite some relief due to Alaskan oil production, the United States will remain heavily dependent on foreign supplies. The availability of foreign supplies is becoming increasingly unreliable.

In addition, it can be safely predicted that the prices of foreign crude oil will continue to rise quite rapidly. Indeed, it is possible that the domestic inflation and economic disruption caused by conditions in the world petroleum market could easily reach the magnitudes experienced in 1973-74. Second, we know the average barrel of crude oil is becoming ever more heavy and sulphuric. To derive light product from such oil requires both more crude oil and more refinery capacity. To make matters worse, the shortage of light crude has been exacerbated by disproportionate growth of the demand for light product.

Third, even though we suffer from chronic shortages of both light crude oil and of refinery capacity, available supplies of these scarce resources are being used very inefficiently at the present

time. The construction of major refinery capacity has been impeded by regulations governing profitability and environmental standards. Meanwhile, the cumbersome entitlement system and direct subsidies have encouraged the construction of small refineries that can only utilize high quality crude oil and which do not produce significant amounts of gasoline. And while new economy standards have raised mileage per gallon on automobiles, part of this gain is illusory because the fraction of our fleet of autos that uses unleaded and high octane gas has increased, a circumstance that implies the need for more refinery capacity as well as for more crude oil per gallon of light product.

Our intention today is to examine the consequences of the continuation of shortages of petroleum products. Our first witness is Dr. Joseph Kasputys, who is vice president and head of the Washington office of Data Resources. Dr. Kasputys will present the results of a study that DRI has undertaken at the request of the subcommittee designed to estimate the quantitative impact of various levels of petroleum shortfalls on the U.S. economy. What are the likely effects on employment and growth? What will happen to the rate of inflation? Will petroleum shortages increase the risk of recession or change the timing and magnitude of the possible recession?

Dr. Kasputys will be followed by Mr. Peter Toja, vice president and senior economist of Merrill Lynch Economics. Mr. Toja will address his testimony to the impact of petroleum shortages on key energy intensive industries such as agriculture, aviation, autos, and other transportation, as well as petrochemicals. Our final witness will be Dr. Theodore Eck, the chief economist of Standard Oil of Indiana. Dr. Eck will present a number of proposals designed to enlist the cooperation of government and the petroleum industry in efforts to alleviate both present and future petroleum shortages and to do this in a manner that is consistent with appropriate environmental and equity standards.

So we have a lot of ground to cover this morning. I'm very pleased to have our witnesses with us and I want to thank them for coming and for the work that they have undertaken to prepare for today's testimony.

Senator Stewart, do you have any comment at the outset?

Senator STEWART. No.

Senator RIEGLE. Why don't we start, then, in the order that I have suggested. Dr. Kasputys, we would like to have you begin if you would.

STATEMENT OF JOSEPH KASPUTYS, VICE PRESIDENT OF DATA RESOURCES, HEAD OF THE WASHINGTON OFFICE

Mr. KASPUTYS. Thank you very much, Mr. Chairman.

[Complete statement follows:]

Testimony Presented
by
Joseph E. Kasputys
Vice President
Data Resources, Inc.

The lines at service stations and soaring gasoline prices have jarred the American people back to the reality that both the maintenance of our individual lifestyles and the efficient operation of our economy are heavily dependent upon a steady supply of crude oil and petroleum products. This fact was initially demonstrated in a most vivid manner during the OPEC oil embargo imposed in October 1973, which placed the American motorist into gasoline lines for the first time in the post World War II period. The oil embargo, and the sharp price increases that followed, contributed materially to the severe recession that occurred in 1974-75, when real GNP declined by an average of 4.4% over a five quarter period and the unemployment rate climbed to 8.9% in the second quarter of 1975.

The memory of this pattern of petroleum shortage followed by price increases followed in turn by recession causes us to ask the question as to whether we are in the same cycle once again, and if so, how severe the economic impacts might be. A knowledge of the potential extent of these impacts may encourage policymakers to take actions to minimize the risks to the economy from a shortfall in gasoline and other petroleum supplies.

With this purpose in mind, Data Resources, Inc. has just completed a study examining the economic impact of two alternate levels of gasoline and other petroleum product shortages. The study, which was requested by this committee, was performed for the Congressional Research Service. In this study, the same OPEC price levels were used at each level of shortfall. While both DRI and CRS recognize that OPEC prices will rise with increasing shortfalls, this assumption was used to isolate the impact of physical shortages from price effects. I am pleased to have the opportunity to present the results of this study to the committee.

Major Causes of the Gasoline Shortage

This committee received extensive testimony on May 22, 1979, by experts in the oil industry, gasoline retailing and the government on the causes of the gasoline shortage. Unlike the Arab oil embargo of 1973-74, the statements indicate that the causes of the shortage have become more complex and difficult to understand. Indeed, government regulation of the importation, production, refining, distribution, use and pricing of petroleum has become so extensive since 1973 that the involved government agencies receive much of the blame

when problems arise. The public seems confused as to whether the OPEC, oil companies or the government is the principal source of the current shortfall.

As Dr. Whitfield of DRI testified on May 22, we believe that the gasoline shortage has been caused by a combination of factors. Chief among these is the interruption and reduction in crude oil production in Iran. Given that other OPEC nations have not increased production to satisfy demand, the current world crude oil shortfall would be 2.6 mmbd at prices prevailing at the end of 1978. We estimate that the large OPEC price increase in January has reduced this shortfall to 1.0 mmbd, with the U.S. share being approximately one-half that amount. Even without the Iranian crude shortage, U.S. refining capacity allows very little margin to meet gasoline demand, especially for unleaded gas. Due to EPA regulations, the increase in cars on the road that require unleaded gasoline have caused this demand to explode in the past few years. To this must be added the steady increase in gasoline demand since 1975, with the first five months of 1979 being 1.2% higher than the comparable period in 1978. At the same time, other government policies such as cost passthrough regulations appear to have discouraged investment in new refinery capacity while lead and MMT as an additive have been restricted, which reduces gasoline yields from crude runs. Finally, consumer hoarding has been a significant factor in transferring inventories from the distribution system to the end user, contributing to queuing and the perception of a greater shortage than actually exists, which further reinforces panic buying.

Because of the number of considerations contributing to the current shortfall, unlike 1973 it is difficult to identify a single major causal factor. However, there did appear to be some common ground at last month's hearing that the crude oil shortfall is between 2.0 and 3.0 percent, with the resulting gasoline shortfall somewhat higher.

Economic Impact Scenarios

As a result of the foregoing we decided to examine the economic impacts of two shortfall scenarios:

- A moderate temporary shortfall of 400,000 barrels per day, slightly over 2 percent of anticipated average 1979 crude oil demand which disappears by 1980 (case 1)

- A more severe shortfall of 1.2 mmbd through 1979 and 1980, which is 6.3 percent of anticipated average 1979 crude oil demand (case 2)

These two scenarios were compared to a base case with no shortfall to measure the full economic impacts of the respective shortages. The analysis was performed for the 7-quarter period 1979:2 through 1980 using the DRI macroeconometric model of the United States.

General Assumptions

Except for oil supply, the same assumptions were used for all three simulations to permit consistent measurement of the relative impacts of the shortages. These assumptions include restrictive fiscal and monetary policy, with some easing of the latter after negative real GNP growth during the second half of 1979. The dollar remains stable in foreign exchange markets, with some appreciation in 1980. A 45-day automobile strike occurs in the Fall. Oil supply shortfalls affect oil importing countries to the same degree as the United States. Decontrol proceeds on schedule, with a modest windfall profits tax enacted. As explained earlier, OPEC price increases are the same for all three simulations, with a second quarter light crude price assumed at $15.74 which is an average surcharge of $1.20 over the March 26 announced level. A further increase of $.60 is assumed from the OPEC meeting the end of this month.

Moderate Shortfall (Case 1)

The Case 1 shortfall of 400,000 barrels per day in the second and third quarters of 1979 drops to 250,000 barrels in the fourth quarter and disappears altogether in 1980. While dislocations do occur as the shortage initially impacts consumers and as the allocation system is adjusted, DRI assumes that 150,000 barrels per day of this shortfall are replaced by the current natural gas "bubble", as switchable industrial users convert to gas. Another 100,000 barrels per day come out of the distillable inventory buildup during the second and third quarters, so that the inventory peaks at about 220 million barrels, some 20 million barrels below the Department of Energy target. The result is that gasoline supplies are short by 150,000 barrels per day in 1979:2 and 1979:3, dropping to 100,000 barrels per day in 1979:4.

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Consumption of automobiles is reduced, with the greatest impact on the domestic automobile industry, but this is softened by the auto strike expected anyway. Hotel/motel sales are off and there is an overall lessening of consumer confidence, which slows general consumption. Inventories and foreign production move downward. In production, there are few disruptions because the shortfall is moderate and occurs in fuels with minimal industrial impacts. A general slowdown of the economy in 1979:3 and 1979:4 also mitigates the industrial impact in this period. Some slowdown in deliveries should occur as diesel supplies, while adequate, will be tight. In addition, purchasing agents will tend to stockpile all types of material to hedge against uncertainties created by the shortfall.

Severe Shortfall (Case 2)

In Case 2, a shortfall of 1.2 mmbd continues throughout 1979 and 1980. This shortfall could be caused by any combination of factors, such as a complete withdrawal of exports from Iran, a partial embargo, etc. The selection of this level is merely to illustrate the vulnerability of the economy to the loss of some 15% of anticipated 1979 imports. As in case 1, 150,000 barrels per day are replaced by use of the natural gas "bubble". The remaining shortfall of 10.5 mmbd is divided between gasoline and distillate so that a proportionately greater shortfall is absorbed by gasoline, which is the probable instructions that would be given to refiners by DOE. The gasoline shortfall is assumed at 650,000 barrels per day and the distillate shortfall at 400,000 barrels per day.

At this higher level of protracted distillate shortfall, the Department of Energy is assumed to apply mandatory allocation to distillate, which favors agriculture, necessary public services, trucking and industrial use.

The burden of the impact falls squarely on gasoline for personal automobile use and on distillate for space heating. Consumption of automobiles, recreational vehicles, gasoline and travel facilities is significantly reduced and home heating and air travel are added to the list of major affected categories. Consumer confidence is weakened. Inventories and foreign industrial production are further reduced. Certain wholesale prices and the consumer price index will move more rapidly upward as cost increases are passed through more rapidly than historical experience.

Production is affected more than in Case 1, but is still largely protected by the allocation scheme. Diesel fuel for trucking is tighter and deliveries become slower. Capacity utilization will be somewhat lower, since the fuel shortfall does reduce effective capacity.

The fuel supply picture is extremely vulnerable to a cold winter, with distillate supplies tight and a continued inventory drawdown projected through the entire 1979-80 period. Even with allocation, the space heating requirements of a cold winter would divert some additional distillate from production to heating oil uses.

Economic Impact of the Petroleum Shortfalls

The two shortfall scenarios have the following economic impacts when compared to the BASE CASE:

1. Real GNP.

- The moderate petroleum shortfall (Case 1) lowers real GNP by $3 billion in 1979 and $1.5 billion in 1980. In percentage terms, this translates into a reduction in the rate of growth of real GNP of .2% in 1979 and .1% in 1980.
- The severe petroleum shortfall (Case 2) starts the expected recession one quarter earlier and makes it deeper, although the rebound still occurs in the first quarter of 1980. The loss in real output is $14.8 billion or a full 1% difference in 1979 and $28.1 billion or a 1.9% difference in 1980.

2. Real GNP Components.

- Consumption is the major factor contributing to the downturn in both cases, with the most significant impacts occurring in automobiles, gasoline and fuel oil, recreation, tourism, transportation and other services. In Case 2, although direct impacts are some $6 billion in 1980, the final reduction is $15.8 billion due to lagged effects from 1979, higher prices, loss of consumer confidence and similar factors.
- Housing would not be noticeably reduced in Case 1, and is projected at 5,000 starts lower in 1979 with a return to nearly the BASE CASE

level in 1980. In Case 2, housing starts are down by 33,000 units and 82,000 units in 1979 and 1980, respectively.

- Nonresidential investment follows the same pattern as real GNP in Case 1, but drops by .9% in 1979 and 2.9% in 1980 for the more severe shortfall as business investment plans are modified downward to reflect the more permanent and deeper shortage.
- Real exports are lower in 1979 and 1980 for both alternatives because the petroleum shortfall is also expected to fall upon foreign countries as well as the United States. For Case 1, exports are $.2 billion and $.5 billion lower in 1979 and 1980. The comparable figures for Case 2 are $.7 billion and $3.5 billion. Real imports are also reduced in both cases due to lower oil imports and reduced import demand due to lower overall economic activity. The import reduction approximately offsets the loss in exports except for Case 2 in 1980, where imports are only $1.1 below BASE CASE levels when measured in 1972 dollars. When measured in nominal terms, however, the impact on the trade balance is positive in all cases because the price index for imported oil has risen so rapidly compared to other trade price indexes.
- Government purchases are assumed to be relatively fixed over the period under study and consequently are only reduced in real terms by the higher rate of inflation. The higher inflation in Case 2 reduces Federal purchases by .1% in 1979 and .2% in 1980.

3. Production

- The index of industrial production weakens slightly in 1979 in Case 1, but returns to the BASE CASE level in 1980.
- The severe shortfall in Case 2 reduces industrial production in 1980 some 3% below the BASE CASE level, with durable manufacturing and primary processing among the principal sectors affected.

4. Employment and Unemployment

- In Case 1, the growth in employment is slightly diminished, ending 1980 with 150,000 fewer workers on the payrolls than the BASE CASE. The unemployment rate deteriorates only slightly, following a path just above the BASE CASE.

- The more severe shortfall produces consumption and production cutbacks that fall squarely on the workforce and unemployment. Employment falls by .3% in 1979 for a loss of 290,000 jobs and there is no employment growth in 1980 for a further loss of 1,190,000 jobs. The manufacturing sector is hit the hardest, with the least impacts on finance, insurance, real estate, services, wholesale and retail trade and government. The unemployment rate reaches 7.3% in 1980, the highest level since early 1977.

5. Prices

As stated earlier, one of the primary factors in determining the rate of inflation, the OPEC crude oil price, was deliberately held constant across all three simulations to isolate the impact of the physical shortage from OPEC price effects. Refined petroleum prices were varied somewhat, allowing recovery of unrecouped costs by producers. The changes in economic conditions created by the shortfall also were allowed to affect prices.

- In Case 1, there was no measurable impact on consumer prices and only marginal impacts on wholesale prices. The higher energy prices are offset by the weaker demands in the rest of the economy.

- In Case 2, the supply disruptions and higher energy prices do raise price levels despite a weaker economy. The CPI climbs by .4 to 10.6% in 1979 and by .8 to 8.9% in 1980. The WPI shows even greater increases.

Charts I through IV graphically depict the differences between the three alternative simulations for real GNP, industrial production, unemployment and prices.

A Note on the BASE CASE

In comparing the BASE CASE with the two shortfall scenarios, it is important to note that the BASE CASE continues to contain a mild recession in the third and fourth quarters of 1979 even after the elimination of all petroleum shortages. If this mild recession had not been projected, BASE CASE

petroleum demand would be higher in these quarters. Consequently, if petroleum supplies were restricted to the levels used in the alternative cases the impact would be more severe. However, if the same shortfall amounts were used for comparison with a nonrecession base case, the impacts would be approximately the same.

Further Observations on Prices

The OPEC crude oil price is not likely to remain constant at higher levels of shortfall, althougy this assumption was used in this study to isolate the impact of shortfalls from OPEC price impacts. While the price used is considered representative for Case 1, the OPEC price would probably be lower for the BASE CASE and considerably higher for Case 2.

It is difficult to speculate on OPEC actions if a protracted shortfall of 1.2 mmbd occurred in meeting U.S. petroleum demand, with comparable levels of shortfall impacting on other oil importing nations. Spot market prices would almost certainly stay in the $30 to $40 range unless coordinated international action were taken to reduce these prices, which would be very difficult to achieve. The existence of these prices for any protracted period would almost certainly tempt OPEC to raise marker prices.

This readiness to raise prices has been amply demonstrated through surcharges, regular quarterly repricing by OPEC and even North Sea increases that have lifted contract prices in some cases to approximately $21 per barrel.

The additional price increases would work their way through the economy, adding to the rate of inflation, reducing consumer and business confidence and cutting back consumption and investment. Therefore, we should expect the actual economic impact resulting from a petroleum shortfall of 1.2 mmbd to be materially greater than has been presented here.

Summary

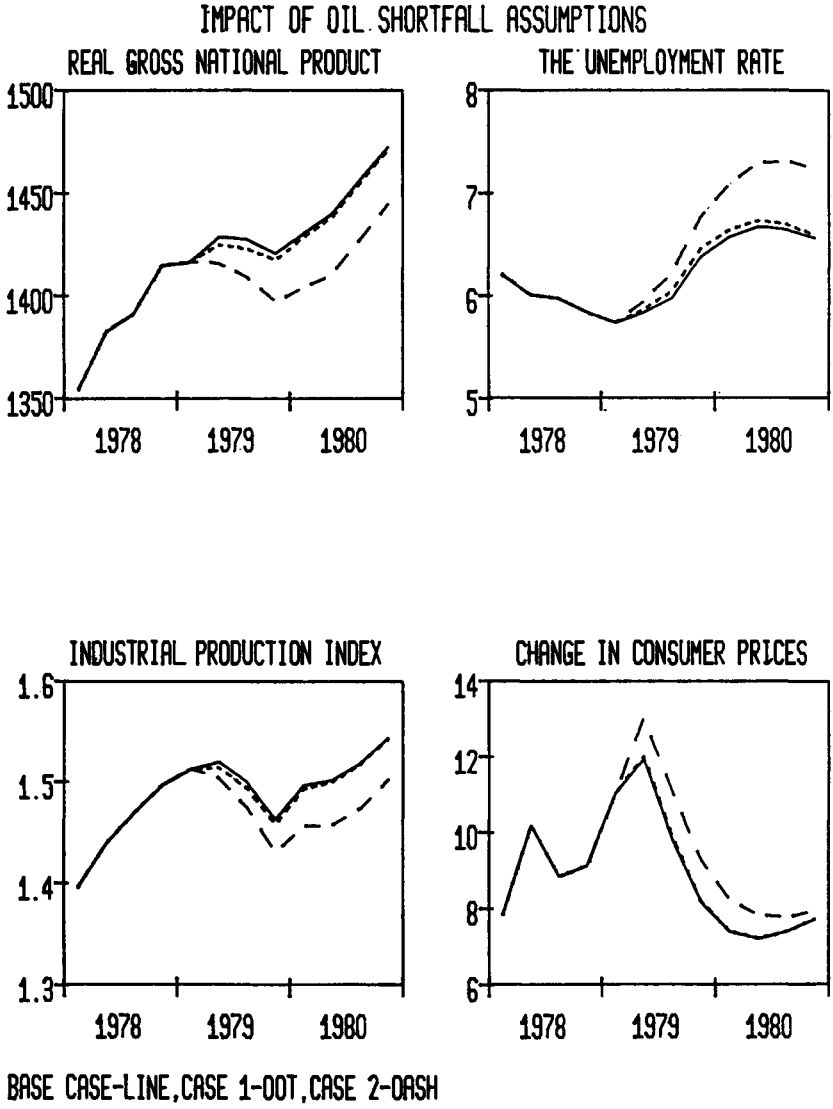
It is our estimate that the petroleum shortfall is likely to remain at or near 500,000 barrels per day at least through the summer driving season. There are negative impacts to this shortfall. Supplies will be tight and shortages of gasoline and diesel fuel will occur in certain areas, but probably with diminishing severity as users adjust their inventories and buying practices

to this restricted availability and as government policies encourage a better balance between leaded and unleaded gasoline supplies. Both passenger car drivers and truckers will be inconvenienced by these tight supplies and will be unhappy over the higher prices, especially if additional imports are purchased in the spot market. Beyond negative impacts to the automobile, recreational vehicle and certain travel industries, the general effect on the economy is relatively minor and transitory.

There are risks to the shortfall remaining at or near 500,000 barrels per day. A variety of international political events and/or higher domestic demands could result in a far larger shortage. The 1.2 mmbd shortfall used in Case 2 is only 15 percent of imports and 6 percent of total petroleum demand. A shortage of this magnitude or higher would have much more drastic impact on the economy, especially if it is of a longer duration than 6 to 9 months. Consumption and production will be reduced and bottlenecks will occur. Inflation will increase by one-half percent or more, and the unemployment rate will rise to between 7 and 8 percent, with some 700,000 additional unemployed than in the case with no shortage.

While it is difficult to assess the probability of this risk turning into reality, it is a possibility that should not be ignored. The magnitude of the potential negative impact highlights how thoroughly dependent our economy is on a delicate balance of petroleum supply and demand and on government policies that affect that demand.

Since Americans were first sent to the gasoline lines in 1973, innumerable proposals to reduce energy dependence have been advanced and many have been adopted into law or regulation. Undoubtedly, some of them have helped and have kept us from becoming even more reliant on foreign petroleum supplies. However, we must face the reality that is indicated by the data and by our current vulnerability that much more needs to be done to gain a reasonable degree of control over our economic future.



Mr. KASPUTYS. Mr. Chairman, that concludes my testimony. I would be happy to answer any questions that the committee may have.

Senator RIEGLE. Well, thank you very much for this analysis. What I think might be best is if we go ahead and allow all the witnesses to lay their material out and then have an opportunity for all of you to respond to different questions that you may feel you may make a contribution to.

GREATER IMPACT ON THE ECONOMY THAN EXPECTED

I would like, however, to ask one question. On page 8 of your testimony toward the end, you say toward the bottom of the page: "Therefore we should expect that the full economic impact resulting from a petroleum shortfall of 1.2 million barrels per day to be materially greater than has been presented here."

Now you've taken great care to walk us through the operating assumptions that went into the formulation of the model, but what I'm wondering is where do we go from there to the statement that I have just quoted in your presentation? In other words, how would we go about moving on to the question of trying to assess the actual economic impact which you say would be materially greater?

Mr. KASPUTYS. Mr. Chairman, assessing that impact would depend very heavily on what OPEC actually did about the price of its oil. We have not done a formal study of that specific question, but I can give you some rough estimates.

If one were willing to assume the rather unpleasant prospect that OPEC would raise the price of its crude oil at the end of this month, say, to $20 a barrel, and that OPEC would continue to raise the price at roughly 50 cents a quarter over the remaining quarters of 1979 and 1980, we would see a considerable impact, quite obviously.

While one would hope that OPEC would be more restrained than that, I think that assumption, is not totally unreasonable, given the Libyan price, the Ecuadorian price, what we have seen happen with the North Sea prices and the surcharges that are being imposed by many of the OPEC countries. If that were to happen, there would be a combination of impacts on the economy.

First of all, as a result of the 1.2 million barrel a day shortfall, in our case, two, we have already constrained real activity by the shortage. So some of the impact of this high price increase has already been taken to the degree we have turned the economy down simply due to physical shortages alone.

Senator RIEGLE. Right.

Mr. KASPUTYS. Most of the added impact, therefore, would be seen in price. It's my estimate that the CPI would move up by about an additional 1 percent in 1980 which would take it to about 9.8 percent in 1980.

Now that's in addition to about 0.8 percent that we have already assumed has been caused by the shortfall. So the combination of the shortfall and the price increase really causes about 1.8 percent being added to the CPI in 1980.

Now I might remind you that it's DRI's estimate that we have had about eight tenths of 1 percent added to the CPI in 1980 as a result of OPEC price increases made thus far this year, so that the total compounding of it all is about 2.6 percent on the CPI in 1980.

This price impact does have an additional real impact even beyond the shortages that we have already imposed on the economy. It would be our guess that GNP would drop around another $7 billion for a total reduction of $35 billion in 1980. The growth rate of real GNP would drop to about four-tenths or one-half of 1 percent in 1980 versus the 1.9 percent in the base case. We were figuring real GNP growth with no shortfall would be around 2 percent.

Under this set of circumstances, with a 1.2 million shortfall, we would see GNP get down to under one-half percent growth in 1980 which is very close to being flat. That would push the unemployment rate up probably to around 7.4 percent and would add some 200,000 additional people to the unemployed. To summarize the net result, total employment would be down by about 1.4 million people, the CPI would be close to 10 percent, and we would have almost no real growth.

Senator RIEGLE. Well, that's distressing news to hear under those operating assumptions, but I appreciate your adding that because I think that adds an important dimension to the other work that you have presented here.

Senator Lugar, do you have any comments at this point?

Senator LUGAR. Just one quick question, Mr. Chairman.

In your analysis you mention that consumption of automobiles is reduced. The greater impact on the domestic automobile industry is among the list of things that might occur, but you add this is softened by the auto strike expected anyway.

DRASTIC DROP IN SALES OF LARGE CARS

Already, at least in the last month, auto sales were apparently down by 19 percent with, of course, a drastic drop in large cars and some increase in small cars we are told, but the overall volume of vehicles purchased was down about 19 percent. This is obviously prior to a strike which most of us hope would not occur.

Is it conceivable that things are already occurring in the economy which are related, but in many ways unrelated, to this situation that are going to bring about the decreases in GNP which are projected maybe even more than that? Would you have any comment on that? I take the automobile thing simply because it's sort of reminiscent of many things going on in the economy. If, for instance, people stop buying automobiles in large numbers, the number of people that will be unemployed in the industry will be substantial and maybe even driving will be down because there will be are fewer vehicles on the roads.

In other words, to what extent are apparent overlying factors of recession going to overtake any of the factors of the gasoline shortage?

Mr. KASPUTYS. Well, Senator Lugar, we have tried to reflect some of that in the base case that we are measuring these shortfalls from. In our base case we have reflected lower levels of

automobile sales which apparently, according to the May figures, have come back. They have still been disappointing but they haven't been as bad as people had expected, although a lot of the growth has been indeed in imports. But our base case does reflect lower levels of automobile sales. It reflects a mild recession in the third and fourth quarter of this year.

Now DRI has been forecasting a two-quarter recession in 1979 since November 1978. That was originally the second and third quarter, and we slipped it back a little bit when we had such a strong fourth quarter in 1978, but we have been consistently forecasting that a recession is going to come and that's for a lot of reasons. This includes the high interest rates effect on housing and, business investment, the inflation that is eroding consumer confidence and, the high levels of consumer debt. Those kinds of reasons have caused us to think that there will be a recession anyway.

We have reflected an automobile strike in the fall because it is time for contract talks and because we usually do have an automobile strike when it is time for contract talks. Indeed, it could be that economic conditions are such that we won't have one. This has been an assumption that we have made which I think is warranted to some degree by the history, although perhaps not completely warranted by the future. Even without the automobile strike, there still would be a mild recession. It's a combination of factors—an automobile strike, the general economic conditions, and the tightness of energy supplies—which help to push the economy into a mild recession in the third and fourth quarter. That, as a baseline, we are assuming will happen anyway, even with no energy shortfall.

Senator LUGAR. Thank you.

Senator RIEGLE. I think if there are no other questions at this point, we will go ahead with Mr. Toja.

STATEMENT OF PETER TOJA, VICE PRESIDENT AND SENIOR ECONOMIST, MERRILL LYNCH ECONOMICS

Mr. TOJA. Thank you, Mr. Chairman.

To begin our analysis of the present oil supply situation and its consequences on economic activity in the energy intensive industries, let us begin with——

Senator RIEGLE. Excuse me. Why don't you go ahead and identify yourself for the record and for others in the room who might not have been here when I originally introduced you as a witness so everybody understands who you represent and such.

Mr. TOJA. That is—give my name?

Senator RIEGLE. Give your name and your business affiliation.

Mr. TOJA. I'm Peter Toja, senior economist and vice president of Merrill Lynch Economics, Inc., in New York. We have been asked to represent Merrill Lynch Economics at this meeting in order to give our evaluation of the current oil supply situation and its impact on economic activity in the energy intensive industries.

[Complete statement follows:]

Statement of Testimony

Peter M. Toja
Vice President
MERRILL LYNCH ECONOMICS, INC.

The Current Situation

On the surface, the present oil situation in the United States appears to be heading for a critical stage. Cutbacks in deliveries by the major oil companies are being announced at regular intervals while "spot" shortages of gasoline appear to be intensifying by the day. Limitations of jet fuel supplies are upsetting airline schedules and while cancellation of flights are not commonplace there have been enough of them to attract news media attention and coverage. Industries such as agriculture and the electric utilities have already made public issue of the substantial declines of fuel oils they are experiencing under recent allocations. Also, the Department of Energy has been urging utilities and manufacturing establishments to switch from oil to natural gas and coal wherever feasible in order to conserve fuel oils.

Based on our observations of the international oil scene and the recent projections of the Merrill Lynch Economics macro econometric model, we believe that the current shortage will prove temporary. Increasing worldwide oil production coupled with declining real economic activity in the U.S. should combine to narrow our supply/demand gap as we proceed through the remainder of 1979 and into 1980. Sharply higher petroleum product prices should also curtail demand during the next eighteen months and help alleviate some of the tightness in supplies.

On the supply side, Iranian oil production has rebounded in a very strong fashion since startup began back in March of this year. In spite of repeated statements earlier this year from the National Iranian Oil Company that production in that country will be limited to 3.5 to 4.0 million barrels per day (b/d) during 1979, production runs in April exceeded that range. In that month output didn't run below 4 million b/d and a post revolution peak of 4.7 b/d was reached on April 13. However, for purposes of our analysis we are projecting Iranian production at 3.5 to 4.0 mil b/d for the remainder of this year and next.

At the same time, Saudi Arabia has lowered its production. Arabian output is presently estimated at close to its self-imposed ceiling of 8.5 million b/d compared to the 9.5 million b/d produced during the Iranian shutdown. Part of this lower production is in response to the Iranian buildup while part of the lower output is the direct result of an attempt to sell a more favorable product mix. Earlier this year, the Saudis notified ARAMCO (distributors of Arabian oil) that there was to be a 65 to 35 percent breakdown between purchases of their light and heavier crude oils. And lower production ensures continued demand in world markets for Saudi heavy crudes.

Nonetheless, Saudi production for the year as a whole should be up about 700 thousand b/d and other members of OPEC (excluding Iran) about 1.6 million b/d. Total OPEC production this year should be about 30.7 million b/d or equal to last year. Outside of OPEC, Mexico continues to build. It should average about 400 thousand b/d higher this year than last. The North Sea is also in a strongly rising trend and we anticipate North Sea output this year to average some 800 thousand b/d more than last year.

Because of the time lag involved in the movement of oil internationally, the U.S. during the last two months has been feeling some withdrawal pangs caused by the first quarter shutdown of Iranian oil. Since it normally takes some 45 to 60 days between the production of foreign oil, and the delivery of that oil to our ports, terminals, refineries, and ultimately, to retailers or industrial customers, we have still not benefited from that mid-April pickup in Iranian production. In addition, there are many industrial nations who are as anxious as we to not only meet current oil demands but to replenish inventories which were pared during the first quarter. And the recent rising pattern of spot market prices internationally can attest to the sharp competition for whatever uncontracted oil comes to market. Nevertheless, barring any further major disruption of foreign oil production, the current tightness in both international and domestic oil market supplies should begin easing during the next six months.

An impending crunch on oil supplies may also be alleviated by the imminent slowdown or decline in economic activity envisioned by the majority of economists both private and government. The Merrill Lynch Economics macro econometric model indicates that a consumer-led recession is probably underway in the present quarter and will extend into the fourth quarter of this year before the economy begins to gear up again in early 1980 (Table 1). Continued increases in world oil supplies coupled with a dampened consumption pattern due to declining or even stagnant economic activity as well as sharply higher petroleum product prices should gradually narrow the present supply/demand gap as we proceed through the remainder of 1979 and into 1980. Thus, we believe the problem in the U.S. this year will be in coping with substantially higher petroleum product prices rather than in coping with any dramatic or extended supply/demand imbalance

And sharply higher prices are definitely in store for American consumers. In addition to the increases registered thus far this year in petroleum product prices, further hikes are forthcoming. OPEC "official" oil prices are almost certain to be raised at the next OPEC meeting scheduled for later this month while the domestic oil decontrol program will also raise costs and prices of refined petroleum products.

Panic or scare buying has exacerbated the current situation and will serve to keep upward pressure on already spiraling petroleum prices. A prime example of panic purchases was the experience in California during the later part of April and early May. A study conducted by the Standard Oil Company of California indicated that while average size of gasoline purchases last February amounted to 14.1 gallons, April's average purchase dropped to 9.9 gallons. Even more startling was the fact that during the first week in May, gasoline customers were purchasing only 3 gallons per trip to gasoline stations. More importantly, once news of the long lines and apparent shortages in that state became public knowledge, the California syndrome spread to other regions of the country. The net effect of automobile owners "topping off" their gasoline tanks is to shift some inventory from refineries and gasoline stations to autos themselves. To illustrate this point, let us assume that the average auto tank capacity is 20 gallons and drivers normally keep tanks half-full (a high estimate I am told). There are presently 125 million cars and light trucks on the road. If each of them has succeeded in "topping off" their

tanks, gasoline demand during the last month or so would have been about 1.25 billion gallons or 30 million barrels higher than normal. If only half of the drivers were successful in "topping off", the result would still be significant--15 million barrels of extra demand. Data from the American Petroleum Institute shows that during the week of May 11 (latest data available), gasoline stocks were 228 million barrels, 18 million barrels below the comparable period of last year. The "topping off" analysis suggest that a major portion if not all of the year-to-year decline in refiners' stocks of gasoline could be attributed to a shift in inventories from conventional locations to "mobile warehouses".

It is hoped that this syndrome does not spread to entrepreneurs and corporate managers. Desire to accumulate inventories in the commercial and industrial sectors during this period of tight supply will only lead to a further fueling of inflationary fires at a time when it is least needed.

The Baseline Forecast

The MLE macro econometric quarterly model results for 1979 and 1980 are contained in Table 1 while the petroleum product consumption pattern for the same two years is in Table 2. These projections assume continued albeit moderate expansion in world oil supplies during the next eighteen months and a general flattening of world oil prices after the official price of Saudi Arabian marker crude rises from $14.54 per barrel to $17-$18 at the June 26 OPEC meeting. Under this type of scenario, the U.S. is not expected to experience any significant supply crunch although some spot shortages may continue throughout the forecast period. By the same token, those energy intensive industries that the MLE staff was able to analyze also do not exhibit any loss of activity due to oil supply constraints.

The Shortfall Analysis

In order to conform to the general theme of this meeting, our staff of economists was also asked to evaluate activity in the energy intensive industries under shortfall circumstances. To be precise, our economists were asked to consider a scenario in which oil supply was 5 percent below last year's level beginning in the second half of this year and continuing through 1980. A second scenario was to consider a 10 percent shortfall during that same period. Because of time limitations our staff was only able to take a cursory view of the energy intensive industries and measure the direct effects to those industries of an oil shortfall. Our analysis included such major manufacturing industries as autos, chemicals, paper, primary metals, and stone, clay and glass. We also examined the agricultural sector as well as electricity production and airline travel. Because of the declining real demand pattern of our baseline forecast, a 5 percent shortfall does not significantly affect the energy intensive industries. A 10 percent shortfall does materially affect a number of these industries particularly autos and chemicals.

Table 3 contains the baseline projections of activity in these industries as well as anticipated activity resulting from both a 5 and a 10 percent shortfall in oil supplies. A discussion of the individual industry analyses under the shortfall scenario follows.

Agriculture

Currently, the supply of middle distillates for agriculture is down approximately 10 percent from 1978 levels. The big variable is the quantity of diesel fuel being stockpiled on-farm. On-farm reserves of diesel fuel is unknown, although it is known that storage capacity has grown considerably during recent years. It is possible that on-farm reserves are sufficient to compensate for any possible spot shortages in most areas during the near term.

To date, reductions in middle distillate supply have had little, if any impact on spring plantings of corn and soybeans. The weather has been largely responsible for delays in plantings. As of May 26, farmers have been able to make up for lost time, and plantings are more or less on schedule. Nevertheless, any shortages of fuel during June could potentially delay plantings, resulting in reduced yields. Implementation of DOE Special Rule No. 9 should avert this possibility.

Assuming a 5 or 10 percent shortfall in oil supplies, any reduction in feed grain output during the next year or two would be minimal. Current stocks of feed and food grains will certainly be adequate to cover domestic needs during this period, due to record carryover. It is possible though, that exports of grain would not keep pace or might even fall from current levels, if Rule No. 9 failed to provide sufficient supply of diesel fuel.

Losses would be more likely to result from spoilage in fruit, vegetable and diary products, if harvesting was delayed. Shortages of fuel for trucking and railroads could potentially result in significant spoilage.

Certainly, the higher price of diesel fuel has become a major cost to farmers. In an effort to minimize the effects of high diesel prices, more and more investment will be made in minimum tillage equipment, in an effort to reduce the expense of plowing. This will provide some stimulus to the farm equipment sector, as purchases of minimum tillage equipment are made.

In the crops area, higher fuel costs or supply cutbacks could lead to some substitution of labor for capital in certain regions, this would represent a reversal of the trends of the past two decades. Clearly, it is impossible to calculate the exact rate of substitution of labor for capital, but those crops with lower wage rates will be the earlier candidates.

Any significant reductions in farm income resulting from crop loss due to fuel shortages, and higher cost to farmers, could result in foreclosures of farm proprietorships due to already record high levels of debt. The outcome could almost certainly be higher target prices and perhaps direct loans, if shortages were acute.

Airlines

The airlines would respond to a 5 percent reduction in jet fuel supplies by trimming scheduled flights. Daily flights might decline from 14,000 to 13,500 by the end of the year. As this occurred, load factors (occupancy rates) would increase from their current 60 percent level to about 62 percent. In this way, the airline industry could still be expected to post a gain in revenue passenger miles flown of about 10 percent this year.

For 1980, the potential for improving utilization rates would be small and the industry would be forced to convert to a more fuel efficient fleet to continue its historical growth. Travelers would bear the brunt of the fuel shortage as fewer flights between cities would be scheduled and some poorly traveled routes would be discontinued. At the end of 1978, 274,000 persons were employed by the airlines industry. The industry would rely on normal attrition to reduce the labor force through 1979 and 1980 by about 2 percent.

In the case of a 10 percent reduction in jet fuel supplies, revenue passenger miles (RPM) would probably only be up about 8 percent this year. By year-end, employment in the industry could be expected to be down to 266,000. Daily flights would be reduced to the 13,000 level and occupancy rates would be pushed up to 65 percent.

Autos

A 5 or 10 percent shortfall in supplies of petroleum would appear to have a negligible impact on the production process initially. Both original equipment manufacturers and suppliers appear to have sufficient flexibility to make up the shortfall with alternate forms of energy.

The major impact over the next eighteen months should be in terms of retail demand. Shortfalls in gasoline supply might well induce a shift in the mix of automobile sales. More small cars and more small (4 and 6 cylinders) engines will be sold. However, domestic production capacity for 4 cylinder engines and several small car lines is insufficient to meet demand. Foreign sourced cars may fill the gap. Although currently, foreign engine production may be close to capacity, a softening of European retail auto demand may free additional engines and cars for the U.S. market. Similarly, the Japanese auto manufacturers may be able to divert

more cars or engines to the U.S. market. As a result, foreign car market share could jump from 20 to 25 percent of the U.S. market at a time when economic conditions have already dictated a decline in U.S. production.

Hence, under the 5 percent shortfall scenario, we would anticipate no change from the baseline automotive production level for this year but a 300 thousand unit drop next year. Under the 10 percent shortfall scenario there would be a reduction of approximately 100 thousand autos produced during the second half of this year and a 900 thousand unit drop in 1980.

Paper

The U.S. paper industry consumed about 100 million barrels of residual and distillate fuel oil last year. That comprised 24 percent of the industry's total energy requirements.

With a 5 percent oil cutback, output would not be severely affected. Some substitution, mainly natural gas would occur and production could be maintained at baseline estimates.

A 10 percent cutback would have a more serious impact resulting in a decline in activity of about 1 1/2 percent. Mills would have to initiate crash programs to step up wood waste utilizations but such programs take time to implement. Inventory backlogs would be insufficient to fully affect production declines and therefore shortages and sharp price increases could develop in the wake of output declines.

Chemicals

Oil serves as a major feedstock (raw material) in the production of chemical products. In fact, about 80 percent of chemical industry production requires petrochemical feedstock. Therefore, for every 1 percent shortfall in oil availability, the chemical industry would produce 0.8 percent less.

In 1979 we have been forecasting a 4.7 percent increase in chemical industry output assuming supplies of feedstocks were no problem. However a 5 percent reduction of supply in the second half of 1979 from the comparable period a year ago would result in a 3 percent year-to-year decline versus our original forecast of a 1 percent increase in the second half of the year. That would also induce a further drop in chemical industry production worker employment to at least 5 percent below the second half of 1978. In the event of a 10 percent shortfall of oil feedstocks, the second half of 1979 would show a year-to-year drop of 7 percent in chemical industry production and about 10 percent in employment.

Nonferrous Metals

We estimate that fuel oil supplies less than 2 percent of the nonferrous metals industry's energy needs on a BTU basis. Moreover, those facilities which utilize fuel oil can be readily converted to alternate energy sources in about 80 percent of industry establishments.

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Thus a fuel oil shortfall of 5 or 10 percent would appear to have a negligible impact on nonferrous metals production. However, lower than normal demand in customer markets under the shortfall scenarios would induce slightly lower production estimates this year and next.

Iron & Steel

Following last year's increase of 10 percent, mill output this year is forecast to slip slightly to 135 million tons. In addition to a downturn in consumer market activity, mill output will be influenced on the downside by a drawdown of inventory among end users. Raw steel production should be propped up by the continuing expansion of capital goods markets and the anticipated decline in receipts of foreign made steel. For 1980, we look for production to advance moderately to 139 million tons.

Fuel oil currently accounts for only about 17 percent of the energy consumed by the steel industry. As a result, we do not anticipate any dramatic cutback in steel production from a 5 or 10 percent shortfall in petroleum supplies. In the worst case, assuming no substitution, a 5 or 10 percent cutback in fuel oil supplies could hold mill production 1 or 2 percent below our base line steel production forecast. However, even this is unlikely because of the extensive alternative fuel capability within the industry. The annual Survey of Manufacturers indicates that in 1976, close to half of the mills using fuel oil had the ability to readily switch to some other fuel source.

Electric Utilities

Assuming adequate supplies of fuel oil and a moderate recession beginning about midyear, electric power consumption in 1979 is slated to increase 3.7 percent to 2092 billion KWH. With the economy recovering somewhat in 1980, we anticipate a growth rate in electric power demand of 3.9 percent to 2174 billion KWH.

On a BTU basis, petroleum continues to account for about 17 percent of the fuel consumed in electricity generation. A cutback in petroleum supplies of 5 to 10 percent would not have a dramatic impact on electric utility output capability. Assuming no fuel substitution, such limitations would hold electricity output at the most to about 1 or 2 percent below the base line level. However, we do not expect these minimal cuts in generation to occur because of the considerable alternative fuel capability currently in place at many utilities. In 1975, when natural gas was the problem, the utilities quite easily made the transition to the coal. If anything, the ability to substitute fuels has improved since then. Finally, fuel stocks at the utilities are fairly high and will serve to cusion any oil cutbacks at least in the short term. According to the Edison Electric Institute, as of March 1 the utilities had a 76 day supply of coal, a 44 day supply of oil used in steam generation and an 88 day supply of oil used for gas turbine generating equipment.

TABLE 1

MERRILL LYNCH ECONOMICS INC.

SELECTED INDICATORS OF ECONOMIC ACTIVITY*

	1979:1	1979:2	1979:3	1979:4	1980:1	1980:2	1980:3	1980:4
GROSS NATIONAL PRODUCT	2264.8	2302.6	2332.4	2386.5	2456.8	2532.6	2609.9	2687.9
ANNUAL RATE PERCENT CHANGE	9.3	6.9	5.2	9.6	12.3	12.9	12.8	12.5
GNP (1972 DOLLARS)	1416.3	1409.1	1395.9	1397.7	1411.9	1426.8	1445.1	1460.1
ANNUAL RATE PERCENT CHANGE	0.4	-2.0	-3.7	0.5	4.1	4.7	5.2	4.2
FINAL SALES (1972 DOLLARS)	1405.0	1400.4	1397.4	1401.8	1411.2	1423.6	1439.0	1452.6
ANNUAL RATE PERCENT CHANGE	-0.4	-1.3	-0.9	1.3	2.7	3.6	4.4	3.8
GNP DEFLATOR (1972=100)	159.9	163.4	167.1	170.7	174.0	177.5	180.6	184.1
ANNUAL RATE PERCENT CHANGE	8.8	9.1	9.3	9.1	7.9	8.3	7.2	7.9
PERSONAL INCOME	1836.0	1870.2	1914.7	1952.9	1995.9	2050.5	2118.7	2176.6
ANNUAL RATE PERCENT CHANGE	10.9	7.7	9.9	8.2	9.1	11.4	14.0	11.4
DISPOSABLE PERSONAL INCOME	1563.2	1596.1	1636.5	1668.1	1702.6	1747.3	1805.1	1852.8
ANNUAL RATE PERCENT CHANGE	13.7	8.7	10.5	7.9	8.5	10.9	13.9	11.0
DISCRETIONARY INCOME(CONST. $)	203.8	194.5	186.4	179.9	177.7	181.4	187.8	193.6
ANNUAL RATE PERCENT CHANGE	3.1	-17.1	-19.2	-9.3	-4.8	8.7	14.8	13.0
CAPITAL EXPENDITURES	167.9	172.1	175.5	179.4	182.6	186.3	191.5	197.8
ANNUAL RATE PERCENT CHANGE	10.0	10.5	7.9	9.2	7.4	8.3	11.7	13.9
CORPORATE PRE-TAX PROFIT	226.9	219.0	201.8	199.1	215.9	226.2	237.7	242.4
ANNUAL RATE PERCENT CHANGE	3.6	-13.2	-27.9	-5.3	38.5	20.3	22.0	8.1
PERCENT CHANGE YEAR AGO	31.8	6.6	-1.8	-11.5	-4.8	3.3	17.8	21.8
CORPORATE AFTER-TAX PROFIT	137.9	137.7	127.4	125.6	135.9	141.8	148.5	151.1
ANNUAL RATE PERCENT CHANGE	24.7	-0.7	-26.8	-5.3	36.7	18.7	20.2	7.2
PERCENT CHANGE YEAR AGO	35.1	14.2	6.8	-3.7	-1.5	3.0	16.6	20.3
FRB IND OF PRODUCTION (67=100)	151.3	150.9	146.7	145.1	146.9	149.7	153.1	155.6
ANNUAL RATE PERCENT CHANGE	4.3	-1.0	-10.8	-4.0	5.0	7.8	9.2	6.7
CONSUMER PRICE INDEX (67=100)	207.4	213.9	219.3	223.5	227.6	231.7	235.6	239.7
ANNUAL RATE PERCENT CHANGE	11.1	13.1	10.4	8.0	7.5	7.3	7.0	7.1
PRODUCER PRICE INDEX (67=100)	223.8	229.8	236.0	240.8	245.4	249.9	254.5	259.1
ANNUAL RATE PERCENT CHANGE	14.0	11.2	11.2	8.4	8.0	7.5	7.5	7.4
HOUSING STARTS	1615	1680	1500	1550	1600	1721	1822	1901
ANNUAL RATE PERCENT CHANGE	-63.5	17.0	-36.4	14.1	13.5	33.9	25.6	18.5
RETAIL AUTO SALES (MILL. UNIT)	11.6	10.8	10.0	9.8	9.8	10.0	10.5	10.8
ANNUAL RATE PERCENT CHANGE	20.0	-25.5	-26.6	-7.6	-0.0	8.5	21.5	11.8
UNEMPLOYMENT RATE (PERCENT)	5.7	6.0	6.8	7.3	7.4	7.4	7.2	7.0

*BILLIONS OF DOLLARS SEASONALLY ADJUSTED ANNUAL RATES

UNLESS OTHERWISE NOTED

TABLE 2

PETROLEUM PRODUCT CONSUMPTION - BASELINE FORECAST
(Millions of Barrels - Daily Average)

	Gasoline	Jet Fuel	Kerosine	Distillate Fuel	Residual Fuel	All Other	Exports	Total
1978-1	6.9	1.1	.3	4.4	3.7	3.7	.2	20.3
-2	7.6	1.0	.1	3.0	2.8	3.5	.2	18.2
-3	7.7	1.1	.1	2.7	2.8	3.9	.3	18.3
-4	7.4	1.1	.2	3.5	2.9	3.8	.3	18.9
Year	7.4	1.1	.2	3.4	3.0	3.7	.3	19.0
1979-1	7.2	1.1	.3	4.5	3.5	3.7	.4	20.7
-2F	7.1	1.1	.1	3.0	2.8	3.6	.2	17.9
-3F	7.3	1.1	.1	2.7	2.7	3.8	.3	17.9
-4F	7.1	1.1	.2	3.2	2.7	3.7	.3	18.2
Year F	7.2	1.1	.2	3.8	2.9	3.7	.3	18.7
1980-1F	7.1	1.1	.3	4.3	3.5	3.7	.3	20.3
-2F	7.2	1.1	.1	3.1	2.9	3.6	.3	18.3
-3F	7.3	1.1	.1	2.8	2.8	3.8	.3	18.3
-4F	7.1	1.2	.2	3.5	3.0	3.7	.3	19.0
Year F	7.2	1.2	.2	3.4	3.1	3.7	.3	19.0

Source: American Petroleum Institute
F = Forecasts by Merrill Lynch Economics, Inc.

TABLE 3

COMPARISON OF OIL SUPPLY SHORTFALL EFFECTS ON MAJOR ENERGY INTENSIVE INDUSTRIES, 1979 AND 1980

Industry Measure	Baseline	5 Percent Shortfall	10 Percent Shortfall	Employment in 1978 (Thousands of Persons)
Manufacturing Industries				
FRB Ind. Prod. Index for Paper & Allied Products				
1978	144.4	144.4	144.4	702.2
1979	146.6	146.6	145.6	
1980	148.9	148.9	146.7	
FRB Ind. Prod. Index for Chemicals & Allied Products				
1978	190.7	190.7	190.7	1088.2
1979	199.1	195.4	191.6	
1980	208.3	200.5	192.5	
FRB Ind. Prod. Index for Stone, Clay & Glass Products				
1978	159.1	159.1	159.1	696.2
1979	160.3	160.3	160.3	
1980	162.6	162.6	162.6	
Iron & Steel Produced (Millions of Tons)				
1978	136.7	136.7	136.7	792.8
1979	135.2	134.5	134.0	
1980	139.0	137.5	136.3	
FRB Ind. Prod. Index for Nonferrous Metals & Products				
1978	130	130	130	367.3
1979	134	134	133	
1980	138	137	135	
Transportation & Utilities				
Automobile Production (Millions of Units)				
1978	9.2	9.2	9.2	451.5
1979	8.6	8.6	8.5	
1980	8.6	8.3	7.7	
Airline Revenue Passenger Miles (Billions)				
1978	208	208	208	274.0
1979	233	229	224	
1980	252	234	226	
Electric Power Consumption (Billion KWH)				
1978	2018	2018	2018	356.8
1979	2092	2082	2071	
1980	2174	2152	2131	

Mr. TOJA. Mr. Chairman, that concludes my testimony. Should there be any questions from the members, I would be happy to respond.

Senator RIEGLE. Well, it's very helpful to have this and it dovetails nicely with our first presentation and I think will fit as well with the third one that's coming. I have some questions that I want to wait and raise a little later, but Senator Stewart has some points that he would like to raise with you now.

Senator STEWART. I have just a few. You talk about, on the agriculture section of your testimony, the implementation of DOE special rule No. 9. You seem to have some concern as to whether or not that would be implemented.

AGRICULTURE CONCERNED OVER FUEL SHORTAGES ON FARMS

Mr. TOJA. Yes. The economist on our staff who follows agriculture is extremely concerned over whether or not there would be adequate supplies of fuel on the farm. He has maintained all along that it's extremely difficult for him to work with a 5 or 10 percent shortfall inasmuch as the agricultural sector would be able to get more fuel than the overall shortfall would indicate. So he's constantly come back to me and said he's counting very heavily on the DOE rule No. 9 in order to make his analysis on the agriculture sector.

What he's basically saying, if worse comes to worse, and we assume the 5 percent shortfall, the agriculture sector in some shape, manner or form, will have to do with 3 percent less, and if we assume 10 percent across the board they would probably only have to do with 7 percent. What he was attempting to do was make his forecast on the alternate scenarios as reasonable as possible. So he does count heavily on that rule.

Senator STEWART. What I'm saying is you indicated in the testimony there was some concern whether or not the rule would be fully implemented. Is that concern based on information he has?

Mr. TOJA. Yes. He is concerned about whether that will be fully implemented as we go out over time.

Senator STEWART. Well, the diesel fuel allocation is fairly important to that particular segment of the economy and it's been cut between 20 and 40 percent this month. Would that be in line with his concern?

Mr. TOJA. I want to make sure I heard the question. You're saying the amount of fuel available for the farm sector was off 20 to 40 percent?

Senator STEWART. That's my understanding. It may be improper to ask you that question. You may not know the answer.

Mr. TOJA. We have not seen any statistics that would indicate a decline of that magnitude.

Senator STEWART. Of course, if there was a decline of anywhere near that magnitude it certainly wouldn't indicate that the Department of Energy would be carrying out that high priority for the agriculture sector, would it? Do you want to respond to that?

Mr. ECK. I think I could probably help with that. I'm Ted Eck of Standard Oil of Chicago, and I think the numbers I have most recently saw indicated the total availability of diesel would be

about 90 percent. It is true that some companies have 60 percent or 70 percent, but there are other formulas that bring the average up to 90. But the agriculture allocation is supposed to be 100 percent.

Senator STEWART. I know what it's supposed to be, but I was in Alabama last week and some farmers were having difficulty getting it. What is supposed to be and what happens is two different things.

Mr. ECK. I don't think the most serious problem is on the farm. I think it's more in the trucking area. We are just not aware of any tractors that are sitting idle because they don't have diesel fuel.

Mr. TOJA. I think one of the biggest problems is trying to gage how much inventory actually exists on farms. We could be talking about a delivery schedule that has its own seasonal versus a consumption schedule on the farm that has a different seasonal pattern. As a result, you could have variations in deliveries from month-to-month that may not reflect what the true consumption pattern is.

Senator STEWART. With regard to the electric utilities, do you know how much oil per day in barrels that would be that they use?

Mr. TOJA. I'm sorry. I didn't hear the question.

Senator STEWART. Do you know how many barrels per day of oil the electric utility industry uses that's reflected in your figure on the last page?

Mr. TOJA. According to the Federal Power Commission, electric utilities consumed approximately 600-million barrels of oil in 1978.

Senator STEWART. Do you take into consideration the possibilities of conversion of coal in those industries? Do you take that into consideration in making your assumption, not only about the electric utility industry but about the cutback of 5 to 10 percent also?

Mr. TOJA. Right.

Senator STEWART. Do you take that into consideration?

Mr. TOJA. In the two scenarios there is the ability to rely on alternate sources of fuel. Is that the question?

Senator STEWART. There is an ability or capability?

Mr. TOJA. There is both.

Senator STEWART. But because of regulations that are being presently imposed at the governmental level, both in nuclear power and use of coal, there's some difficulty. What I was thinking about is you need to know the barrels of oil are there, the usage they have in the electric industry, and what policies we need to implement in order to take advantage of that. If they don't use it, somebody else could. I know that sounds fairly simplistic, but I think that probably would be the case. Right now they don't have the capability to because of some governmental regulations.

Mr. TOJA. Right. If we take a look at what happened at the electric utility level back in 1974 and 1975, if you can appreciate that going into that time period, we were talking about increasing use of natural gas and oil by the electric utilities and declines of the actual consumption of coal. We had a very rapid reversal in 1975 in terms of the fuels consumed by the electric utilities. If we keep in mind that the electric utilities are well aware of what happened when there were cutbacks in oil supplies in the past and that they have had 4 years since then to ready plans for any other contingency coming up in the future, I would anticipate that con-

vertibility at the present time would be a lot easier than it was back in 1974.

Senator STEWART. But to be capable to do that, to implement policy at the national level, we might stave off a good portion of the 5 to 10 percent shortage?

Mr. TOJA. That's correct. I think the biggest problem to overcome is the easing of sulfur emission standards.

Senator STEWART. Leaving them at their present level might be a part of the answer?

MINIMUM TILLAGE

Mr. TOJA. Right. But easing or relaxing the present sulphur emission standards would facilitate greater consumption of coal.

Senator STEWART. Now there's only one other question I have. I come from Alabama and I have been in a farming community a good part of my life and what in the hell is minimum tillage equipment?

Mr. TOJA. Senator, in all honesty, I did not have an opportunity to check with our agriculture economist. I would suspect he was relating to a procedure rather than specific equipment.

Senator STEWART. I've got a tractor toy in my office, a little model of one, and I use mules to pull it; is that what you're telling me?

Senator RIEGLE. That's if there are enough mules.

Senator STEWART. I was going to give it to Senator Kennedy and suggest that would be the answer to the energy problem up there in the Northeast.

Senator LUGAR. Mr. Chairman, if I can come to the assistance of the witness, I would suggest that the testimony about using equipment is in error. As the Senator from Alabama knows—and that's probably his reason for asking the question—the minimum tillage situation is one that most farmers are adopting and it comes about simply by plowing less frequently, and, therefore, uses less energy. It's an important factor for farms in America and probably factors into your projections, I assume.

Mr. TOJA. May I say that I have an extreme amount of difficulty hearing through this PA system, so allow me to say this: If there is a direct question, if you would speak slightly slower and a little clearer into the microphone I'll be able to hear the questions.

Senator STEWART. Senator Lugar just said that minimum tillage meant they plowed less.

Senator LUGAR. Fair enough. I think we just simply cleared up the point.

Senator RIEGLE. I'm going to save my additional questions until we finish with Dr. Eck. Do you want to go ahead now and identify yourself?

STATEMENT OF THEODORE ECK, CHIEF ECONOMIST, STANDARD OIL OF INDIANA

Mr. ECK. I'm Ted Eck from Standard Oil of Indiana and I agree with the Senator from the Midwest, Senator Lugar, that that's what minimum tillage means in the Midwest, a system of not plowing deeply, just by a minimum amount. It is more an energy efficient type of farming and we are doing it in the State of Illinois.

[The complete statement follows:]

TESTIMONY BEFORE THE SENATE SUBCOMMITTEE
ON ECONOMIC STABILIZATION BY THEODORE R. ECK,
CHIEF ECONOMIST, STANDARD OIL COMPANY (INDIANA)
JUNE 6, 1979

I appreciate the opportunity, Mr. Chairman, of sharing with you today some of my thoughts about the present petroleum supply emergency. Perhaps the first thing to do is to get down to basics. To economists, coping with a supply emergency is mainly one of facilitating the transition from short-run conditions to the new altered state of the world.

As we all have seen, it is difficult and costly too for consumers to adjust instantaneously to the increased scarcity of energy. There are few near-term conservation possibilities which were not already planned for adoption. The alternative supply sources are also limited in the short run.

Of course, in the long run, the increased scarcity of energy raises its price and that sets into motion the search for substitute fuels and new conservation possibilities. That is why decontrol of petroleum prices is so important. When prices are free to fluctuate, then the value consumers place on petroleum is communicated to producers so that they know how far to go in developing new supplies. Clearly, the present controls inhibit that communication, and the nation as a result has become even more vulnerable to supply emergencies like the one caused by the Iranian revolution.

There is scarcely an economist who does not see the importance of dismantling the complex and extensive system of controls on petroleum. The sooner that process is started, the sooner the nation will be insulated from international supply emergencies. The inflamatory rhetoric of recent months has made it more difficult to start down the road of decontrol. Charges such as "undeserved windfall profits" are especially harmful. They not only make oil companies hesitate to commit the enormous resources in the long lead time efforts to increase petroleum supplies, but also signal developers of alternative fuels that the return on their efforts might be denied if it is determined in the political arena that they are earning "windfall profits." It should be remembered that what independence we now have from petroleum imports has been achieved through the past efforts of domestic oil producers. Government price controls and the proposed "windfall profits tax" effectively punish domestic oil producers for their previous efforts and warn others that they too could fall victim to the vagaries of politics.

1979 is a year of decision. The policies adopted this year could indicate to the world that we are truly committed to coping with our energy problems. There is no lack of understanding of what must be done to get our house in order. We must increase domestic petroleum production, stimulate conservation efforts, and accelerate the development of alternate fuels. Regrettably, what we do lack is the political will to move forward.

Now, having said that, we all have to recognize that decontrol is not going to contribute much to the near-term solution of the present problem. It is also worth recognizing that the world shows considerable resistance in transforming itself on command into the idealized state put forth by some.

One of the important departures of the real world has to do with the extent that consumers resort to the political process to obtain supplies during times when a shortage is perceived. No one wants to pay a high price. But more importantly, no one wants to be denied the supplies. The inescapable consequence is that each category of consumers begins to pressure the Congress to supply them at something like the older, lower price. Another inescapable reality is that more cannot be consumed than there is.

That dilemma is now with us, and for the remaining time I have, I would like to offer a few suggestions.

First, our North American neighbors to the north and south are richly endowed with petroleum supplies which at some price will be made available to us. There are all the makings here for a mutually beneficial exchange. The United States receives increased supplies of natural gas, crude oil and refined products, and our neighbors see a stimulation of their economic activity along with a strengthening of their currencies. Mexico, for example, has completed her natural gas pipeline to Monterrey, just 123 miles from a hook-up with our pipeline network in Brownsville. Canada, as you know, has a new government. Thus, the time seems ripe for intensifying our negotiating efforts to reach accommodations with both our neighbors, including the three-way exchange of Alaskan crude oil involving Mexico and Japan.

Second, the so-called "natural gas bubble" (which developed largely in the uncontrolled intrastate market in response to the higher prices which followed the 1974 Arab oil boycott) has to be made available to the interstate market in time for winter. That of course will augment the winter distillate supplies and perhaps permit release of some of the present pressure on distillate stocks. The Federal Energy Regulatory Commission (FERC) has to be complimented for moving forward in this regard with new authority granted by last year's natural gas act. But more has to be done especially in allowing contingency contracts between intrastate suppliers and interstate customers.

Third, the Department of Energy should consider the decontrol of gasoline prices at the refinery level. These controls have not been effective for the most part in moderating the price increase caused by OPEC and the Iranian revolution, and where they have, long lines at service stations have developed. To aggravate the problem, the controls have discouraged investment in increasing cracking and reforming capacity to make more gasoline.

Fourth, the new policies of subsidizing distillate importers and removing import fees on foreign refined product, on top of the reverse entitlement

that the New England area already receives on their imported residual heating oil, should also be reconsidered. The effects of this political package include:

- Diverting crude oil away from domestic refineries and toward foreign refiners, some of which will be owned by OPEC. Since foreign refiners are not capable of producing significant quantities of gasoline that meets U.S. specifications, our gasoline supplies will be less.

  Increasing the prices of gasoline because domestic refiners will have to (1) cut back on output and (2) finance the importation of foreign product through the new distillate entitlement.

  Further discouraging investment in domestic refineries to achieve better yield patterns, and process larger volumes of the less scarce high-sulphur crude oil.

In sum, we are extending our imported dependence to include both crude oil and refined products. The inescapable result will be an aggravation of the supply emergency.

Fifth, we have to provide a flow of petroleum feedstocks to the chemical industry. While only six per cent of petroleum output is in the form of feedstocks to the chemical industry, other industries are critically dependent upon chemical companies for their raw materials. The textile industry, for example, depends upon chemical fibers for two-thirds of its output. The current policies of phasing down tetraethyl lead and prohibiting MMT as an octane booster in gasoline are bidding away the already scarce aromatics from the chemical industry. During the last year, the price of aromatics has increased from $.70 per gallon to $1.50 per gallon. I estimate that these policies add two cents per gallon to the price of gasoline and 10 to 20 per cent to the price of important chemicals.

A policy which could help in this regard is to have a procedure during a supply emergency which would authorize the DOE to grant permission to slow the TEL phase down and/or authorize the use of MMT.

Sixth, the United States must improve its relations with Iran and Saudi Arabia. It is clearly in the interests of both countries to stimulate crude oil production, so that economic development can continue and to reduce the Soviet take-over threat. We on the outside of the intelligence community hope that these threats are being given appropriate weight in formulating our political-military policies. We would like to think prudent moves on the diplomatic front will serve to augment world supplies from these two critically important petroleum producers.

Seventh, there is a set of conservation moves which could be initiated and extended. They include:

expanding the share-the-ride program with telephone-computer match-ups between drivers and riders,

permit taxis to carry more than one fare at a time,

allow individual drivers to compete with local transit monopolies by accepting money for the rides they give passengers, and

relax the dress codes in government and industry so that reductions in heating and airconditioning can be accommodated gracefully.

In conclusion, Mr. Chairman, let me reiterate that the current supply emergency requires politics of the possible, rather the economics of the ideal. While it is true that we are less able to accommodate supply emergencies than we would have been if petroleum controls had never existed, there are several moves which can be helpful in coping with the current problem. I have mentioned a few in this testimony and there are probably others which you will uncover in your hearings. I wish you success in your endeavors, because an important part of the nation's future is at stake.

Mr. ECK. I have the advantage of being anchorman so I think maybe I can comment and integrate the discussion a little bit.

FUEL SHORTAGES SOLVED BY PRICE

We heard from Merrill Lynch I think a very optimistic assessment that maybe we don't have any barrel shortages; it's all going to be solved by price; and I hope he's right. I think he included a fairly optimistic assessment on Iran indicating maybe 4 million barrels a day and maybe more. I have been trying to count Iranian crude oil for some time and having trouble getting numbers that high. In fact, we have indicated and you maybe noticed the Europeans are coming up with the same conclusion. You just can't find that much oil in the markets. In fact, a very major European company commented that they think maybe Iran is only producing 3 million barrels a day. If that's true, the situation is somewhat more serious than perhaps the Merrill Lynch model would suggest.

DRI's analysis was indeed focused on the concept of a physical shortage that wouldn't be easily balanced in the short term. I think that we at least have to consider that as a basis for planning. In fact, I am persuaded that the basis for planning has to be somewhere between their case 1 and their case 2. The case 1 might be optimistic, particularly in view of the events in Iran and the great uncertainty I think one must attach to supplies from Iran, particularly the uncertainty as to the U.S. ability to get our normal share of crude oil from Iran.

I also would like to associate myself with the basic point of view that we are at the present time in a situation of essentially zero economic growth in the United States. We are very precariously positioned here and I don't think we are going to be in any condition to take any serious economic shocks that could result from serious fuel shortage and already in the State of Michigan and some of our other Midwest States we are feeling the shocks from the automobile cutbacks.

I think I'm persuaded that that is not a consequence of the normal business cycle where incomes are under pressure and all

that sort of thing from automobile sales, but I think it's a consequence of concern and really uncertainty about the gasoline supply situation. I'm fearful that we are maybe in a situation like we were in 1974 where the consumer became confused and concerned and quit buying and I think we always have to be very careful that we don't leave consumers in a condition of this uncertainty and push ourselves into a serious recession.

What can we do about it? I'd like to just take a few minutes and go through what I think are some of the problems and the actions that we might be able to take.

The first problem is getting through this summer and avoiding these supply shocks as I indicated are a concern. Of course, we have to stay warm during the winter and winter is not terribly far away. It's not too early to start thinking about the gasoline and diesel fuel supply outlook for next year. We've got to be very careful that we don't do things now which will depend on whether we have sufficient supplies next year. Then we've got to be able to survive another serious supply shock if it should take place.

There's no assurance on Iran, no assurance the Iranian revolution is completed, and that they will indeed maintain production at a sufficient rate.

And finally, we have the uncertainty of the 1980's, a period in which I'm at least persuaded that the entire world and certainly the United States is going to be faced with a condition where world oil supplies are not going to be equal to the total demands that the world would like to place upon oil and so we are looking for a decade of shocks and therefore we've got to think about the long-term policy actions that are going to reduce the vulnerability of the United States to this supply situation.

DIESEL SHORTAGE THE MOST SERIOUS ON THE ECONOMY

Well, looking first at the first problem, which is getting through this summer, indeed I think we've got to solve problems in the order of their occurrence and I concur that the first problem is diesel, the most serious, in terms of impact on the economy would have to be diesel, and we have to do what we can to minimize that shock potential.

In the case of diesel, we must recognize probably 99 percent of diesel fuel is used for an important economic work effort—to drive a tractor, to power a truck or construction equipment—that this is an area where there is waste in the economic sense. It's also an area where we don't have many short-term conservation options that we may have with other fuels. We don't have the opportunity to say, well, the drivers of tractors can drive more slowly or they can wear a sweater or we can put out a heat insulating windshield or operators can take 1 day a week off or all of the other ideas that may work for other fuels but they don't work for diesel fuel.

Also implicit, an allocation system really doesn't solve our problem of diesel. If we say we are going to make sure farmers are going to have 100 percent, that may mean that somebody else has less, and the guys who have less are truckers and I understand the truckers are heading this way, or construction equipment, and all these other people are also top priority. So I'm convinced that you

can't avoid diesel problems just by some allocation system, that we've got to think in terms of how do we produce more diesel fuel.

There are essentially two options that we have. One is to run more crude oil and another is to convert more heating oil to diesel, and I think probably everybody here recognizes that at least in the summer the blends for diesel and blends for heating oil are essentially the same.

In the case of crude oil, I indicated the uncertainty about Iran, the hope that we can get a larger share of Iranian crude oil. The United States has been getting a very, very small fraction of Iranian crude oil to date. Now I don't claim to understand all the problems. I certainly don't understand all the problems of the apparent inability of the United States to even establish diplomatic relationships with Iran, but in any event, it's very clear we are not getting a large share of the crude oil.

Senator RIEGLE. What's your estimate of the percentage of Iranian oil we're getting at the present time?

Mr. ECK. Ten to fifteen percent upper limit, because I really don't know any major oil company that's getting significant volumes of Iranian oil today.

Senator RIEGLE. What were you getting?

Mr. ECK. We were getting 20 to 25 percent directly or indirectly through the refineries that process it.

Senator RIEGLE. Implicit in what you're saying is the notion that there's some kind of effort at restriction. In other words, it's being kept away from us as a buyer?

Mr. ECK. Well, there's no question—I have a real question. I don't know just how much crude oil is being produced, but it does appear that the Europeans and Japanese have gotten most of it, and whether these are all political problems or whether they are our inability to pay as much as they might set the price. I just don't claim to have thorough knowledge of it, but I'm certain that we're not getting a normal share. However, I am optimistic that we will get a more normal share in the future in part because we hope that the Europeans—and we in fact believe the Europeans will be less aggressive in putting material in storage. It's quite clear that Europeans were putting material into storage and probably the Japanese, throughout the first quarter of the year. With today's very high prices in Rotterdam, I really doubt that there are going to be all that many Europeans that are going to be acquiring product and putting it into storage.

Senator RIEGLE. On just that point, because I think it's important to have it in the record, would you be able to cite from memory roughly how many days of oil other major European countries have put away in strategic reserve?

ONLY 5 DAYS OF STRATEGIC FUEL STORAGE

Mr. ECK. Well, certainly 90 days, at least that, and it may be more; in contrast to our effective storage—if you're referring to strategic storage—we might have 5 days of strategic storage.

Senator RIEGLE. One important fact to note here is the Europeans have really taken account of their vulnerability to foreign supply and they have something on the order of a 90-day inventory

built up whereas ours in the United States is about 5 days. Is that 5 days that's really deliverable?

Mr. ECK. That's what I mean—effective supply. That's strategic in addition to our normal requirement.

Senator RIEGLE. I might just say, I really think that's one of the items we have to explore in an additional hearing here, to get to the issue of a strategic reserve that would let us absorb whatever shocks or military contingencies that might arise. But it seems to me one of the things that's such an enormous risk we almost tend not to see it is we are sitting here with a 5-day margin and it alarms me that these foreign countries see such jeopardy here that they have invested even premium money to salt away something like a 90-day reserve. It seems to me that really is a very serious deficiency in terms of our strategic preparation planning and I think it's something we have to really pin down in this subcommittee, if nowhere else, because of its profound economic implications. So, we intend to do that, but it's important to have this on the record.

Mr. ECK. In 1973 the industry pressed to put a strategic storage into effect and here we are in 1979 and we really don't have much of a strategic storage.

Well, I indicated, then, we can hope to get more crude oil in the United States and I think on favorable conditions. Saudi Arabia we should mention. They have suggested the possibility of increasing production and it appears that if the United States is willing to or able to improve diplomatic relations and a basic relationship with Saudi Arabia they may increase production. That would certainly help us. So there are some hopes out there on the crude oil supply side.

The other thing I indicated we could do is we could remove some heating oil from heating oil stocks or maybe more specifically add less rapidly to the winter buildup of heating oil stock and make that material available as diesel. I frankly feel fairly comfortable in suggesting this because I think the inventory targets for heating oil that were originally indicated by the White House were too high. Basically, we are faced with a policy that said we will have 110 percent of the heating oil we need and risk maybe having only 90 percent of the diesel oil we need. I think I'm optimistic on this as a policy because the 240 million gallons selected for heating oil was equivalent to last year, but I think supply conditions for the Northern States this year are a lot better than they were last year. We should have a great deal more natural gas. We do have this famous natural gas bubble on the gulf coast and the Federal Government is moving to get this from the gulf coast up in the Northern States. On top of that, they are moving with perhaps noncharacteristic speed in getting some of this gas available to us and, of course, this will make a major contribution.

Now on the negative side, we are not moving on getting Mexican gas in the United States. I think one of the really great tragedies is, for whatever reason, we have failed to conclude an oil agreement with Mexico at a time when we really should have had one.

Senator RIEGLE. Might I just ask here, I thought from what I have been reading that the Department of Energy and the administration revised the heating oil target and had brought it down so

there would be more gasoline and diesel rather than building for a winter heating oil inventory. Is that right?

DOE SUGGESTIONS ARE VERBAL, NOT WRITTEN

Mr. ECK. There's some indication, that's true. I frankly haven't seen anything official on this, that there has been an official statement that we are going to lower it from 240 down to 210 or some substantially lower number. There have been suggestions.

Senator RIEGLE. Let's just pin down how those orders normally come. Aren't they in writing? Are they verbal?

Mr. ECK. Verbal, and I haven't seen any written statement suggesting a serious policy objective that we should take the risk—if that's what we're talking about—the risk of having a substantially lower heating oil inventory October 1 as a means of meeting the diesel fuel requirement.

Senator RIEGLE. As I understand the practice of the Department of Energy is not to put this in writing but to give these verbal suggestions to the industry and to the refiners, and I'm very disturbed about that because, No. 1, it doesn't leave an audit trail so we can go back and see how good the judgments were plus I think it tends to shift the burden for a bad judgment from the people who are actually calling the signals to somebody who's in fact receiving the signals. Therefore, I think one of the things we ought to try to do is to see if we can't establish a new practice in DOE that these directives are put in writing, and publicized, so we have an opportunity as citizens to have a way of evaluating what kind of a strategy is being pursued.

I think what you have just said is highly significant. Even today, to your knowledge, you're not getting written signals from DOE as to how they want a barrel of oil broken down in terms of inventory for next winter versus different products that would be usable at the present time.

Mr. ECK. I don't think there has been a specific policy saying diesel should have No. 1 priority. I haven't seen it anyway.

Senator LUGAR. Mr. Chairman, if I could interject, along these same lines, the President in his press conference, transmitted some thought to oil companies to reenter the spot market to buy. Just as a matter of curiosity, has Standard Oil of Indiana received any communication; or is the idea simply inferred in the President's press conferences. It's a question much like the question of allocation—whether we go to the winter or summer diesel. Are these nuances that are reflected by the President or, in fact, is there any sort of instruction either way?

Mr. ECK. I don't think there's been any written instruction at all on the crude oil, Mr. Chairman. Now we do have this program on distillates.

Senator STEWART. Could I do something here? Are you telling us that you all have not had any instructions from the Department of Energy to change the allocation of the uses of a barrel of oil?

Mr. ECK. No; I'm trying to refer to the communication—the specific question was on diesel versus heating oil. I'm not even aware of a major policy decision to say nothing about communication.

Senator STEWART. Your company hasn't been instructed in any way by this administration or anybody else with regard to that, verbally or otherwise?

Mr. ECK. Well, let me be more specific. I think probably the current policy is still to have heating oil as a higher priority than diesel. I think that's probably where it's at.

Senator STEWART. How do you determine that?

Mr. ECK. Again, it's an informal determination. I'm not sure of it.

Senator RIEGLE. I think you're saying this quite clearly. You don't have anything in writing?

Mr. ECK. Right.

Senator RIEGLE. And you don't know of any company that does?

Mr. ECK. I don't have personal knowledge.

Senator RIEGLE. But in terms of your own company, you would have personal knowledge?

Mr. ECK. I might not have. I don't handle operations and I'm just saying to the best of my knowledge.

Senator RIEGLE. But now, you're the chief economist for Standard Oil of Indiana. It would seem to me if there were written instructions, that even if you don't know specifically what it said, that you would know that there was such an instruction; and you're saying to us that your understanding is that there is no such written instruction. Isn't that right?

Mr. ECK. That's what I understand. I could be wrong.

Senator STEWART. You could be wrong about it?

Mr. ECK. I'm not involved directly in the operation of the refineries.

Senator STEWART. You didn't say anything to them before they came up and made that policy determination to the administration that followed it?

Mr. ECK. I'm quite certain that, in the first instance, that the policy determination has not been made on this priority of diesel versus heating oil

Senator STEWART. Have you all communicated anything to the Department of Energy as one of the large-sized oil companies that that ought to be done?

Mr. ECK. I have personally; yes.

Senator STEWART. Who did you talk to?

Mr. ECK. With the Department of Energy.

Senator STEWART. Who did you talk to?

Mr. ECK. With Mr. Bardin.

Senator STEWART. You communicated in writing with regard to that?

Mr. ECK. Writing and verbally, both.

Senator STEWART. And you have had no response whatsoever?

Mr. ECK. Well, I think that we—you know, this was some time ago and they have made some changes. I don't want to——

Senator STEWART. What changes have they made?

UNITED STATES NOT AGGRESSIVE IN PURCHASING CRUDE OIL

Mr. ECK. Well, as we noted, the basic apparent encouragement of greater purchases of crude oil. There was a period of time when

the United States was not aggressively purchasing crude oil and I think the companies and the Department of Energy basically agreed that that was the right strategy and the hope was that we could hold down the rate of increase in the world crude oil prices and somehow that didn't seem to work.

Senator STEWART. It's simple enough to turn everything that's wrong with the energy policy back on the administration. It's a lot easier for us to do that and go back home and blame everything that happens on them. But I have seen people in Congress and people in your industry that act and make policy decisions that weren't in the best interest of this country. I just didn't want to say—and I'm not the biggest defender of Schlesinger and the Energy Department, but I sure wouldn't want you to say that their policy is just a nuance, and I wouldn't want Senator Lugar to say that because I have seen some fairly specific plans sent to Congress in conservation and other areas that have to do with the Department. They might not be the best in the world but one of them was rejected by one body that serves up here on the Hill just outright after mandating the administration send it up here, and they just rejected it out of hand.

Senator RIEGLE. Senator Stewart, if I may—and Senator Lugar was very kind to yield and I want to see that he gets the floor back because he was obviously pursuing a line of questioning, although what Senator Stewart is developing here is equally important. I think it's key for all of us to face one fact here and that is that you can talk with a lot of people in the energy business and you will find that the Department of Energy has followed a practice of not putting most of its signals in writing. Now why they have chosen to do it in another form and keep the communications verbal—I can't answer. I am disturbed about that, quite frankly, and I think we ought not kid ourselves about the fact that that's the way the practice has been working. The fact that a chief economist from a major domestic oil company has not seen or is not aware of written directives to his company with respect to these major questions—when and under what conditions to be more aggressive in buying spot oil, whether to follow certain strategic policy directives in terms of how to refine a barrel of oil into the various components that come out of it, is a highly significant fact.

I might say I have heard that from people other than just those who are in this business and one of the problems that we face is not only the question of how strategy gets made, but also how it gets communicated. I'm frankly not aware that the Congress—maybe the energy committees have something that I haven't seen—has received any clear up-to-date strategy statement of the directives that's been communicated to the industry. Maybe something like that exists and we just haven't seen it.

My strong suspicion, however, is that it does not exist in writing. We are going to have to pursue this at greater length and I'm committed to doing that and I think this committee should do that. Meanwhile I think what the witness has said today is highly significant. He's here testifying on the strength of his own reputation, his own knowledge, and I think he's wise in saying there's some outside chance that there's something he hasn't seen, but the likeli-

hood of that being the case, given his position, I think is very small and so I think that raises a question we've got to pursue.

Senator STEWART. I think he also pointed out he didn't have any connection with operations and very possibly it could be in line with one thing he said. He also said there was a directive out on the spot market. Maybe I'm wrong about that. Maybe I misunderstood you.

Mr. ECK. I don't think there was a directive, but there was an indication.

Senator STEWART. You're doing it, aren't you?

Mr. ECK. And there have been limited purchasing. Unfortunately, it's not that easy to go out on the spot market at today's prices and get much oil.

Senator STEWART. It's not the administrative directive; it's just difficult to do?

USE OF COAL COULD EASE OIL SHORTAGE

Mr. ECK. I don't want to suggest that the administration hasn't done anything. I think they have done some very good things. On the gas we have moved very well and I think we should be honest to recognize there are some more things that need to be done. One that I'm very critical of and that's on the wheeling power. We think maybe 300,000 barrels a day of oil could be saved if the Government would permit or would create conditions that would encourage the generation of power in the coal areas, gulf coal powerplants, and wheel that into the east coast.

Senator STEWART. They're doing that.

Mr. ECK. Well, there's a lot more potential and the potential is limited by the administration's practices and pricing. The prices, the wholesale prices that are committed don't cover the cost to the power company that's selling the power and there just isn't an economic motivation to encourage a high level of activity.

Senator STEWART. You mean the price is provided there but wheel power is not?

Mr. ECK. It does not cover their costs. It's my understanding that it's 1 or 2 million or something like that which is sort of out-of-pocket cost, but it in no way relates to replacement cost.

Senator STEWART. That's different from what they're doing in my State in that particular industry because the wheel power is a fairly lucrative portion of their sales within the company that operates in the State that I come from.

Mr. ECK. I think I'm in general agreement with the number of 300,000 barrels a day of additional oil that could be saved if we could wheel a great deal more of this power.

Senator RIEGLE. Senator Lugar.

Senator LUGAR. I just wanted to add this thought. The reason I pursued your question, Mr. Chairman, was that it seems to me that in all of these nuances or directives that either are or are not present, there's a question of fundamental public confidence and the question of who is responsible.

The implication being given in many public statements is that oil companies are holding back supplies, that they are not making available amounts of oil. The common street talk would be that

you have to get $1 a gallon or $1.50 a gallon before supplies come on line. It seems to me to be very important for the President and the Department of Energy and the oil companies to at least come to some recognition as to what the directives are. In other words, if the public policy is to be that we are to have more gasoline for the summer, more diesel, then the President ought to say to the oil companies, "Purchase in the spot market everything you can lay your hands on. Change from winter to summer. Do this forthwith." The oil companies have got the direction and like somebody at sea taking watch, you say, "Aye, aye, sir," and you move on. So it's very clear what the direction is.

What I see in the present situation is one which everybody is attempting to evade responsibility and public blame, in essence, that you gave a directive here that you ought to be in the spot market or out of it in order to negotiate better with OPEC. Nobody appears to know whether we are headed toward the summer or winter in priority or diesel as a third choice, and that, therefore, allows everybody to blame other parties for the inability to supply the markets and keep Americans either in gasoline this summer or in heating oil this winter.

It's a totally unsatisfactory situation and it seems to me that one of the benefits of this hearing may be simply in a public way to pin down the President and the Department of Energy to ask, "What do you want specifically?" If our policy is to get gasoline to the American public, let's do these things, and then the oil companies will have fulfilled their part of the objective, not implicitly, but explicitly. What do you have to say to that?

Mr. ECK. I guess it's a failure—if there is a failure, it may be even global in the sense here we were in the first quarter drawing down our inventories while the rest of the world was adding inventories, and you kind of wonder where was the international energy agreement during all this and why wasn't there some sort of coordination of policies between countries? And now almost several months later we're discussing, well, gentlemen, maybe we should coordinate our policies and then the most recent incident was the United States instituting the distillate subsidy entitlements program and we have the Chancellor of Germany coming over to discuss this issue. We just had a high French emissary here and they were shocked about our international intervention when we finally made an internationally sensitive decision. I just don't think we should be reactive and say that was a good policy action. Again, we tried to point out that if we do subsidize—if we're going to pay a $5 a barrel subsidy, we're going to boost the prices in Rotterdam and we did. Almost overnight the heating prices in Rotterdam went from $1 to $1.25 and the Europeans were not very happy about it. This not only hurts them, but it hurts all of us. It tends to push up the light fuels that we use in the United States. It raises the price of gasoline all around the product and raises the price of most products and I frankly don't understand how it benefits because I think it's very unlikely this is going to lower the cost of heating oil on the east coast. It really makes money for the exporter overseas. So those are the real beneficiaries.

Senator STEWART. Would the Senator yield?

Senator LUGAR. I would be happy to.

Senator STEWART. He asked a question and this question has been asked to me and while you're here I'll just ask you.

The general feeling among the public is that there is in fact some oil and some gasoline supplies that have been held back waiting for higher prices to come. Is it your statement today that your company has no oil and no gas in that position?

TERTIARY CHANNEL HOLDERS

Mr. ECK. Well, you know the problem, of course, is that the oil companies that are refining oil have very inefficient oil products. We don't have enough distillate to meet everybody's demand. We don't have enough gasoline to meet everybody's demand. That's why we have these rigid allocation formulas. Everybody I think pretty well acknowledges there's a lot of product out in the marketplace held by what we call tertiary channel holders and whether they are——

Senator STEWART. What's tertiary?

Mr. ECK. The primary is the refinery; the secondary is the bulk companies, and the tertiary is these consumers out there.

Senator STEWART. They don't have any connection with your company?

Mr. ECK. That's it. They're not us. They are terminal operators or whoever is out there.

Senator STEWART. They don't have any connection with you as far as the company is concerned?

Mr. ECK. No, but we know there's a lot of it out there and I doubt if it's speculative to sell to somebody else. They are holding it to use themselves in the anticipation that prices are going to go up and it's going to be hard to get.

Senator STEWART. I thought that's what I asked.

Mr. ECK. That is there and we don't know how much it is.

Senator STEWART. You just don't have any estimatation?

Mr. ECK. That's right.

Senator STEWART. It's kind of like the Iranian oil; you can't get a handle on that?

Mr. ECK. That's correct.

Senator RIEGLE. Let me be sure we understand what we're talking about, if I may, and I gather what we're pinning down here is what's out at the consumer level, whether it's being held by rental companies or trucking companies or——

Senator STEWART. He's talking about bulk terminals.

Mr. ECK. I meant the rental car—when we report our stocks, we include our own bulk terminals and refineries.

Senator STEWART. Do you have any of that?

Mr. ECK. We are in bad shape on our inventories. The total petroleum industry at the primary and secondary level has very deficient inventory. Now, again, that's what the whole problem is.

Senator RIEGLE. So, in other words, your answer to the question whether you, as an oil company, is holding back supplies from the next level of ownership is no and that in fact, your inventories are below normal. Is there a way of measuring your inventory situation today with what you're holding within the company versus what you would have held a year ago?

Mr. ECK. Yes. We've got great data at the primary level. We don't have any data at the tertiary level. We don't know what that level is. There's no question. The Federal numbers and the company numbers all agree that the primary and secondary stocks are much lower than last year and well below what we need.

Senator STEWART. You don't have any capped wells or anything like that?

Mr. ECK. We're not hiding any of this stuff.

Senator STEWART. No tankers off the east or west coast?

Mr. ECK. None of that stuff; that's right.

FUEL SPECULATORS

Senator RIEGLE. What about people, however, though, that would be speculators at the retail level, just entrepreneurs that would go out in the world market at some point and make arrangements to buy either crude or refined product or let's say refined product? I've heard people say there is some supply that's in other hands that's sort of sitting out there and waiting. Is that factual?

Mr. ECK. We know it's out there. Again, what their motives are—whether they bought for retail or for their own use—I sure don't know.

Senator RIEGLE. Does there seem to be much of that kind of thing or is there any way of knowing?

Mr. ECK. By secondary evidence, there has to be quite a bit because we had these big drawdowns of material in the first quarter. Everybody was saying demand is up 5 or 6 percent. We couldn't believe people were driving cars all that much more. This had to be going into inventory.

Now you can satisfy the more recent data—actually, the May figures are more encouraging. The gasoline demand in the first weeks of May was down about 5.5 percent below 1978. So I think this vindicates our judgment that it's not necessarily people are driving a lot more that accounts for the big increase in deliveries.

Senator STEWART. Who would make those changes for allocations for the jobbers?

Mr. ECK. That's all DOE. They came out with a program that very recently did change the allocation formula and they had the effect of giving a lot more material to jobbers and less to dealers. That's definitely happened.

Senator RIEGLE. Was that in writing?

Mr. ECK. That was in writing, yes.

Senator STEWART. I saw some large size cuts in northern Alabama in the diesel fuel allocations that were made to some jobbers there. Would that have any connection with the company that those jobbers were connected with?

Mr. ECK. Yes, and each company is different. Well, the way it works is the original allocation of the jobber may well have been cut, but then there's a formula—the so-called 100 percent formula—that the jobber can say his demand is 100 percent higher than the base and get an additional allocation.

Senator STEWART. You could hold back fuel with a change in the allocation formula, couldn't you?

Mr. ECK. Well, I don't think there's any question that everybody out there in the distribution level has potential if they have tankage to accumulate supplies in addition to their immediate requirement.

Senator STEWART. I'm not talking about the jobber. I'm talking about a company like yours could hold back under the allocation formula.

Mr. ECK. We could. Statistics demonstrate we are not and we have been audited by—in fact, I guess there's still an audit going on. There's a lot of audits and nobody has disputed that the inventories are low. Again, that's the whole problem. If inventories were high at the refinery level we wouldn't have a supply problem.

Senator RIEGLE. Senator Lugar, anything else for you at this point?

Senator LUGAR. No.

Senator RIEGLE. Had you finished your statement? I don't think you had. Why don't we try to hold off until you finish your remarks.

MUST LOOK FORWARD TO NEXT YEAR ON GASOLINE

Mr. ECK. Very briefly. I said we ought to look forward to next year on gasoline. If we take steps to solve next year's gasoline problem now, we are going to be ahead, of course, on the problem, and it will add to our ability to provide diesel and heating oil this year. What I specifically have reference to is the manganese and lead levels that we received temporary permission from EPA to use manganese and additional volumes of lead through October 1, and that's good. It helps us get through this year, but we need to extend those permissions for a year because we don't have the physical ability to put in the refining capacity or the other refinery equipment which is needed to replace the manganese and lead. It takes 2 or 3 years to build this refining equipment so if we lose the additives we just are going to lose the gasoline. I just think we have got to address that point honestly and EPA is going to have to give us more time. We just can't build a refinery in 90 days and that's essentially what the permission was.

Now I'd also just like to address just a second the longer term issue, and that is I know that throughout the decade of the 1980's we're going to have a supply problem and we've got to look here to the United States and to our ability to increase total production of oil and gas and all fuels to reduce our imports. I'm not persuaded the imports are going to be there when we need them or we're going to be willing and able to pay the price that's necessary to get those materials, and that means we've got to drill a lot more wells for conventional oil and gas and go after all the unconventional fuels, get serious about shale oil and, as I noted, build the refining equipment in this country that's needed in order to make the gasoline and diesel oil we require and this is just a big investment requirement and we're going to have to proceed with crude oil decontrol initiatives of the President and get on with this. This just has to be; 1979 has to be a year when we make some progress and make some decisions or we're going to be in real trouble in 1980.

Senator RIEGLE. Do you see at the present time any kind of a comprehensive strategy that looks out over the next several months and also out through a 5-year and 10-year time frame? Does there exist a comprehensive strategy that is designed to make sure we get through this period?

Mr. ECK. No. That's what I'm worried about. We are making progress looking at this summer and maybe this winter and all that, and then we appear to have some thoughts about how we're going to get to the year 2000. But I'm not at all persuaded we have a plan of getting through the 1980's.

Senator RIEGLE. It sounds to me like it's a little bit analogous to our 5-day reserve versus the Europeans with a 90-day reserve; that basically we have lived so much in the short run and even now we are living in the short run; the notion that DOE signals are verbal rather than in writing; and not part of a strategy that either you can see in print or we can see in print or the public can see in print is to me an astonishing deficiency.

When I think about the fact that here we sit with the kind of vulnerability economically and jobwise that we all are aware of, without that kind of a tangible plan for ourselves, it really is a staggering fact and yet it is a fact, and I think all three of you are confirming that with your vantage points here.

Would anybody dispute that?

Mr. KASPUTYS. If I could just comment on that, Senator, the Energy Information Agency of the Department of Energy does produce an annual report on energy outlook. That Agency was set up by the Congress to provide objective information for decision-makers about the energy outlook in the long run.

Senator STEWART. We set up the Department of Energy? Congress?

Mr. KASPUTYS. Let's say that the Energy Information Agency, to the best of my recollection, was enacted into legislation prior to the Department of Energy being established. It is a part of the Department of Energy currently, but it was established by administration initiative and congressional concurrence to provide information on energy supply and the outlook. On an annual basis they produce a report fairly well known to the industry. This report I suppose is close to what you're referring to as a comprehensive strategy.

Senator RIEGLE. Wouldn't an outlook be a sort of passive assessment of what's likely to happen rather than necessarily a game plan for creating a certain specific condition?

Mr. KASPUTYS. That's precisely the point I was getting to. If you look at that outlook, which reportedly embodies the future impact of all the decisions currently made, you find for the foreseeable future an enormous shortfall in U.S. energy supplies which can only be made up by imports. So to make the balance work out, you have to plug in a very large amount of imports, and that's precisely the point that we were trying to get at in DRI's testimony. We are on a knife edge of a precarious supply and demand balance and if you fall off it on the wrong side there's enormous economic consequences of a negative nature.

I would certainly agree that there is no adequate comprehensive strategy to deal with the problem currently and the problem is well recognized.

Senator RIEGLE. But I'm sort of surprised that Merrill Lynch is a little more sanguine about the long pull here. At least that's the tone I got from them. This is the feeling: we've got a short-run problem to get through but once we hit 1980 we see the problem leveling out. Is that a fair statement?

SHORT-RUN PROBLEM LEVELING OUT IN 1980

Mr. TOJA. Right. What Merrill Lynch is basically saying is in spite of the fact that there is a Communist bloc, we all are living in a practically communistic society worldwide. The fact that we now have prices up in world markets to the extent they have risen, we don't believe over the next 18 months supplies would be withheld unless there was a catastrophic event; for example, civil disorder in Iran. There does not seem to be any plot. We do not believe Saudi Arabia, which is by far the heavyweight in OPEC, would cut back on production. As a matter of fact, they have indicated that while they will go along with the rest of their brother nations in OPEC and raise their official price to what appears to be the prevailing world price, they at the same time are holding out the hope to increase production in order to stabilize prices. Now they are working in this direction.

The point that we are trying to bring out is that now we have gone through the Iranian situation and it's crucial that we accept this. Assuming that there are no further problems in Iran between now and the end of 1980, supplies will be available. We're benefiting from the fact—and I don't know if I should use the word benefit, but we are benefiting from the fact that the economy is unwinding so that, in effect, demand for petroleum products will be moving down as we go through 1979 and at the beginning of 1980.

Senator RIEGLE. But you and Dr. Eck disagree on the degree to which Iranian supply is making its way to the United States. I think it's significant that it's his observation on the side of receiving the foreign supply that there's been a substantial percentage reduction in the amount of Iranian oil making its way to the United States as a buyer.

Senator STEWART. He's not asking for decontrol. Dr. Eck is. It could have something to do with the pressures that are brought to bear.

Senator RIEGLE. In any event, it's interesting that there was a difference in your assessment on that. What I'm not clear on the Merrill Lynch view, beyond 1980, as has just been said by DRI, even the Energy Department's own forecasts for 1980 show the shortfall will be made up by foreign oil. Even if one sees its way through the next 18 months, it's not clear in my mind how you see necessarily an answer to the next 5 years of the 1980's in light of that situation where the other two witnesses I think are reflecting a good deal more apprehension about whether or not that supply is going to be available.

Mr. TOJA. As far as the intermediate term is concerned, there's very little doubt at this point in time that there will be increasing dependency on imports say, in 1981 and 1982. In spite of anticipated step-ups in programs for domestic production under the President's oil decontrol program, the fact of the matter still remains

that it takes a number of years in which to explore, develop, and begin producing from new fields. We think that at the outset we will have developmental wells from proven fields bringing up more oil. However, existing wells are depleting more rapidly than new ones are coming on the scene. So, in fact, if our consumption increases, and we assume it will, we have no alternative, given a flat pattern of domestic production, to import more and more oil; to wit: we will be importing by the amount our consumption is increasing, assuming that domestic production remains flat.

However, going past 2 or 3 years and getting into the mid-1980's and beyond—and Ted is in a better position to respond to this—I would assume that domestic production will increase. I cannot put an exact figure on it, but within the oil industry it seems that the higher the price of oil, the more exploratory activity; the more exploratory activity, the greater the finds; and the greater the finds, the larger will be the eventual amount of domestic production. So we are working on that type of scenario as we go through the 1980's—a slight increase in domestic production.

Senator STEWART. Is there any consideration given by you, Dr. Eck, of alternative sources of energy? I assume you all have some uranian supplies. I assume you all have some coal reserves. I assume you all have some of the purchases of lignite and the other things going on. I assume you might be involved in other areas. It may be that you all are just involved in oil, but is there any consideration given by you to alternative sources of energy?

Mr. ECK. Actually, we don't own coal.

Senator STEWART. I'm sorry.

Mr. ECK. And not even lignite, but we are highly optimistic about shale oil. I'm sure you have all heard the stories that we could produce all the oil in the United States we need if we did develop our shale oil resources, and I agree with that, but it's not going to happen quickly in the sense it's going to take many years to get a big shale oil business, but it's a real national tragedy that we are not moving faster on shale.

Our company is doing a $100 million program or something like that, but we should be spending a lot more and everybody else should be spending a lot more, and the real problems here are as much as anything environmental uncertainty and the total regulatory problems.

The other area that we are spending a lot of time and effort—really two areas. One is this light gas which is in Alabama. The whole western slope of Appalachia appears to have a great deal of dimonian gas potential and I think, given the proper signals—and we are not getting the proper signals—given the proper signals, we could do a great deal in the United States to increase our total gas production of these unconventional type gases.

Senator RIEGLE. If I may, I want to go to some questions that are kind of overarching questions that I'd like all of you to respond to.

First of all, I want to explore the appropriate macroeconomic policy responses to a petroleum shortage. Now the postmortems on 1973-74, our episode then with the substantial shortfall in the oil supply, suggested that the recession could have been moderated if the Federal Reserve had accommodated the inevitable price rise which we saw and that resulted from the OPEC action, and fiscal

policy should have been stimulative at the time so as to offset the so-called OPEC tax.

Now the question I'd like to pose to any of you is this: suppose we have another severe bout of energy inflation, and it seems to me that is part of what each of you are foreseeing and it's open to question, but there are obviously substantial price increases ahead—would it be your advice then to the Federal Reserve that we try to finance the higher price level that's going to result from those price increases by raising the rate of monetary growth? And then, as a corollary question, and that is, would you think the Federal Reserve can reasonably be expected to raise the rate of monetary growth at a time of accelerating inflation? It sort of gets us into a box.

In addition, suppose world crude oil prices were to rise an average of $30 a barrel—that would perhaps be the worst case, but we have seen spot sales certainly above that—and then the question would be in the form of how big a tax reduction would we need to have to offset the effect of this on consumer real income and purchasing power? In other words, I really want to get a macro question here of how we might find a way to offset that kind of additional burst and price effect from the high energy cost?

PRICE EFFECT FROM HIGH ENERGY COST

Mr. KASPUTYS. Perhaps I can start on that question, Mr. Chairman. I think indeed it's true that the recession could have been moderated in 1974-75 by earlier accommodation of oil price increases by the Federal Reserve and that's well recognized. It's hard to predict what the Federal Reserve is going to do, but I think it would be appropriate to accommodate higher oil price increases to at least some degree. Now the Fed does have to balance that off against the higher rate of inflation that I forecasted in answer to an earlier question where, if we are faced with 1.2-million-barrel-a-day shortfall and the OPEC price goes to $20 a barrel or in that neighborhood, we might see the CPI up to 10 percent. That's a very grim outlook with the total employed workers down some 1.4 million people. That's a classic case of stagflation. You really have no real growth but maintain a very high rate of inflation. I think it would be necessary probably to be somewhat more accommodating just to keep the economy relatively stable so things don't deteriorate further. Indeed, the Fed probably would accommodate such a price increase to at least some degree.

With regard to the question of the recession of 1974-75 vis-a-vis what we might see in 1979-80, it wouldn't be, in my judgment, of the same severity. For example, if we had an oil shortfall of a similar magnitude, the recession would not be quite as deep because in 1974 we had a large buildup of inventories which attenuated the recession. So it wasn't only the factor of the energy shortfall and subsequent price increases that triggered the recession some 4 or 5 years ago, but also the inventory overhang was there. Once we got into the recession we stayed in it for quite a while before manufacturers needed to begin production to meet consumer demand. We don't quite have that situation today so the

recession, even for an equal level of shortfall, might not be quite as deep.

Now the other part of your question ran to fiscal stimulus. There again, we are faced with a horrible dilemma still of this high inflation rate and the combined general sentiment of the general public, the administration, the Congress and State and local government that the Federal budget is responsible for a good deal of the inflation that we are experiencing. Now as you know, we have made our point in the past that there are many causes of inflation, one being the deficit spending and the other being exogenous shocks such as energy price increases, and they really have to be looked at separately, but clearly both of them contribute to inflation.

So the degree to which a tax cut might be considered to stimulate the economy due to a large energy shortfall is something that would have to be very carefully balanced off, in particular because you wouldn't have all the energy needed to run American factories to begin with. So if you're faced with an energy shortage and you really have a lowering of effective capacity, a high rate of fiscal stimulus on the part of the Federal Government can serve only to heat the economy more rather than treating the problem of shortfall and supply. But I think that would be something we would have to look at very carefully.

What might be more appropriate is targeted programs on selected industries and selected pockets of unemployment in that sort of situation rather than a general tax cut to heat the economy when it's faced with a severe energy shortfall. If you didn't have a shortfall but just had a price effect, which I think is the last part of your question, going to $30 a barrel, we have not done any studies of what the economy would look like with oil at $30 a barrel, but it's clear that the inflation rate would be enormous and the impact on employment and unemployment would be very severe. It would certainly be far in excess of the 1.4 million in 1980 in terms of reduction in the work force that I referred to. And to avoid serious impacts on the economy in the face of just the price increase and not a shortfall, I think we would have to accommodate monetary policy further and have some sort of a tax cut to stimulate the economy to offset some of those negative effects. Just what the size of that would be is something that we really haven't addressed now, but you can get a feel for how much would be going out of the country I think in terms of every $5 a barrel that the price goes up we are seeing a drain on the country of $40 million a day. So it's a very large number, with a large economic impact.

Senator RIEGLE. Well, I think that's a very thoughtful and helpful response to us and if we look at where we are right now we have essentially a zero-growth quarter that we just logged where the inflation is showing some signs at least in some parts of the country it will pick up in unemployment, although it's not up on the rail—it's not yet seen in terms of the national figures.

It seems to me we're getting a real dose of stagflation now. Each of you has made your own assessments about what the next two or three quarters will be in light of all these other variables. You point out that the traditional tools are not all that helpful. It may well be that some monetary accommodation will be helpful under

certain conditions here. Under very extreme conditions, if we were to get a huge shock on the up side of the price increase we might have to go as far as a tax cut in spite of the fact that we have other things we would like to do, like reducing the deficit and so forth, just to keep the economy from going into a very serious recession.

CRITICAL MOMENT IN ECONOMIC STRATEGY

All of this highlights the fact that we are really at a critical moment in terms of economic strategy and our choices are limited. It also puts a premium on looking for some new tools. We have been talking and trying to develop an interest in the notion of a much tougher price and wage program, some sort of a TIP program, where there would actually be a much more direct penalty type impact to try to ratchet down this momentum of inflation at the same time you're walking this tight rope of trying to keep the economy going.

But I'm very worried that unless we can develop a kind of clear economic strategy that would be a counterpart of a kind of aggregate, comprehensive energy strategy that we were talking about 10 minutes ago, that we may well miss the moment in time when we could put ourselves in a stronger position to deal with whatever shocks are ahead of us, and I worry very much that we may be drifting through this time frame with policy responses in terms of economic strategy both related to energy and apart from energy that aren't really the best we could do, and it's a source of great apprehension to me because I think what margin for latitude in terms of strategy moves that we have right now will shrink on us the longer we wait, and it's very unsettled and to me as chairman of this subcommittee I have to acknowledge that kind of situation and yet find that we are as a country quite a long way yet from dealing with either problem, either the aggregate economic strategy side of it or the aggregate, sort of comprehensive energy strategy side, both of which are absolutely vital.

Dr. Eck, I think you wanted to make a comment.

Mr. ECK. Of course, I studied economics at the University of Michigan and Michigan State, and we didn't necessarily emphasize monetary policy as a major tool. I think I would be fearful of a monetary stance and accommodation. I suppose, looking at history, we have always erred on too much money rather than too little. Again, I am concerned about talk that we are not going to have any tax legislation in 1980 or certainly 1979. I think we need a tax cut. That's what stagflation is all about, a fiscal drag effect—as prices go up, tax collections go up proportionately more, and if we don't have tax cuts we are just condemned to more and more stagflation.

Senator RIEGLE. Even if that means increasing the deficit?

Mr. ECK. Even if that means increasing the deficit.

Senator RIEGLE. You know that runs counter to the religion of those who are arguing for a balanced budget. We asked the CBO to do an estimate of what the effect would be if we went to a balanced budget in one jump in fiscal year 1980, and we found that the effects are absolutely incredible in terms of the degree of cuts that you have to apply. It ends up we have to cut the budget about $66

billion and it's well over a 10-percent cut, so you not only have all the program impacts but as nearly as CBO could tell us we get only slightly over a 1-percent inflation reduction after a 2-year run at that level, the unemployment rate goes up two points. You really get horrendous difficulties setting in if you go to a balanced budget overnight.

You're actually arguing the reverse side of that coin. You're saying that we may well need some way to accommodate the impact of energy price inflation and some of the other inflation rather than going to the monetary tool. You would be inclined to be in favor of a fiscal tool and actually be calling for a tax cut.

How would either of the other two of you react to that notion?

STIMULATION OF THE ECONOMY

Mr. TOJA. Well, let me react to the original point and that is whether or not stimulation of the economy at this point would help either solidify the U.S. position in terms of world oil markets in the future or whether in fact it would help the consumer over the short term.

I'd like to caution that stimulation is an excellent policy, but not if you're looking at high rates of inflation, especially double digit rates of inflation we're looking at now. If, in fact, we were to keep the economy artificially pumped either through excessive monetary policy or tax cuts at this point in time, what we would have to do is pay a price somewhere further on down the road.

What I mean by that is if, in fact, inflation kept going at double digit rates of increase—keep in mind that the OPEC price of oil is in dollars—they have already gone on record in the past as not approving of high rates of inflation in the United States because that is their purchasing power. We might conceivably reach a point where in order to keep the economy moving we have high rates of inflation and as a result, OPEC raises oil prices again to compensate for the loss of purchasing power or decides to adjust the pricing system to other currencies. If the inflation rate in the United States has been stronger than abroad, in order to pay the price in dollars we would be spending that much more dollars, which again would lead to further problems down the road. As far as the consumer is concerned, he does not measure his income in current dollars—the consumer is much more sophisticated. He does know what his purchasing power is. It's unfortunate in high periods of inflation, cost-push factors keep prices of goods running faster than consumer income can keep up. The fact of the matter remains that sooner or later in real terms the consumer is going to realize that he just can't keep up his spending spree. He will begin to slow his spending.

The problem is, if the economy has been held up artificially, the fall will be harder, deeper and possibly longer. I think we should look very closely at some of the consumer surveys that have come out in recent months that show the increase in pessimism that the consumer is exhibiting, particularly in regard to future spending habits. Eventually consumers will regroup and retrench, which is obviously what he's going to do over the next few quarters. Hopefully, the slowdown in consumer spending will slow inflationary

momentum and bring price increases more in line with income growth.

It would be best in the longer run to try to curb inflation and that, in effect, will strengthen our economy domestically, and our position internationally.

Mr. KASPUTYS. I would certainly agree that a tax cut is not called for under our most likely case, which is basically the case one we presented to the committee in our testimony. I think, indeed, if we see much higher prices or if we see some sharp curtailment in supplies, it may be necessary to deal with the economic problems that that creates through some selective tools and through some easing of fiscal and monetary policy. But under current conditions I would not recommend a tax cut. To that degree, I disagree with Dr. Eck.

With regard to what actions this committee might consider in dealing with inflation, I would strongly recommend that you simultaneously look at demand management which we would get at with fiscal policy and at the supply problems. As I noted in my statement, if we had a shortfall and a $20 OPEC price, we could see just the actions taken over a period of 6 months perhaps adding some 2 to 2.5 percent to the CPI in 1980. As long as that specter is over the heads of American business and American workers, there are going to be high inflationary expectations which are going to translate into higher wages and prices. It seems to me therefore the problem facing the committee in designing policies is to recognize how inextricably intertwined the energy problem is with the inflation problem.

Senator RIEGLE. My concern is in terms of the workers I talk to who are in the process of negotiating wage agreements in the future, United Auto Workers in my State being one that's now engaged in that exercise, they are looking right now at an inflation rate over the last few months of in excess 13 percent. So it's not an expectation of future inflation rates as much as it is a real reduction in income in the last few years. So they're in a situation, like a lot of others, where a lot of people perceive themselves as having a lot of catching up to do just to restore a standard, let alone making a sophisticated judgment about what the price structure has to look like in the coming months.

I don't want to get into the psychology of what's going on in negotiating alone or collectively on behalf of large labor organizations now, but it's very hard for me to see how anybody is likely to be persuaded to scale down a wage demand, or for that matter even a price demand if you want to sort of take it on the other side, in light of what our experience is currently and stretching back over the last several months. I don't know how we break out of that box. I think it really confronts us with a new kind of problem. I think we are in a zone, an economic zone, where the traditional tools are less helpful to us than perhaps we thought they were in the past, and I think that forces us to come up with a different kind of policy mix and that's not easy to do. It's not easy to corral the Government and move it in one direction even if you know what the direction is, but it seems to me at the present time we have not devised an economic strategy for ourselves to meet the kind of situation that we are in at the moment.

NEED FOR LONG PERIOD OF STABILITY

Mr. KASPUTYS. I think you hit on one very important point when you said the expectations that automobile workers and others have with regard to inflation is very persistent. The data tell us from analyses that we have done that today's inflation rates will still make themselves felt, albeit with decreasing impact, in wage and price claims 4 years from now. It takes about 17 quarters to take today's inflation out of inflation expectations. What that says is we need a long period of stability in order to work out all the inflation we have experienced up to now and that leads me again to a conclusion that we need to attack both the demand side and the supply side. Ways of attacking the supply side indeed might mean reshaping tax policy to encourage savings and investment more. It won't necessarily lead to tax cuts, but it might mean a change in the distribution.

Senator RIEGLE. Well, I tend to be sympathetic with that notion that we have got to find some way to get at the question of capital formation and capital investment, and how we accomplish that. To the degree we try to get that done through some change in tax policy I think is a very important avenue for us to pursue. We put some ideas forward. We're going to hold some hearings shortly to get at issues of depreciation methods to try to recoup something that's closer to replacement cost, taking into account the incredibly high rate of persistent inflation—tax indexing—to find some way of maybe offsetting the payroll tax blow we see coming in the spring of 1980 so we can get some balance back and see if we can't do something about picking up the productivity.

I guess I'm a little concerned about any suggestion, however, even implicit suggestion, that it's excess demand that's creating inflation. I don't see much of that right now. If you look at the current data, things appear soft enough that I find very few places in the economy where I think prices are being driven up because of excess demand. It may well be gasoline, because of the shortfall in supply, is the one big example that stands out to the contrary, but other than that, I'm not sure I see very many other areas of the economy where demand is bumping up against supply bottlenecks.

Mr. KASPUTYS. Demand today has certainly softened. What I was referring to was the demand that we have already experienced that has driven the inflation rate up to the double digit level we have seen.

COST-PUSH OR DEMAND-PULL INFLATION

Senator RIEGLE. I'm not sure that even going back, say, over the last 12 months that you can identify that many sectors of the economy where you have really had the classic kind of supply shortage that's driven up the price. I mean, take energy to the side because that's kind of a special problem, but I would think that it's much more of a cost-push inflation than it's been a demand-pull inflation. Are you disagreeing with that?

Mr. KASPUTYS. I'm saying there is a demand component to the current inflation rate that's been very strong to build up to the double-digit rate that we have experienced over the last 12 months

which is embodied in the current wage claims and price claims of workers and business.

Senator RIEGLE. Where do you see it? What sectors of the economy do you see that in? Where have you seen the excess demand?

Mr. KASPUTYS. We have had strong demand. Certainly the consumer demand for the last 3 or 4 years has been relatively strong.

Senator RIEGLE. Where has it been pushing against available supply? Where have we seen prices being bid up because there's been shortages?

Mr. KASPUTYS. Capacity rates have been quite high over the last 24 months. They have been approaching——

Senator RIEGLE. There's a difference between high and 80 or 85 percent.

Mr. KASPUTYS. They are approaching effective or full operating capacity in many industries. The backlog of manufacturers' durable orders has been pretty good. It has dropped in the last month, but there has been a backlog. You have seen it in business investment. You have seen it in the consumer. There has been demands certainly over the past 24 months that has pushed the inflation rate up and, in turn, has been embodied in current expectations and today's inflation rate does reflect a portion of that demand.

Senator RIEGLE. Well, I guess the question is the degree. I'm just wondering if you were going to take 100 percent of the inflation and split it into two pieces and one piece was the part that was wage-price momentum-type inflation versus the part that was demand-pull inflation, how would you split the 100 percentage points?

Mr. KASPUTYS. Well, probably today I would say there's a floor inflation rate in the economy which is embodied in expectations which are the result of things that happened from 1 month ago to 4 years ago, and that floor rate is clearly responsible for at least half of our current inflation rate. Of the remaining half, perhaps current demand, today's demand vis-a-vis today's capacity, Mr. Chairman, would be some or 15 to 20 percent, and the other 80 or 85 percent would be supply shortage. But I would look at the inflation area as having three very separate components.

Senator RIEGLE. That's interesting. I saw your hand first, Dr. Eck.

Mr. ECK. I would like to associate myself with your view that the problem is not excess demand. It can't be in the automobile industry. We have had too many people lining up buying automobiles. I also concur that we've got to do something about productivity and we have to restructure taxes but there's no way we are going to get a tax restructure without lower taxes. You're not going to lower taxes on business without lowering taxes on consumers and I think also that is the correct fiscal medicine anyway for the kind of economy that I'm afraid we're slipping into, and I think now is the time to begin hearings on tax matters because we may need a tax bill sooner than we think and we'd better have one ready.

Senator RIEGLE. Did you give an estimate today of what you're anticipating in terms of the downward slide of the economy? I think we got a clearer sense from our other two witnesses as to what they anticipate over the next two or three quarters, but I

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don't know that we did from you. What's your assessment of what's happening?

Mr. ECK. I'm afraid that the best case is stagflation and that may be the best we do, and if the consumer becomes sufficiently frightened we could have a genuine recession and I think stagflation is bad and it's unacceptable and we've got to do something to prevent its persistence, but recession is worse, and I think we've got to be thinking about if we slip into recession what do we do about it.

Senator RIEGLE. Is that another way of saying that you think the risk of recession ahead of us is higher than the other two witnesses?

Mr. ECK. Yes, I think that would be my opinion.

Senator RIEGLE. You were going to make a comment, Mr. Toja.

Mr. TOJA. Mr. Chairman, you were talking about the inflation rate and I'd like to get back to your point about breaking it down between cost-push and wage-pull. The best way to answer that question is to think in terms of the economic cycle. If you're at the beginning, coming out of a recessionary period, that original growth in prices would be the result of demand-pull forces. That is, the consumer coming in once again, industry responding to increased consumer demand in terms of raw material consumption, capital equipment, and labor. Then, as you go out over time, all the costs of manufacturing begin to increase and costs are passed through because demand is strong. As you go through that cycle, as you start to get to the end of the classic cycle, the unwinding of the economy, then you start shifting once again so the major portion of inflation is now cost-push because the aggregate demand activity in the past has led to the increases in the cost of manufactured goods. even though the demand portion of the market has now weakened.

CONSUMER CONTINUES TO SPEND

I think we should look very carefully at the fact that the consumer is growing increasingly pessimistic, yet he has still continued to spend. In spite of the fact that he cannot afford to spend, he has also continued to spend. If you look at the figures on consumer debt as a percent of his income, it is at an all-time historic peak and these numbers are simply too high, too strong to be sustained much further in the future, and that is the classic problem we are confronted with now.

To artificially pump the economy will give you two or three more quarters of growth, but sooner or later you will have to pay that price in a much sharper, much stronger turndown as the consumer position deteriorates in real terms.

Senator RIEGLE. I'd like to ask two other questions. You have been very patient and I may ask you to respond to some of these questions for the record just to save your own endurance as much as I can. I'd like to get a sense from each of you as to what will happen with increases in the price of gasoline and supply depending on what happens to the price—the elasticity issue. Let's take the demand response first.

I'm wondering how much you think consumption for gasoline and oil or combinations would drop as a result of a 10-percent increase in price, say, after 1 or 2 years. In other words, does the

10-percent increase really put a discernible dent in demand as far as you see? Let's start with that one. I'd like to just move through as quickly as I can because I want to get a general range of your senses.

Mr. ECK. I think 0.1 elasticity for the very short term. Short term may be within a year. Whereas the longer-term number we use—and I think most of the petroleum people are using—is about negative 0.3. So it would be 3 percent reduction for a 10-percent increase in 2 or 3 years, somewhere in between those numbers.

Mr. KASPUTYS. Typically DRI uses about the negative 0.1 to 0.15 which is about the same as Dr. Eck has outlined for short term response. The longer-term response becomes much more speculative because we get beyond the range of price experience and have never been able to measure the data.

You remember us having this problem in 1972 and particularly in 1973 and thereafter, trying to estimate gasoline elasticity. I'm concerned that the elasticity may not even be as high as Dr. Eck has outlined just because the ability for the consumer to cut back on gasoline purchases, given the structure of society, is somewhat limited and he's really limited due to the lack of public transportation.

Senator RIEGLE. But it also seems to me you've got the whole question of not only the difficulty of making substitutions for automobile transportation or other uses of oil and gas, but you've got the evidence that shows that in foreign countries where the price of gas is up to $2.50 and higher a gallon that it doesn't seem to put any material dent in usage. I would think in our country, with our style of life, our requirements in terms of the way people move around, plus a larger margin of discretionary income than some of the Europeans would have, that all of these things argue for a much less amount of elasticity than the other way around.

Mr. KASPUTYS. The only thing we are getting at is Americans on a per capita basis tend to use more than Europeans do.

Senator RIEGLE. I'm not sure I see that changing a great deal, assuming the supply is there. I think paying a higher price will have some restriction but I'm not sure how much.

Mr. TOJA. Mr. Chairman, just on that point, I would comment that we are talking about a different vehicle in Europe than we are here in the United States and it's quite conceivable that with the same mileage the European consumer is actually paying less for gasoline than we are. The vehicles abroad are much more efficient, so in terms of his total bill for the year, it may not be as damaging to him as it would be to the American consumer.

To respond to your question as to what the elasticity of demand would be, I do not know. We have not quantified it. I think a lot depends not only on the price of gasoline but what the general inflation rate is. Further, you would have to know what other choices the consumer had available to him. Now definitely we will see over the next 5 years consumers purchasing more efficient cars, whether it would be that Detroit has been mandated by Washington to build a more efficient car or whether the consumer wants to pare his gasoline bill. So we both see gasoline consumption declining and the problem is measuring how much of a decline we are going to get and how much of it is due to the fact that he doesn't

want to pay that much and how much is due to the fact that the automobiles that he's purchasing happen to be more efficient.

Mr. ECK. I would like to emphasize one more time I think the long-term elasticity is alive and well and we can see that right now in Detroit; that the consumer response to high gasoline prices has sure meant an end to buying pickup trucks to drive to work and vans and big cars, and that's going to work through the stock of vehicles and that's why we think gasoline consumption is going to go down, literally down in physical terms, and very much in response to price.

DECLINE OF ECONOMY REAL GROWTH RATE

Senator RIEGLE. Let me ask you this. What do you think will happen to the demand for gasoline and oil if the economy's real growth rate would decline by 1 percentage point? What kind of effect do you see there?

Mr. ECK. That's basically our forecast. That is, our best case forecast is for gasoline consumption during the 1980's to go down perhaps 1 percent a year and I guess I don't see any real serious economic effects.

Senator RIEGLE. What I'm wondering is how you relate the demand for oil and gas to the level of the economy generally? If the economy starts to decline, if real growth starts to decline, what kind of proportionate change would we see in terms of oil consumption?

Mr. ECK. That's income elasticity. We don't think there's very much income elasticity for gasoline, a very, very slight amount in the short range. In the long range there's quite a high income elasticity as it works through the vehicular ownership equation, but if we have a sharp recession, let's say over the next 12 months, it might lower gasoline demand 1 percent versus what alternatively we would have seen.

Senator RIEGLE. I'm wondering if it's possible for the U.S. economy to grow at all unless there's going to be an increase in gasoline consumption. Taking into account the savings we are going to make with more efficient cars and so forth, is there any relationship that we need to bear in mind that would say we're going to continue to have economic growth, that we're going to continue to have some kind of functional increase in the percentage of gasoline used?

Mr. KASPUTYS. For about the last year, our rate of energy use has been growing about the same rate as the rate of real economic activity. The figures indicate that. I think that if you look at the gasoline sector separately, that rate of growth would be less than the overall real rate of growth. It wouldn't be much less than one-half to two-thirds of the rate of growth of energy.

Mr. ECK. I think I understand the question and maybe look at it in two dimensions—the longer term—if we assume that we are going to use less energy per unit of product, which I think we assume, that energy is going to be more expensive however, and so it's going to use relatively more costly capital and relatively less energy and the net effect of this is going to be to further reduce that productivity that you made reference to.

I don't think there's any question that the long-term rate of growth in the United States will be somewhat less and maybe it's .2 or .3 percent less than annual growth of GNP.

As far as the short-term question, let's say we have a physical limitation on energy supply such that we have some stalled tractors and trucks. The economic impact of that is horrendous, but I'm concerned about the economic cost of gasoline shortages, the dislocation effect.

Senator RIEGLE. I saw a piece yesterday to the effect that throughway traffic across the country is off and I know a lot of our resort centers are finding they have had a sharp falloff. Whether that will sustain itself or not, I don't know; but, of course, a lot of this is seasonal business so it's not something you can necessarily pick up later if you miss it now. It's of great concern to me, how it's going to work itself back through State economies, regional economies, and national economies.

Mr. KASPUTYS. Could I just add one thought to that, Mr. Chairman? We really did answer your question to some degree in the analysis we did. In case two, for example, we were assuming about a 6-percent reduction in overall petroleum supplies and we took about 10 percent out of gasoline and the net impact was about a 1-percent reduction in real GNP.

Now that was admittedly over a shorter time period. If this would continue for a longer period, I'm sure there would be more disruption than that.

Mr. TOJA. Mr. Chairman, I think we should be very careful about talking about rates of growth and income and activity and using expressions such as energy and oil and gasoline interchangeably. If we're talking directly about economic activity and the manufacturing process, then we're talking about the fuel oils. If we're talking about the trucking industry or the farm sector, we're talking about diesel fuel. If we're talking about the leisure or personal consumer sector, we would then be concerned with gasoline.

So to respond to a question of what a 1-percent decline in real economic activity would mean to gasoline, the procedure is to take it down to the first step, which is what does a 1-percent decline in real economic activity mean to consumer income and how much of that will go for gasoline.

What I'm really trying to get at is this. Certain types of fuels aid the production process or are used in actually generating most of our real output. Consumer gasoline consumption is a result of his standard of living or his affluence or his increases in income. So one would be the cause and the other one, to a certain extent, will be an effect of economic activity.

Senator RIEGLE. I think you make a good point. Ted Eck said diesel fuel probably has the highest ratio to direct economic impact. Although it's very interesting—I don't know whether we have done a good job of factoring out what consumer driving boils down to in terms of the way it feeds into a direct economic effect. There are obviously the basics of getting to work and back. There's all the rest of the economics to buying groceries and to taking vacations, which is on the economic input side in the resort areas and so forth. It's a very subtle, complex item I'm not sure we have ever pinned down very well.

Mr. KASPUTYS. As I noted before, we attempted to do that for what was a new analysis for us at this committee's request. We reduced the available supplies of both gasoline and distillate because you wouldn't realistically have a reduction in gasoline alone without probably having some reduction in other fuels. So taking that all together and then assuming—which I think is a critical assumption—that the allocation systems which have been put into place by DOE really work and do what they are designed to do, making those kinds of assumptions as well as certain assumptions about consumer behavior, precisely the kind of thing you're asking about, does give us a rough idea of what the economic impact might look like and it's quite severe.

OIL PRODUCTION INCREASE VERSUS PRICE INCREASE

Senator RIEGLE. Let us just quickly try to go to the supply side of the equation. That is, how much can we expect domestic oil production to increase as a result of, say, a 10-percent increase in price after 1 year, 2 years and 3 years. Dr. Eck, what do you think the supply response is likely to be?

Mr. ECK. You're talking about real price in the sense of oil prices versus other prices? All prices are done in real terms?

Senator RIEGLE. Right.

Mr. ECK. Then, I think typically we have econometrically identified a long-term elasticity of plus 0.5. Unfortunately, it takes a long time to get there. The first year response would depend to a certain extent on how it's done. One would think that in the first year about all that could be accomplished would be to increase production from existing fields of oil. That would require decontrol of all oil prices.

Decontrolling new prices isn't going to help the old oil. So we're optimistic that in the neighborhood of 500,000 barrels of additional oil would be available from old fields eventually whether that's 1, 2 or 3 years, and it's more likely 3. Anyway, this is in the area of workovers and extensions and failure to abandon wells and that sort of thing. But there's no question that we have to look at these near term as well as the long-term effects and the first part we have to play is whole oil price and getting a better response from the existing nonoil fields.

Senator RIEGLE. Who else would like to respond?

Mr. KASPUTYS. I think our analysis we have done puts us in the same general range. First of all, we wouldn't have very much happen in the near-term other than from existing facilities. You would probably generate, particularly if you provided a long-term framework for the oil industry that they are going to see rising real prices with some certainty—you would generate a considerable amount of drilling activity and exploration, but in the near term DRI's estimate would be in the same general range.

Senator RIEGLE. Did you want to add anything to that?

Mr. TOJA. I would not be adding anything that's materially different. In 1978 domestic production of crude oil and natural gas liquids averaged 10.4 million barrels a day. Assuming faster growth in oil prices than in overall inflation, we estimate that by 1990 the domestic oil industry will probably be producing about 12.5 million

barrels a day. It's not that large an increase compounded growth-wise, but it would take some of the edge off expanding imports.

Senator RIEGLE. Some people's analysis is that in order to get whatever that increment in supply it is relatively modest under any range of estimates. If you take the aggregate price increase, that is the price of all the other products involved here; if you take that total increase and cost and apply it then to the oil you produce and look at that on a price per barrel basis, then, it's a pretty expensive way to get energy; and the question some people raise is, does that make sense economically or wouldn't we be smarter to maybe find another way to get it if you can and, if you can't, take that large number of premium dollars and sock it into something where maybe the supply side is more promising—synthetic fuel or shale or some other way?

Mr. ECK. In the case of the farmer we want him to increase production 5 percent but we don't have a market instrument that says we're going to pay him a low price for all the old wheat produced until the 5 percent—markets don't work that way. Anyway, in the case of oil, the problem is looking at that short term increment. No question, you pay a tremendous amount of money for what you get the first year. What you're hoping is that we're paying a reasonable cost for what we get 10 years or 20 years hence and what we hope we're getting is some measure of independence from OPEC. The game is not really worth a candle unless we're going for that ultimate objective.

DECONTROL OF OIL JACKS UP PRICES

Senator RIEGLE. But isn't that another way of saying that your argument for decontrol of oil is really not so much for the additional oil you get, because while that's worth something, that doesn't put a very big dent and it really jacks up the price level in terms of making other alternatives more feasible——

Mr. ECK. I'm saying it's just not the conventional oil. You do have enhanced oil recoveries, for instance, which might double oil production for a number of fields. We've got to do it all—conventional gas—we need to cut our inventories in half on imports.

Senator RIEGLE. You're not going to do that with additional oil.

Mr. ECK. You're not going to do that without additional oil.

Senator RIEGLE. Well, all right. Let's say we succeed in cutting our imports in half. Did you say cut our additional imports in half?

Mr. ECK. Instead of importing what most people agree we're going to be heading for, 11 or 12 million barrels, we have to cut that in half.

Senator RIEGLE. You say get it down to five?

Mr. ECK. Five or five and a half.

Senator RIEGLE. If we were to succeed in getting it down to five and a half, I'm just wondering to what extent oil in the conventional form found in the United States is going to fill out that production versus other kinds of energy filling it out.

Mr. ECK. I think about 2 million barrels of that would be conventional oil over this decade we're discussing. Then, additional shale and natural gas and other things——

Senator RIEGLE. Other things would be the other three?

Mr. ECK. That would make up for the additional amounts.

Senator RIEGLE. Would you folks tend to agree with that or disagree or not feel comfortable expressing an opinion?

Mr. KASPUTYS. I think the question is whether you want to buy a short or long-term insurance policy, and we probably need both. So if you were to take the dollars that could be used to finance the production of additional oil and say let's not decontrol but rather let's somehow keep the price of oil low, particularly old oil, and put the money into exotic forms of energy, that's a long-term insurance policy I think.

I think the only thing you can do in the relatively near term, given the objectives of our society with regard to the environment, with regard to the economy, and with regard to the use of the automobile, the only thing you can do in the relatively short term—and I'm talking about the next 5 years—is to encourage the greater production of domestic oil and gas. Certainly coal needs to be encouraged and exotic fuels need to be encouraged.

Senator RIEGLE. Then why wouldn't the argument be that what you ought to do perhaps is decontrol the price of any authentically additional oil supply, whether it's coming out of a marginal field that otherwise would be closed down or from new exploration that could be found, rather than the oil that's out there that's in the conventional form that we know about that we are going to pump out anyway? Why not simply provide the decontrol price for those supplies which are authentically incremental supplies?

Mr. KASPUTYS. I think I agree with Dr. Eck's that markets just don't work that way.

Senator RIEGLE. I know they don't work that way normally but that's exactly the way we have been working this market.

Mr. KASPUTYS. And we haven't been very successful in halting the decline of production of U.S. crude oil.

Senator RIEGLE. I think the margin we're talking about is that incremental margin. We're talking about the additional oil that could be produced with the higher dollar incentive versus that part that has been produced and is being produced today.

Mr. KASPUTYS. We have a lot of those incentives in place right now.

Senator RIEGLE. That's exactly right. When you've got a lot of incentives today that in effect give you something close to the world market price for new finds, some people argue why that isn't sufficient to encourage the effort to go out and find what additional oil there is to be found?

Mr. KASPUTYS. It seems very logical, but I think there are a couple reasons. One, I don't think markets effectively work that way in oil or anything else and, two, I think we have wrapped up the oil industry in so much regulatory uncertainty it's hard to respond to a 100 different vectors that act on them and try to send them into one direction.

Senator RIEGLE. I think that's an entirely valid point. The more I learn about it, the more I learn the regulatory problem is a serious problem in terms of retarding what can be done.

Another argument that could be made is you've got a capital problem here. In other words, to go out and find the incremental oil either in deeper oil or less hospitable environments with inflation and so forth, is just a more expensive proposition. Therefore, if you're going to encourage that kind of find on the margin you're going to have to accumulate premium capital to go in and make that investment. I think that, too, is a rational economic argument for why you might need a different kind of incentive to go out and get what is in fact more expensive oil. When you come back down to the question of oil that's there, whether it's oil pumped out of Saudi Arabia today, out of relatively inexpensive from the direct cost point of view from the flowing fields in the United States, the notion that the price should be jacked up for that component of old oil, especially when we have lived under a framework when we have kept those prices down, I think that gets into a different area of economic argument that's much less clear-cut.

Mr. KASPUTYS. The question is really who you want to allocate the resources. If you want to give the money to the oil and energy companies for them to allocate or put a tax on old oil and keep it up to world levels and have consumption that reflects current real prices and at the same time to encourage additional development through the use of tax moneys. That's really the issue.

Senator RIEGLE. But you can't even do that in a vacuum because you've got to superimpose that in a picture where the inflation rate over the last several months has been over 13 percent, an erosion in real standard of living over the last couple years or so for those people in the country, and starting to slide into a recession, so you're in a situation where the last thing you need is another inflation shock. Especially if it's inflation shock in terms of the rising price for old oil, which that component of old oil supply is not going to increase—we're just talking now about paying for the same amount that we presume we'll get anyway. I'm talking now about the more standard old oil. To administer that kind of economic shock in today's conditions is a very real macroeconomic question. I don't know if you can separate that out from certainly the micro question of do you need that specific investment in capital formation incentive for the oil industry or for the energy industry to get them moving at a faster rate and finding additional supplies. I don't know how you successfully disconnect those two issues. What I often hear is that you hear the consumer advocates argue for the one side, disconnect it from the other. You'll hear the energy companies argue from the other side, disconnect it from the first. It seems to me that you have to combine the two as a rational national strategy decision. I must tell you that I'm very reluctant to administer another inflation shock unless I can really trace through whether some very substantial sort of national security and national benefit that's going to be widely shared, not just to some but to a broad base—that's where I think the debate sort of gets hung up, because it gets polarized and I'm not sure it's centering somewhere in between might be a more productive place to be.

Mr. ECK. Let me just come back to the basic point in oil. It's not true we can just say, well, fix the price of oil and it's going to stay

there. It's not going to stay there, particularly where we have a system where the entrepreneur is awarded $20 a barrel for new oil and $5 for old oil. The capital tends to leave the old oil and go to the new oil. Unfortunately, we sort of are stuck with the old oil for the oil we have available for the next 5 years and most of the oil for the next 10 years. There are a lot of things we can do. We can open abandon wells. We can walk away and leave it. The basic situation is that we're only getting a third of the oil out of the well. Why do we leave it in the ground? If it's $20 oil, we might get a whole lot more oil up. I really think if we're concerned about how we get from here to 1985 and 1990, we have to think a lot about that.

Senator RIEGLE. It seems to me we need a rational mechanism for making these decisions. What you're saying is I've got an oil field out here and I can get a third of it out on a relatively inexpensive basis but the other two-thirds is totally an engineering proposition and my average cost on that would be well above the old oil price. Therefore, what I would like to do is enter into an arrangement whereby if I could be guaranteed that I'm going to recover my costs, plus a reasonable profit after going after some part of the other two-thirds, I'm prepared to do it. It would be in the public interest to have that done. But that's not really what you're saying, as I hear it. That's not what I hear the industry saying or that's not what I hear the Government saying. What I'm hearing you say is something different from that.

That is, look, we want basically the world price for all the oil that's there, including the old oil, regardless of the cost of production, regardless of when the rig went in, whether we're pumping it out at a tiny fraction of the cost of what we're selling it for, even at the controlled price, let alone an uncontrolled price, because we feel we need those funds. Maybe we need to make a more careful differentiation here.

NATIONALIZING THE OIL INDUSTRY

You see, I think the other side of this coin is if the industry were to say sorry, we're going to close down the oil field here. I'm not sure the industry today, even the big international oil companies, are about to say that. I think that is not really a decision that will hold up in today's climate. If that started happening or a perception of that, you would find a lot of Republicans, let alone the Democrats, who would involve the Government as a partner in the oil business, and I don't think the oil industry wants to see that. So I'm not sure the industry is likely to walk away from existing fields. In other words, I'm not sure that it would see it in its own self interest to do that. Maybe it would. Maybe we have to play it out that way. Perhaps what we would be better off doing here is arguing for some middle approach and something that I think might have more ability to be something that the public can understand, can feel right about, and where you get something closer to the mix between a blend of the public interest and the private interest. You're not exactly in the public utility situation, but it's very close to it in my judgment. In other words, it seems to me that the supply of oil and gas today from indigenous sources comes very

close to meeting the same kind of test the telephone line meets or the public utility supplying electricity meets or even, for that matter, a communications system that's under Federal regulations meets. So I don't know where we draw the line. The oil industry and the gas industry have never been completely in one category or the other. It's been under certain quasi-sort of in between type regulation. But it seems to me that maybe at this point we ought to be exploring some modification in that arrangement short of making the argument which I think is a very hard argument to make—I think the decontrol issue may defeat Carter in 1980 and that doesn't mean it's going to elect John Connally if it defeats Carter. This is looking forward and putting together a lot of bits and pieces, but whenever you hear the Republicans in the Senate of the sort like Paul Laxalt and Ted Stevens and Howard Baker even talking around the issue of nationalizing the oil industry, then I would say that that is a sure piece of evidence that there's something emanating up from the grassroots that's pretty powerful stuff. I guess my thought would be that trying to put all of this together would be very much in the interest of the country. The industry and the consumer groups and others should try to sit down and work this thing out, not one against the other but all together. That might mean coming up with some new forms we haven't even talked about yet. I'm not sure that to play the game according to what we argue as the standard free enterprise rules will necessarily work in this situation.

I'm not sure that it fits that, although I'm prepared to say that there are some very strong economic arguments that we have to deal with here in a practical way if we're going to bring more supply on the line either in the standard form or new forms. But, unfortunately, if what I'm saying is on the mark, we're not there yet. We are still circling and we don't have an aggregate energy strategy. We don't even have the means for sitting down and conducting the kind of debate that I'm suggesting here. I talked to some of the oil people that were in the meeting with the President the other day. I don't get the feeling that the kind of conversation that took place was the kind that I'm suggesting here. It was quite a different kind of conversation. As to the meeting with the consumer groups a day or so later, it was a different meeting than perhaps the kind I'm suggesting.

In any event, let me give each of you a chance to make any comments you want.

Mr. ECK. Just on the last point, I think you're absolutely right. If we have a Government program that fixes price below cost and if we commanded industry to produce under prices below cost, there's no question that would lead to nationalization. That's exactly what happened in the United Kingdom. The government ended up with a lot of bankrupt companies. So you're quite right.

Senator RIEGLE. It seems to me that how you define the cost figure from a cost accounting point of view for old oil, is really the issue here. I would think that there's a lot of old oil that's around where the cost accounting, is a good deal less than $5 a barrel, if you do is in the traditional sense. Is it not?

Mr. ECK. Yes. A great deal is more.

Senator RIEGLE. You've got some in both categories. But the question is, it's not uniform, so if you're going to go on a strict cost accounting basis, then you've got a very sophisticated job of deciding what oil may be $1 a barrel and what oil is $7 a barrel.

Mr. ECK. That's the way markets work. If it costs $7, that's it.

Senator RIEGLE. You're going from a controlled situation. In other words, we're not—it's not as if we're all arriving on the planet today and starting from scratch. You're going from a controlled situation that's quasi-public-utility-type situation, to a situation where the industry is arguing essentially for price decontrol, and I'm suggesting to you that maybe what we want to think about—because it is a unique case, because our economic situation today is unique and the relevance of this particular resource to the way the economy functions is critical, and there are foreign policy considerations to it as well—that maybe we want to look for some intermediate steps. That's what I'm saying.

WHAT WE DO WITH THE RENT IS CRITICAL

Mr. KASPUTYS. Just one last comment, Mr. Chairman. I think on a personal basis what we do with the rent that's implicit between the price today of old oil and world oil prices is probably the most critical question that will be answered in energy policy. It seems like the time is really long past when that question should have been asked.

My own view is that the only people that have the wherewithal and the technology and capability to effectively use that rent are the energy companies. Now, at the same time, the administration and people generally throughout our society are concerned that that rent is appropriately applied to solve the energy crisis that we really still have and to get us off this delicate supply and demand balance. So some way has to be found to have the Government work together with the energy companies so that that rent is used in a way that's in the national interest to decrease our energy dependence.

Senator RIEGLE. Well, I tend to agree with that. The problem is, if you have a basic presumption of good faith, then it may well be under that condition it's sufficient to rely on simply a sort of private market mechanism. Today we don't have that. You don't have the public presumption of good faith toward the Department of Energy, toward the energy companies, toward the Congress. I mean, in this area particularly we all get very low grades. I don't know who is the lowest. I think in terms of the last good polls that I saw by one of the networks or somebody, the energy companies actually got a lower rating in this department than did the Congress.

So, in the absence of the kind of public faith that will allow sort of a traditional way of settling this issue, I think it probably mandates a very specific of means of sitting down and settling an issue of this kind and I think that probably means with all the difficulties detailed and bringing all the parties at interest together to do it. Whether or not the President and the Congress is sufficient embodiment of people or whether you need other kinds of consumers in the room, as well as producers and refiners and so

forth, that you would have to think through, but it seems to me when you've got the absence of public faith which is missing today this is not something that can be left to one of the parties of interest with the others basically being left out of it. This is where I think, as I said before, the President is probably running a bigger risk than he realizes because I think by simply decontrolling he's presuming a degree of public faith that is not there and that's going to come home to roost and it may come home to roost on the companies as well as it does on politicians who are perceived as favoring that.

In order to have something the public understands and agrees with, you've got to do it out in the open. That's the long way around, but I agree with you, we are very late. That's one of the great frustrations. We spent a lot of time last year on the Panama Canal Treaty and the Camp David exercise, and we're now involved in SALT, and we haven't spent very much time on energy. I don't even know if there have been hearings held to try to come at this issue in the way we are trying to today. I think there ought to have been. So we are very late.

Where we go from here, whether we can recoup or not—because what tends to happen, I'm afraid, is you're going to get the pendulum swing and it may well be that you will have an overreaction of the size and kind that will give us the result that nobody wants. That's a likely occurrence. I've seen that happen in terms of our fiscal monetary policy. We keep bouncing between extremes. I'm concerned that we're doing the same thing right now in energy.

DECONTROL WILL FREE UP SUPPLIES

Mr. TOJA. Mr. Chairman, your earlier point was well taken. Moving from a controlled environment in any industry to an uncontrolled environment is inflationary. I would only argue to say that over the longer term it might prove to be less inflationary than to continue control in the supply situation that exists in the United States.

The point I'm making is I seriously question if we had decontrolled oil back in 1970, whether or not we would now be dependent upon foreign sources for 40 percent of our oil requirements and, in fact, if we were paying the same price for oil as we are now at least it would be in the domestic economy and not being shipped abroad so our import bill would not be on the order of some $50 to $60 billion.

So the point I'm trying to make is that regulation is inhibitive, and as you move toward total decontrol, at least you will have a freeing up of supplies. Then let the world market system take care of pricing. I would not be the least surprised that we would have no need for the meeting today if oil had been decontrolled in 1970. If we were only importing 20 or 30 percent of our requirements, I'm sure the supply of oil in the world would be a lot looser than it is at the present time and we may not have been confronted with the type of price increases that we are now confronted with.

Senator RIEGLE. You may or may not be right. There's no way to know and go back and play it differently in 1970.

The problem is how do we get ourselves on track in 1979, in the middle of June of this year, and that's a much tougher proposition because that's the one we actually have to play out.

Let me just say to each of you I really appreciate your patience and the time and care with which you have responded today. I also want to thank our stenographer who's really done an incredible service here and has not even asked for a break, which I feel guilty about.

I think this is an important hearing. We are going to pursue a lot of things that have been raised here. This is a large-scale, objective job and we are in the process of doing that. I want to thank you. We will probably be submitting additional questions to you and we will probably ask you to respond for the record. Thank you very much.

The committee is adjourned.

[Whereupon, at 1:30 p.m., the hearing was adjourned.]