UNREGULATED NATURAL GAS MARKET IN TEXAS

HEARINGS

BEFORE THE

SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS

OF THE

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE

HOUSE OF REPRESENTATIVES

NINETY-FOURTH CONGRESS

SECOND SESSION

ON

THE IMPACT AND EFFECT OF UNREGULATED NATURAL GAS PRICES ON LABOR, CONSUMERS, AND AGRICULTURE

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UNREGULATED NATURAL GAS MARKET IN TEXAS

MONDAY, AUGUST 30, 1976

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS,
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The subcommittee met at 10 a.m., pursuant to notice, in room 2322, Rayburn House Office building, Hon. John E. Moss (chairman) presiding.

Mr. Moss. The subcommittee will be in order.

During the past year and a half, this subcommittee has conducted several investigations and held 20 days of public hearings concerning natural gas supply problems. We have examined such issues as pipeline curtailments, producer delays in production, validity of industry reserve estimates, under-production by producers and other aspects of the problem including the deliberate withholding of gas supplies from the interstate market to create pressure for deregulation of natural gas prices. At a hearing last Friday, we examined the FPC's recent action in tripling the price of interstate natural gas.

Today, we turn to another aspect of the natural gas problem—the impact and effect of unregulated natural gas prices on labor, consumers and agriculture.

Advocates of deregulation of gas prices at the wellhead long have claimed that the impact on consumers will not be drastic but will, instead, result in a gradual increase in gas bills due to the "roll in" feature of gas costs—that is, new gas prices under deregulation would be rolled in with lower old contract gas rates still subject to regulation. In theory, this might be true; in reality, no one can predict with certainty what will happen. Experience has shown that in dealings with the major oil companies contract provisions sometimes are circumvented or perhaps reinterpreted resulting in sharp increases in the price of a commodity or failure to maintain supply.

It is for this reason that the subcommittee inquired into the situation in Texas—a State with an unregulated natural gas price market—to determine the impact on consumers, many of whom were being supplied under low-cost long-term contracts, when the price of intrastate gas began to escalate several years ago. The subcommittee felt that by examining the Texas situation it would have a model to provide insight into the probable effect on consumers in the event natural gas prices were deregulated nationwide.

The picture that will unfold today is not a pretty one. Although Texas possesses more natural gas reserves than any State, produces more gas than any other State, and consumes more gas than any other

State, many of its 12 million citizens are undergoing serious economic hardship due to spiraling utility rates triggered by unregulated natural gas prices.

The energy situation in Texas is a paradox. While the unregulated market currently provides adequate supplies of natural gas, it has done so at a price that many Texans cannot afford. For example:

Families have been forced to deny themselves needed gas and electricity, closing off rooms in their homes because they cannot afford to heat and cool them;

Wage earners taking home $400 per month struggle to pay combined gas and electric bills of $100 or more;

Farmers dependent on natural gas to fuel their irrigation pumps are being driven off their farms because of prohibitive gas price hikes;

Small businesses are suffering, profit margins wiped out by soaring utility costs;

In some households, the combined monthly gas and electric bills exceed the mortgage payment;

and to the elderly, existing on fixed, retirement incomes, the situation appears hopeless.

In an effort to combat run-away utility bills, many Texans have tightened their belts and succeeded in reducing their volume of energy consumption—yet, gas and electric costs continue to escalate. The irony is apparent. Unlike consumers elsewhere in the country who pay a lower, regulated price for gas but who have experienced curtailments in recent years, Texans, with sufficient gas supplies available to meet their needs, have been forced to lower their standard of living and resort to self-imposed conservation practices—the reward for which is the dubious privilege of paying gas bills that have tripled and electric bills that have doubled.

There would not appear to be any reason why the economic situation in the Texas market is unique. We will hear testimony from economists intimately familiar with the Texas situation and the natural gas industry on this point.

At this time I would like to recognize the very distinguished Dean of the House of Representatives, the Chairman of its Committee on Appropriations, and an outstanding Texan, Congressman George H. Mahon.

I know that you are very busy and are going to have to leave but we will be very pleased to hear from you. I understand some of your constituents are present, George.

STATEMENT OF HON. GEORGE H. MAHON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Mr. MAHON. Thank you very much, Mr. Chairman, for those generous words of introduction.

I have the honor of representing a very heavy gas and oil producing area. Four of the largest producing counties in Texas are in the Congressional district which I represent. Also, I have by far the most productive agricultural district in the State of Texas. So in oil and gas and in agriculture we are supreme in Texas in my district. We have problems of very great gravity. The prices for irrigation gas have gone up, up, up, and the farmer is in a serious situation as a result of this situation. Of course the gas problem doesn't relate only to Texas, it relates nationwide, as we well know.

And if the prices are to continue to escalate we are going to have to curtail production unless the farmer can receive a price which will adequately cover his costs plus allow at least some profit. And in the interest of international trade and its positive effect on the economy, it is absolutely essential that U.S. exports of agricultural products continue at least at the present rates of $22 billion or more.

We don't have a consensus as to how to solve this gas problem, including irrigation gas and I don't think anyone knows precisely how to solve the problem. I have taken the position that increased incentives for exploration and production provide the only hope for a long-range solution to the problem. I have a couple of farmers from my area who are outstanding citizens of my area and they are on the witness list this morning, and I would like for Carl King to stand up from Dimmitt, Tex., and Ray Joe Riley from Hart, Texas. They are constituents of mine.

I am grateful to you for permitting me to introduce these friends who are men of real statute in our part of the world.

Thank you.

Mr. Moss. Thank you. It is a pleasure to do so.

We also have present in the hearing room Congressman Richard White of Texas. Dick, I understand that you have some remarks you would like to make at this time.

Mr. WHITE. Yes, sir.

Mr. Moss. Will you come forward. We would be very pleased to hear from you.

STATEMENT OF HON. RICHARD C. WHITE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Mr. WHITE. Thank you.

Mr. Chairman and distinguished members of the subcommittee, I want to commend you for initiating these hearings, and I hope that your efforts will lend some direction toward a solution for nearly intolerable problems facing many Texas farmers, and particularly the farmers of Reeves County in my district in west Texas. I know that Mr. Galloway was in west Texas earlier this year gathering some preliminary facts and information for the committee; and following his tour of the area, Chairman Moss indicated that he would very much like to hold committee field hearings in Pecos and allow me to sit as an ad hoc member of his committee at these hearings, but there are logistic problems in the immediate future preventing such field hearings.

You gentlemen are all quite familiar with the plight of Reeves County farmers, and so I will not reiterate the circumstances in any detail at this time. Basically and simply, the problem is that long-term contracts for delivery of natural gas to these farmers to run their irrigation pumps expired at the end of last year. These contracts were delivering gas in the 40-cent range for a thousand cubic feet of gas.

However, along about midterm of these contracts is when the energy crunch descended on this country in full force, and while the farmers knew that their new contracts would reflect the overall increased costs of energy in this country, they were ill-prepared for

the astronomical jump to $1.85. When it became increasingly obvious that this was going to be the case along about last November, I arranged for a delegation of Reeves County farmers to come to Washington to meet with Frank Zarb, Administrator of the Federal Energy Administration. He told us, as we already generally knew, that there was relatively nothing his Administration could do about prices of intrastate gas; and under present laws and regulations, neither was there anything I, as their Congressman, could do except try to persuade the transmission and delivery companies to ease their prices.

The companies, in turn, argued that the new prices are necessary if they are to be able to remain in business.

The answers, then, remain extremely evasive.

There is one irony that our farmers find difficult to accept. Reeves County itself has a very considerable natural gas production industry which is valued at close to $150 million annually. And yet, natural gas produced at their own back steps costs them $1.85 while it is shipped throughout the rest of the country far below that. This is one reason why I have supported every attempt at deregulation of natural gas, and why I will continue to do so.

I should like to relate the aspects of deregulation directly to the farmers of west Texas. Should deregulation be effected, it is not likely that there would be any immediate dramatic reduction in the cost of natural gas to Texas farmers, but at least they would be paying roughly the same prices as everyone else and would therefore not be placed at a complete disadvantage competitively. Second, I believe firmly that deregulation would prove the needed encouragement for producers to expand exploration and productive capacities. This would result in greater volumes of available gas which could be sold at increasingly competitive prices.

It is difficult for anyone to believe that we will ever be able to return to the days of 40 and 50 cent gas; but on the other hand, there is every reason to believe that deregulation could result in uniform costs to everyone, and costs with which we could live. This is the direction in which I hope we are heading. If we accept the fact that costs cannot be low, let us at least hope that they can be equitable. It would give great relief to the farmers who have natural gas under their properties if some allowance could be made to use this gas at prices more economically feasible.

I thank you for the opportunity to enter these few brief observations in the record of these hearings, and I strongly encourage you to schedule hearings in Pecos at your earliest convenience. I'm confident that this would be a revealing experience, and one which would add meaningfully to the committee's inventory of pertinent information.

Thank you.

Mr. Moss. Thank you very much and I do want to express my personal regret at the inability to work into the schedule a field hearing in Texas. Whether we will be able to do so during the coming break in the congressional session I am not certain. We have rather a massive amount of work backlogged.

Mr. White. Yes, I am aware of that.

Mr. Moss. We will continue to make every effort. As I indicated to you, I am fairly familiar with the area, having driven back and forth across the country for many years. I am certainly familiar with the nature of agriculture that depends on underground water for irrigation. That is characteristic of my own diserict.

Mr. WHITE. I might add, Mr. Chairman, many of the farmers are now beginning to shut down their operations. At one time we had maybe 800 farmers in the Pecos area. We have less than 100 now. I think we may have even less than 20 who are in operation now, partly because of the gas problem escalating costs that really make their operation uneconomical now.

Mr. Moss. Well, I do thank you and we will pay very close attention to your constituents as they testify.

Mr. WHITE. Thank you, Mr. Chairman.

Mr. Moss. At this time I would like to call on Hon. Edwin Faust, mayor of Grey Forest, Tex.

For the information of the members, we will then have Mr. Harry Hubbard, president, Texas AFL–CIO, and a panel composed of Mr. Robert Mullins, Texas Farmers Union; Mr. Carl King, farmer of Demmit, Tex.; Mr. Ray Joe Riley, farmer from Hart, Tex.; and a second panel following that of Dr. Russell G. Thompson, professor of economics, University of Houston; and Dr. Jack Hopper, consulting economist of Austin, Tex.

Mayor Faust, I wonder if you would come forward and be sworn.

Do you solemnly swear the testimony you are about to give this subcommittee shall be the truth, the whole truth and nothing but the truth, so help you God?

Mr. FAUST. I will.

Mr. Moss. Will you identify yourself for the hearing clerk for the record.

Mr. MOORE. Before we commence I would like to enter a point of order to these hearings and explain that point of order, if I may.

Mr. Moss. You may indeed enter the point of order and explain the point of order.

Mr. MOORE. I thank the Chairman for recognizing me.

I have listened to the Chairman's comments with great interest about the purpose for these hearings, and while I have some understanding of intrastate gas prices, also coming from a gas-producing State representing farmers who are also paying a high price, I have great sympathy with their problems. I see no legitimate bona fide legislative jurisdiction to look into this matter within this subcommittee, and I feel compelled to make a point of order.

I would point out that article I, section 8, clause 2, of the U.S. Constitution clearly says that the Federal Government, the Congress of the United States, does not have the right to regulate commerce within a State, intrastate commerce, which intrastate natural gas clearly is.

If the Congress of the United States does not have this jurisdiction, likewise the full Committee on the Interstate and Foreign Commerce does not have the jurisdiction, nor does the subcommittee.

I expect my point of order to be overruled. I simply want to make the point of order so all those attending, including the members of

this committee, will realize we are into an area the Congress has no business or no legislative jurisdiction whatsoever and can do nothing absolutely about it and, therefore, I object, of course to misleading the public to believe we are going to do something, and I make a point of order.

Mr. Moss. The gentleman is precisely correct. His point of order is overruled. It is totally invalid, because as it has long been the fact the Congress has a right to inquire as to the possible impact of items moving in commerce, upon interstate commerce, and we will not predetermine that no impact exists. We will attempt to determine the nature of the impact.

For that reason the jurisdiction of the subcommittee is very clear and very precise. It conforms in all respects to the rules of the House and precedents of the House.

So, Mr. Mayor, we will be pleased to hear from you at this time.

TESTIMONY OF HON. EDWIN L. FAUST, MAYOR, GREY FOREST, TEXAS, AND CHAIRMAN, UTILITY COMMITTEE, BEXAR COUNTY COUNCIL OF MAYORS

Mr. Faust. Mr. Chairman, committee members, my name is Edwin L. Faust, speaking today on the effect of deregulation of natural gas consumer, both in my home and in my small business, as mayor of the city of Grey Forest, a small city located near San Antonio, Tex., and as chairman of the utility committee for Bexar County Council of Mayors—mayors of 21 cities. The city of Grey Forest owns and operates a gas utility company.

Grey Forest has a population of 485 people, 12 percent of which are elderly people—65 years or over—on fixed income. We provide gas service to approximately 1,500 customers covering 75 square miles, mostly rural, of northwest Bexar County. We also serve 25 small business establishments, three schools, nine churches and also wholesale gas to the city of Boerne, Tex., which has a population of 2,957 people.

So the picture I am trying to portray affects a good size area and while the numbers are small, it represents, on a proportionate basis, the true devastating effect of unregulated gas sales in the much larger area of south Texas. I am a believer in the free enterprise system, but it does not work in a monopolistic situation. What choice does the homeowner have for the supplier of gas and electricity? None.

In December of 1972 our utility company was paying $0.23 per million cubic meet for natural gas. This price skyrocketed to $2.06 per million cubic feet in April of 1976, an increase of 900 percent. The retail consumer of natural gas from our utility company was paying approximately $1.13 per million cubic feet in December of 1972, and today he is paying $3.42. Only 30 percent of this increase is because of our local utility company rate increase. Our utility has had only one increase since 1968. The price of natural gas has correspondingly affected the cost of electricity for the homeowner and businessman.

This tremendous increase came about when our gas supplier, the Lo Vaca Gathering Co., a subsidiary of Coastal States Gas Corp.,

sold off a substantial part of its natural gas reserves and had to search the open market to buy new gas to meet contracted obligations. The Texas Railroad Commission subsequently allowed Lo Vaca to abort all existing contracts and add to the existing contract price of gas, the additional cost that was incurred in the purchase of new gas. Thus the wholesale cost of gas has escalated higher and higher almost every month.

There is a chart attached reflecting this increase.

[The chart may be found in subcommittee's files.]

Mr. FAUST. This has resulted in an unregulated price. The effect of this 900 percent increase has been devastating on the consumer, both residential and business. Since January 1973 the Grey Forest Utilities has paid to Lo Vaca Gathering Co. a total of $196,000 in charges for gas at contracted rates and we have paid $412,000 in pass-through or unregulated charges. When you consider that amount of additional charges paid by approximately 1,500 customers, you can readily see what is happening to the individual resident and business.

The elderly with a fixed income find there is no alternative except use as little heat and electricity as possible. Consider, for example, the case of a family in our community with a take-home pay of $400 per month. On a recent monthly bill their combined cost for gas and electricity amounted to $100 per month. Obviously, this family cannot make ends meet. They have had to swallow their pride and accept food stamps for the first time in their lives. Middle income families have had to lower their standard of living in order to pay their utility bills.

During the recent recession, a number of small businesses nearly went or went bankrupt because they could not increase their prices fast enough to absorb the tremendous monthly increase in operating overhead, largely due to increase in utility cost. Cafes have raised food prices several times, washerterias have been forced to increase prices per washing and drying. I have had to increase prices for sharpening of saws and tools in my business to offset the utility costs.

The people who are fortunate enough to have fireplaces in their homes use the fireplace for heat. Most of us would agree the fireplace is really an inefficient way to heat and certainly with a cord of wood costing $60 or $1 for five sticks of wood, it is not really an economical conservation method, except for those who can cut their own wood supply.

All kinds of conservation methods have been tried and many residents and businesses have successfully lowered their consumption. Thermostats are set at 68 degrees for heating our schools, rooms are closed off in homes, both winter and summer for conservation. However, the consumer is still angry and upset when the dollar amount of his utility bill continues to spiral, even when he has greatly reduced his volume consumption of both natural gas and electricity.

One consumer from April 1972 to March 1973 used 27,100 kilowatthours at a cost of $470.38. During the past year, July 1975 to July 1976, his consumption was reduced to 17,917 kilowatthours at a cost of $723.20.

Conservation on the part of the consumer has also played havoc with the utility's economic well being. Since the utility does not

benefit from the pass-through charge and the consumer reduces his volume, the utility receives less money for operation and subsequently seeks to increase rates which further threaten the economic survival of the consumer and he conserves further, thus the rate increase cycle will continue.

Since Texas is one of the largest producers of natural gas, we hear reports of capped wells waiting for Congress to deregulate natural gas. If this practice is widespread, it will certainly create a shortage of gas. We have repeatedly asked our local news media to do some investigative reporting on why the tremendous rise in the cost of gas at the wellhead, but to date there has been no action. In April 1976, I wrote to Texas Gov. Dolph Briscoe requesting an investigation to see if the wellhead natural gas price was really justified. Still no action to date. The only comments I have received were reasons why natural gas prices will remain high.

Natural gas is a monopoly and should be regulated as all monopolies are regulated. What choice does the consumer have when natural gas is used as a boiler fuel for generating electricity and is piped to our homes for heating and cooking purposes?

A recent newspaper survey indicates south Texas people pay the highest price for natural gas than anywhere else in the Nation. Is this condition, that has come about in 3 years of unregulated natural gas prices, in line with projections made by the American Gas Association? I have read some of these projections, which estimate the rise in cost to be less than 10 percent increase per year if gas is deregulated nationally. After experiencing a 900-percent increase in 3 years, the projections put out by the American Gas Association appear to be downright misleading, or an unreal fantasy by some people who do not want to get a grip on reality or don't want the true facts known beforehand.

How long has Congress been considering national deregulation?

Speculators are just waiting for deregulation. Then we will probably have plenty of gas—at a price that none of us can afford. A definite decision needs to be made. To deregulate a basic product like natural gas is asking for a catastrophic impact on our national economy and on every household and business using natural gas for any purpose.

Gentlemen, before you consider deregulation, I invite you to come to Grey Forest, New Braunfels, Austin, Corpus Christi, San Antonio, and other south Texas cities, talk to the people, and see the actual effects that deregulation has created.

I want to thank you for the opportunity to come here.

Mr. Moss. Thank you, sir.

Mr. Collins. Thank you, Mr. Chairman.

Mayor, I noticed in your statement here that you said that the Texas Railroad Commission aborted your contract that you had for receiving gas from Coastal States.

Mr. Faust. Yes, sir.

Mr. Collins. What type of contract did you have?

Mr. Faust. We had a 20-year contract written in 1968 for 23 cents per M ft^3.

Mr. Collins. It was a fixed contract?

Mr. Faust. Yes, sir.

Mr. COLLINS. Has that been typical of aborting these long-term contracts? I wasn't familiar with the fact that they were.

Was there some reason, something different about your contract why they were able to cancel it?

Mr. FAUST. No, sir, I don't understand it.

Mr. COLLINS. You didn't have——

Mr. FAUST. There are court proceedings going on now to determine——

Mr. COLLINS. You didn't have any spot contract arrangements, did you, where it was based on current market or something?

Mr. FAUST. No, sir, not to my knowledge.

Mr. COLLINS. It was a fixed definite long-term contract?

Mr. FAUST. Yes, sir. As I understand it; yes, sir.

Mr. COLLINS. Why is it they did it in that area and in most areas of the country and most areas of Texas old contracts stood?

Mr. FAUST. That I can't answer, Mr. Collins. I don't know why it happened, and it upset us, of course, because it did happen.

Mr. COLLINS. You know about 80 percent of the gas in this country moves on old contracts and that the escalation applies to the new contracts coming on. In other words, the average gas distribution company, say, in New York City, probably has 75 percent of its gas under old, long-term contracts such as apparently the one you had. I have never heard of any of those being canceled or eliminated. There is something different about your contract. What is it?

Mr. FAUST. I wouldn't know that answer why it is different, but it not only happened to us it happened to many of——

Mr. COLLINS. It happened in the Coastal States, the ones that were served by that particular gas company?

Mr. FAUST. Yes, sir.

Mr. COLLINS. But I haven't heard of it happening to anyone except that particular gas-gathering company. This company, a subsidiary that you dealt with, did it go broke or something?

Mr. FAUST. No, sir, it is still operating.

Mr. COLLINS. That is all I have, Mr. Chairman.

Mr. MOSS. Mr. Krueger.

Mr. KRUEGER. Thank you, Mr. Chairman.

We are glad to have you here, Mayor Faust. Mayor Faust and I have conversed in German as well as in English over the telephone from time to time. We are very pleased to have you here.

Mr. Collins was just asking, Mayor Faust, about Lo Vaca, and all of us who are served by Lo Vaca and Coastal States realize we have a particular problem with that company.

Is it not correct that the Lo Vaca Gathering Co. has in fact been under reorganization as a result of the fact that it oversold its supplies and, therefore, it was given a new board of directors and put under new management by the courts?

Mr. FAUST. Yes, sir, that is correct.

Mr. KRUEGER. And the cities that you mentioned in this conclusion, Grey Forest, New Braunfels, my home town, Austin, Corpus Christi, and other south Texas cities, are largely cities served by Lo Vaca and the Coastal State system?

Mr. FAUST. Yes.

Mr. KRUEGER. And this system has the distinction of having oversold its reserves by a number of times; that is, they sold a great deal more than they could actually deliver, isn't that true, in terms of their long-term contracts?

Mr. FAUST. I understand that that is part of it. I also understand they sold off some of the reserves they had for our use and subsequently had to go out and buy new gas which was higher.

Mr. KRUEGER. That is right.

Now, we who are concerned about Grey Forest in particular also have a special kind of problem with regard to the cost of the pipelines that have been set.

If I recall correctly, when you were in my office in San Antonio we pulled out maps and looked at the very large pipeline distribution system that was set up for Grey Forest. Isn't it true that we have got some problem with having a very expensive pipeline system in Grey Forest and Grey Forest has not grown at quite the rate Grey Forest was expected to grow when the pipeline system was initially put in?

Mr. FAUST. That is true, but there are many factors—the high cost of gas being one of them, the aquifer, as you know, the water situation, being another one.

Mr. KRUEGER. That is right. Consumers in the Grey Forest area are paying both for the cost of amortizing the pipeline in an area that has not grown as fast as it was expected to when the city came in as well as facing a higher cost for the gas that passes through that pipeline, but they have a kind of double set of costs there because there are fewer people amortizing the cost than the total one.

I think you said on page 2 currently people are paying $3.42 per M ft^3, retail consumer natural gas from our utility company was paying $1.13, and today is paying $3.42. The figures that I have for the comparable amount in Dallas would be $1.51 and in Houston $2.29. The figures in Boston would be $3.15; in Chicago, $1.62; Detroit, $1.86; New York, $3.01; in Washington, $2.48.

In other words, what we are talking about is a range of costs once we figure in the delivered cost plus the wellhead cost, and what we find is that Grey Forest has indeed, as you point out, had a very substantial increase in wellhead price but its delivered cost is not that tremendously different today from the costs of Boston or New York, though it certainly is better than twice as high as Dallas, which is among other things, not served by Lo Vaca Coastal system.

I noticed that when you discussed the contracted costs as well as the pass-through costs, we had figures of 196,000 plus 412,000 in pass-through. These pass-through costs came about largely because Coastal was unable to deliver as it had promised to do and it had contracted to do and the pass-through costs came in all as additional costs because they had to go out and buy gas after they had sold off their reserves. Is that the explanation?

Mr. FAUST. Yes, they did have to go out and, of course, the railroad commission gave them permission or granted permission to pass through its costs to the consumer.

Mr. KRUEGER. And if we look at those pass-through costs, this is one of the items that is under litigation in the courts now when San Antonio and a number of surrounding areas are taking Coastal States to court, is it not?

Mr. FAUST. Yes, sir.

Mr. KRUEGER. So that one is still unresolved.

I think, Mr. Chairman, that that probably concludes my questioning for the time. I wish again to thank you for having invited Mayor Faust up here and for speaking here as he is talking in the district about his concern for the community that he and I both represent.

Thank you very much.

Mr. Moss. Thank you.

Mr. Moore.

Mr. MOORE. Thank you, Mr. Chairman.

Mayor Faust, I have particular sympathy for your problems. It seems we face somewhat the same situation in Louisiana. As you well know, your neighboring State of Louisiana is also a big natural gas producer. We have a problem of shortages, too. Our problems stem from the fact we are not so lucky as Texas, we don't have an intrapipeline system to speak of. Even though we have the gas our people can't get it because of the interstate market. The natural gas that we sell across State lines has been curtailed by the FPC in many, many towns across my district, towns as small as yours. People can't get natural gas and they are being forced to go to more expensive electricity to heat their homes. They can't get gas now. Many small towns in Louisiana have been cut off completely. We no longer have natural gas to fire our boilers.

There is one comment I want you to think about. I understand your problem and frustration. Before you turn to the idea of regulating the presently unregulated intrastate natural gas, think for a minute, there are lots more folks outside of Texas than in. When you start letting everybody else have the gas Texas has now you are going to wind up being curtailed, no doubt, as we have been in Louisiana, not being able to get natural gas at all, being cut out completely.

I think you have a bona fide problem and I have listened to your problem. We have done some research into it. I think you ought to pursue it in the courts where you are now. It seems to me your problem is not with unregulated intrastate natural gas, it appears to me your problem is with the particular gas gathering company you have and the Texas Railroad Commission for letting it happen. I think you ought to pursue remedies in court. I think you have been dealt with wrongly.

Mr. FAUST. Thank you.

Mr. MOORE. Thank you, Mr. Chairman.

Mr. Moss. Dr. Galloway.

Mr. GALLOWAY. Mayor Faust, Grey Forest has a population of 485 persons. Does a town that size have the money to pay its mayor a salary?

Mr. FAUST. No, sir, I am unpaid.

Mr. GALLOWAY. I gather from listening to you this morning that you have spent a great deal of time and money in trying to get someone, be they in Texas or in Washington, to do something about the situation that exists in your area?

Mr. FAUST. I have spent a great deal of time and effort and money chasing this problem.

Mr. GALLOWAY. Is this the first time you have testified in Washington?

Mr. FAUST. Yes, it is.

Mr. GALLOWAY. So you are not a professional witness?

Mr. FAUST. No, sir.

Mr. GALLOWAY. Could we turn to page 2 of your statement, please. At the top of the page you note that in December of 1972 your utility company was paying 23 cents per mcf for natural gas and that the price has skyrocketed to $2.06 by April of 1976, an increase of 900 percent.

As I understand it, most of the electricity sold in Texas is generated by natural gas. Has there been a corresponding increase in the price of electricity in the Grey Forest area?

Mr. FAUST. Yes, there has been, absolutely, corresponding.

Mr. GALLOWAY. So you people are——

Mr. FAUST. Boiler fuel for electricity is natural gas.

Mr. GALLOWAY. So you people are hit twice a month, once when the gas bill comes, once when the electric bill comes?

Mr. FAUST. Yes, sir.

Mr. GALLOWAY. There has been some discussion here this morning concerning Lo Vaca and the consumers who are served by the Lo Vaca system.

Is the situation that you described in your statement unique to those areas served by Lo Vaca or is this a problem that extends throughout many areas of the State?

Mr. FAUST. Apparently it is statewide. Of course, I am primarily concerned in the area where I live. Those are the people I talk to. But the State legislator has had hearings across the State, three or four of them, and they are at least considering it. I don't know if they will do it. They have had hearings and discussion considering some type of regulation of this industry.

Mr. GALLOWAY. I think it is interesting to note, Mayor Faust, while we in Washington were discussing this past winter and spring whether to deregulate interstate natural gas prices the Texas Legislature was holding hearings which, to quote Speaker Clayton, sought "To give the people of Texas a needed and substantial relief from the high utility bills they face." Chairman Joe Hanna of the Committee on Energy Resources testified at these hearings that his committee had held meetings across the State and found out that people were hurting all over the State; and so I take it then, Mr. Faust, that you would agree with Mr. Hanna that this is not a problem which involves only people who are served by Lo Vaca?

Mr. FAUST. No, sir; it is not. It is apparently statewide.

Mr. GALLOWAY. A few sentences down in your statement, Mr. Faust, you refer to a family in your community with a take-home pay of $400 a month which had a recent monthly bill for gas and electricity that amounted to $100 or one-fourth of their take-home pay. And accordingly the family for the first time in their lives was forced to go on food stamps to make ends meet.

When I was in your town, Mr. Faust, I met this family, and they are proud people and I certainly don't want to mention their name

here today, but I remember sitting in their living room and talking with them. The husband worked for the San Antonio Fire Department. There was a wife and two children. I asked the father what it meant, what did it mean to his family's life style to have to spend a fourth of his income for gas and electricity, and he said, "It means I can't take the kids out for a damn hamburger on Saturdays."

So what we are talking about, Mr. Faust, is not a situation in which people are deferring the purchase of a new car or postponing a vacation, but we are talking about a situation where people are on the brink of economic disaster; is that correct?

Mr. FAUST. Yes, sir; and I get those comments every month from people all over the area.

Mr. GALLOWAY. I noticed a little further on in your testimony you refer to the plight of some of the small businesses in your area.

Marjorie Walls, I met her on my trip to Grey Forest. She runs a laundromat with 14 dryers that are fueled by natural gas, and she showed us her gas bills. In September 1974 she paid $106. The next year for the same month, it was $206, and her latest bill was for $244. She said she didn't know how much longer she could continue in business.

Do you know what has happened to her and her business since we were down there?

Mr. FAUST. She sold it at a loss and got out, got frustrated and got out of it.

Mr. GALLOWAY. Is that the only case or have there been other similar cases?

Mr. FAUST. A friend of mine who runs a machine shop, as a matter of fact, 3 months ago went bankrupt. He was two blocks away from me up the street.

Mr. GALLOWAY. We spoke to a junior high school principal who was down the road from your town. He told us that one of his teachers, a retired colonel, was leaving the area because he couldn't afford his utility bills. He had his teaching salary and had military retirement pay but he was moving out of the San Antonio area.

Have people been moving out of your town because of these prices?

Mr. FAUST. We have had an awful lot of people moving out. I don't know the exact case, reason for all cases, but a number of them are utility costs. They speak to me about it constantly.

Mr. GALLOWAY. Where do they go?

Mr. FAUST. They go to other counties surrounding. Some of them go to some of the co-op areas which apparently do have a slightly cheaper rate. I don't really know where they are going. They are going to have to get out of the State, apparently, to get away from the absolute high cost.

Mr. GALLOWAY. It gets pretty cold in your part of Texas?

Mr. FAUST. It does to us; yes, sir.

Mr. GALLOWAY. What do people do who can't pay their gas bill? A lot of people heat their homes with gas in your area; isn't that correct?

Mr. FAUST. Yes, most of us.

Mr. GALLOWAY. What do they do when they can't afford the gas bills?

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Mr. FAUST. I run around the house with my coat on and the thermostat set pretty low, close off all the rooms that are unnecessary and live in that part of the house so we can reduce our heat bill.

Mr. GALLOWAY. Is it true that people are closing off rooms in their houses?

Mr. FAUST. Absolutely.

Mr. GALLOWAY. Have you been forced to do this?

Mr. FAUST. Yes, sir.

Mr. GALLOWAY. I am sure you have come here to Washington, Mr. Faust, in the hope that Congress would do something to ease your situation, and in your view, do you favor Congress extending regulations to the intrastate market to provide some type of relief to the people in your town?

Mr. FAUST. Well, if our State doesn't react to do something to help the consumer, because the consumer has nobody to turn to, then it would appear to me the Federal Government would have to do something.

Mr. GALLOWAY. So you are a Texan then who favors the regulation of Texas intrastate gas?

Mr. FAUST. Yes, sir. I don't like regulation of any kind but when the situation gets to this point then it seems to me it is almost necessary for somebody to do something.

Mr. GALLOWAY. You are a businessman yourself?

Mr. FAUST. Yes, sir.

Mr. GALLOWAY. What business are you in?

Mr. FAUST. I have hardware, chain saws, lawn mowers; I sharpen saws and tools.

Mr. GALLOWAY. How would you like someone in government telling you how much you can charge to sharpen a saw?

Mr. FAUST. Well, I wouldn't like it but if my prices get too high I assume the customer will go some place else and get his job done elsewhere. But in my home I can't turn off the gas and say I want gas from some other source or electricity from some other source, I have no place to turn.

Mr. GALLOWAY. No further questions.

Mr. Moss. Are there further questions?

Mr. COLLINS. Mr. Chairman, if I could.

Mayor, you grew up in a small town. I guess you have been there most of your life, haven't you?

Mr. FAUST. I was raised in Dallas.

Mr. COLLINS. Were you?

Mr. FAUST. Yes, sir. And I moved to San Antonio in 1936. I was raised in Bucker's Orphan Home which I am sure you are aware of.

Mr. COLLINS. It is a fine place.

Mr. FAUST. Yes.

Mr. COLLINS. When I grew up my mother used to go around turning off the heat in most of the rooms and we always stayed in one room. When we air conditioned, we air conditioned one room. And I am sure you have grown up that way.

This subject came up about the great sacrifices, about not having the whole house heated. Have you found that to be any great sacrifice

to sit in one room, or do you think the whole house has to run at top temperatures when we have an energy shortage?

Mr. FAUST. No, sir, when my whole family is home, the boys, yes, sir, it is very much of an inconvenience to shut the house off and try to live in one area.

Mr. COLLINS. Let me go back to the contract basis. That is certainly unusual and I think it should be completely differentiated from the gas situation. Now, did you sue this gas company that supplies you—who is it, Coastal States or Lo Vaca?

Mr. FAUST. Lo Vaca in our case.

Mr. COLLINS. What did you sue them for?

Mr. FAUST. We have not sued them yet. We have sent in a position paper saying we want our contract rate and we want our $412,000 rebated. What will happen I don't know. We are watching the litigation that is going on.

Mr. COLLINS. Have they offered you any settlement?

Mr. FAUST. No, sir, they haven't.

Mr. COLLINS. Why is it you haven't filed your suit, what are you waiting for? It looks to me like they made a contract and didn't deliver. We are not talking about gas, we are talking about contracts. We are talking about a legal arrangement here.

Mr. FAUST. Yes, sir.

Mr. COLLINS. Why haven't you sued?

Mr. FAUST. We tried every other means of trying to get it settled first, which is normal, I assume. The other customers have. As I understand, out of 432 customers, there have been 13 suits, sir, filed in court.

Mr. COLLINS. How long have you been waiting for performance?

Mr. FAUST. Well, this situation began in January of 1973.

Mr. COLLINS. I would say you are a pretty patient man for three years. You are just whistling Dixie.

Mr. FAUST. No, I don't know that we are so patient, we are frustrated.

Mr. COLLINS. If they have done something wrong—what I want to get back to—if they have done something wrong, and from what you said they had a contract to deliver and they didn't deliver.

Mr. FAUST. Yes, sir.

Mr. COLLINS. It seems to me that your city council ought to have sued them.

Mr. FAUST. We don't have the revenue that some of the larger cities do so we are trying to sit and wait and see what happens and then we will proceed.

Mr. COLLINS. I see.

Mr. FAUST. I don't think we can rush it up by filing suit tomorrow.

Mr. COLLINS. What disturbs me, if you had a bank in your community and the bankers made some very, very poor loans, made some poor commitments, and as a result of it they were no longer solvent in the bank, I don't think you would go to the Treasury Department and tell them to change the way they print the money because the problem is with the local bank.

What we are talking about here is one gas distribution company that has engaged in poor business practices and which in my eyes

should be sued to straighten them out, and I don't see how it relates to the fact of regulating the entire gas industry of America.

Mr. FAUST. Well, sir, I said what scares me to death, you can see what happened to us and it is a fact. It isn't that it may happen, it has happened, it is there, and we are paying for it every month. Every day.

I sat in a hearing with the Railroad Commission and a concern from New Jersey, and I was a little bit aghast at what was happening. The New Jersey concern was bidding for gas, surplus gas, if there was any, interstate, at $2.15 when we were paying $1.70.

Now, if we are already short, and apparently they didn't have any surplus gas to sell across the State line, they were going through a loophole to sell the gas at $2.15. If we are paying $2 now or $1.85, as it is currently, and we get 100 other people bidding on the same gas, there is no doubt in my mind what is going to happen with that gas.

Mr. COLLINS. We know the answer.

Mr. FAUST. Or the price of it.

Mr. COLLINS. We know gas is short and probably the present supplies might not last more than 12 years. Aren't you beginning to substitute fuels in your plant already?

Mr. Moss. What are you using in your boiler?

Mr. FAUST. No, sir, most of my customers are burner type, home residence, San Antonio, for example, has gone to fuel oil as an experimental fuel, which up to now has been more costly than natural gas, but I think now they are getting to be a close party on price.

Mr. COLLINS. Thank you, Mayor.

Mr. Moss. Mr. Mayor, how many people in your community?

Mr. FAUST. There are 485 in my city, sir.

Mr. Moss. Does cost have any bearing upon the reluctance to go into court?

Mr. FAUST. Yes, sir, we don't have the revenue to hire legal counsel to process ours and we have debated it many times, so we have been kind of sitting back waiting to see what will happen, let the President get set.

Mr. Moss. Do you have any statement as to the probable cost of entering a suit against the distribution company?

Mr. FAUST. To our city, I am guessing, sir, I would say it would be somewhere from $12,000 to $14,000 by the time we got through. It depends on how long it ran, of course, but, it would be $12,000 or $14,000. We just don't have the revenue. If we lost the case I don't know how we would pay the legal fee.

Mr. Moss. Thank you very much, sir, and we are appreciative of your problem and also of the testimony you have given us.

Mr. FAUST. Thank you, sir. I appreciate the opportunity.

Mr. Moss. Our next witness is Mr. Harry Hubbard, president, Texas AFL–CIO, from Austin, Tex.

Mr. Hubbard, would you raise your hand and be sworn.

Do you solemnly swear the testimony you are about to give the subcommittee will be the truth, the whole truth and nothing but the truth, so help you God?

Mr. HUBBARD. Yes, sir.

Mr. Moss. Identify yourself to the reporter for the hearing record.

TESTIMONY OF HARRY HUBBARD, PRESIDENT, TEXAS AFL–CIO, AUSTIN, TEX.

Mr. HUBBARD. Harry Hubbard, president of Texas AFL–CIO, and represent 206,000 union members in the State of Texas.

Mr. Chairman, members of the subcommittee, if you will bear with me I have a little bit of a throat problem this morning. I will be as brief as possible.

Texans began to feel the effect of supposed shortages of natural gas in an unregulated marketplace about 2 years ago. In Austin, our utility bills jumped from the lowest in the State to the highest—in a matter of months.

Our gas bills skyrocketed as well.

Gas production monopolies simply had us by the ear and would not let us go.

The increase in the unregulated price of natural gas sold within Texas has become intolerable.

If the price of a Chevrolet car had increased as much as the price of gas, we would be paying $40,000 for a Chevy. We would be paying:

$4.80 for a McDonald's hamburger; $24 for a haircut; $240 for a pair of shoes; $12.80 for a six pack of Lone Star.

What caused natural gas produced and sold in Texas to go from 24 cents to $1.95 a thousand cubic feet?

That is the question that you and other committees should be trying to answer.

To say that the demand for natural gas has increased rapidly and, therefore, the market has forced the price up is not a satisfactory or accurate answer.

Texas natural gas is still being sold to people in New York and Arizona at a wellhead price of 52 cents a thousand cubic feet; yet Texans pay three and four times that.

The simple truth is that gas is being produced under monopolistic conditions. Seventy percent of the gas produced in Texas is owned and controlled by major oil and gas companies.

Our company, Exxon, produces 22 percent of the Texas gas.

Exxon's net profits rank second only to the acknowledged monopoly, A.T. & T.

Further proof of the monopolistic nature of gas production in Texas: Thirty companies produce more than 90 percent of the Texas gas.

The top 10 Texas producers, in order, are Exxon, Shell, Mobile, Gulf, Amoco Production Co., Sun Oil, Phillips, Atlantic Richfield, Texaco and HNG Oil Co.

You will note, I am sure, that among this list of multinational energy giants are several companies which have admitted massive involvement in illegal campaign contributions to Texas and national politicians and bribes to scores of foreign officials.

The point is that we need to know, and the public needs to know, who we are dealing with when we talk about overregulated, undercapitalized gas producers whose only interest is the public interest.

We suspect, also, that interlocking relationships between these gas

producers, pipelines and retailers and their executives and lawyers exist. This, naturally, contributes to the monopolistic nature of the business.

A third factor in the creation of price-rigging practices has been the policies of the majority of the Texas Railroad Commission, which historically has protected the private interest at the expense of the public interest.

By the American Gas Association's own admission, "Clearly, enough gas exists underground and under the ocean to support growing energy demands for decades to come."

But, the gas industry argues, that gas will not be recovered unless the price of natural gas is raised. The industry wants a "free marketplace."

We have what passes for a free gas market in Texas already.

Of the 22 trillion cubic feet of gas consumed in this country, 4 trillion of it was used in Texas. Almost all of that 4 trillion cubic feet also was produced in Texas or off the Texas coast.

As long as this gas—which is almost one-fifth of all the gas used in the country—is sold within the boundaries of Texas, the price is determined by a free market.

What has that free market done to the price of gas?

It has skyrocketed from 24 cents per thousand cubic feet for some customers up to $1.95 or higher—an increase of over 600 percent.

With that kind of increase in the price of Texas gas sold to Texans under normal circumstances, a free market would encourage increased production and drive prices down. That is the way supply and demand is supposed to work.

That is not what happened.

It has not happened because we do not have a real free gas market, with supply and demand forces at work. We have a gas monopoly.

Unless regulatory Government action is taken, gas producers will continue to limit production and cry "wolf" as they did last summer.

The Gas Supply Committee, a gas industry front organization, published a brochure which shrilled:

> There is a growing consensus that a serious fuel shortage already is here . . . the dilemma we call the energy crisis will affect more Americans than any potential disaster short of a major war.
>
> In fact, interstate pipeline companies have reported to the Federal Power Commission that they expect curtailment of gas supplies totaling 680 billion cubic feet this winter, 20 percent worse than the curtailments of last winter (1974).

Speaking of the winter of 1974, the disaster predicted by the gas industry simply did not occur. Through the winter of 1975, gas was sold to homeowners and industrial users in the East for 52 cents a thousand cubic feet as contracts called for.

The same gas was sold to Texans for $1.95 and more.

The gas production industry cannot be trusted to operate in a free market because of its record in Texas.

Instead, gas prices at the wellhead should be regulated for all current consumers.

We can no longer tolerate a pricing system which has allowed:

1. Increased "pass-through" charges to raise Mr. Bill McGough's

monthly utility bill from $84.75 to $323.94—as was done in Lewisville, Texas;

2. The price of gas to force the closing of aluminum plants in Corpus Christi—as has happened;

3. The monthly gas bill for a small plant in west Texas to rise from $5,457 to $43,000; thus endangering the jobs of the firm's 40 employees;

4. A west Texas farmer to be forced to pay $1.85 for gas produced under his own land to operate his irrigation pumps, while his agricultural competition in Arizona was buying the same gas for 52 cents at the wellhead.

Throughout Texas, the story is the same; people simply cannot afford to pay the price being charged by the monopolistic gas producers.

We do not believe that the people will be satisfied with alibis or propaganda from the gas companies. They want their utility and gas bills reduced. It is that simple.

I appreciate the opportunity to appear and will attempt to answer any questions.

Mr. Moss. I want to thank you.

I would point out, the bottom of page one of your statement, that that situation in the last paragraph, of Texas gas being sold in New York and Arizona at a wellhead price of 52 cents per million cubic feet may not continue long if the Federal Power Commission prevails in its $1.42 price because it drafted a rather novel definition of new gas and it takes a very small amount of rejiggering to make virtually all gas new gas.

Should that happen would it in your opinion have an effect of reducing prices in Texas or of increasing?

Mr. HUBBARD. Mr. Chairman, I am sorry, I cannot answer that. My only assumption would be little likelihood of a reduction with the situation we have in Texas, in today an unregulated system.

Mr. Moss. Thank you.

Mr. Collins.

Mr. COLLINS. Thank you, Mr. Chairman.

I want to welcome Mr. Hubbard to visit with us. I am really surprised to see a labor leader on this particular issue, frankly, because I know how you all are for the open marketplace.

Are you speaking as a leader of the AFL–CIO in Texas or are you speaking as an individual?

Mr. HUBBARD. Both.

Mr. COLLINS. Well, now, is it the position of the AFL–CIO in Texas we should have Government regulation of prices?

Mr. HUBBARD. It is our position that if there is not State regulation we should have a Federal regulation system where there is a monopoly, obviously monopoly is being used.

Mr. COLLINS. Whenever you represent anybody in labor you represent a monopoly position. In other words, would you say that in all your negotiations that the Government should come in and take charge of the regulation of prices and wages?

Mr. HUBBARD. Mr. Collins, they pretty well do that in all our negotiations.

Mr. COLLINS. Do you really believe that?

Mr. HUBBARD. Yes, sir, I sure do, and I have been through a lot of negotiations.

Mr. COLLINS. You mean the Government sets the wage tenure that you have in your negotiations?

Mr. HUBBARD. Sets the procedures used for negotiation and probably has more stricter laws on negotiations of union and management agreements than any other organization in this country.

Mr. COLLINS. Do you believe in wage control?

Mr. HUBBARD. I believe in wage and price control if it gets to that point, if it could be done equally.

Mr. COLLINS. Going back to equal, in the AFL–CIO in Texas—I am just trying to draw this because it is parallel in what we should do in pricing—what is the highest wage level that you have in the AFL–CIO?

Mr. HUBBARD. Congressman Collins, I am sorry, I don't have the Texas wage scales.

Mr. COLLINS. $20 an hour?

Mr. HUBBARD. I could not answer that question.

Mr. COLLINS. Maybe down to $2.75 an hour. In other words, you would have a wide, wide spread.

Mr. HUBBARD. I could only answer it this way. Texas being the type of State that it is, controlled by so many monopolies, our per capita income in Texas is very low compared to other industrialized States.

Mr. COLLINS. If you represent the industry as a monopoly then you could equalize that, couldn't you?

Have you ever advocated wages ought to be equal?

Mr. HUBBARD. No, sir, and I am not advocating that price of gas be equal either.

Mr. COLLINS. You would say then that gas should have differentials based on supply and demand and other factors?

Mr. HUBBARD. Well, what I am saying, Mr. Collins, is that in an unregulated situation in Texas we are paying five and six times more for our gas than that shipped out of the State.

Mr. COLLINS. Take these other States. You mentioned up East. It is my understanding they are paying something like $3 or $3.50 for LNG that they buy when they buy in the open market in New Jersey. Now, in Texas they have been getting up to $1.95. Anybody that buys in the open market is paying the same price we do in Texas, or more, aren't they?

Mr. HUBBARD. They pay the delivery cost and in my opinion if they charge Texans the delivery cost of gas and oil taken out from under a farmer's land I think the delivery cost would be much less, and I certainly think we ought to pay that, but I don't think we ought to pay for the delivery cost for it going out of State.

Mr. COLLINS. I agree with you.

Mr. Hubbard, in the cost of gas to the consumer isn't it true that about 20 percent of the gas price is determined by cost at the wellhead, and let's go back and be sure you understand what I mean.

Let's say a guy has a bill here that runs $50 a month for his gas; isn't the raw gas just $10 of that and $40 is all the other factors that

went into the delivery and distribution—in other words, does the raw cost of the gas only make up $10 out of the $50?

Mr. HUBBARD. I am not sure about that. All I am saying is that Texas ought not to be paying any more for our own gas than they are paying in some other State, no matter what the breakdown and cost of raw oil or cost of delivery.

Mr. COLLINS. We had the Chairman of the FPC, the Federal Power Commission, sitting right where you are just last Friday and he brought out the statistic that the cost of raw gas is only 20 percent. You are going to find other factors, maybe the cost of labor in other areas is very high and the cost of distribution and the cost of transportation and all that.

Would you regulate all of those, too?

Mr. HUBBARD. I would imagine that all of that would be taken into consideration. But to go back to the State I am speaking for, Texas, the cost of labor is not that much higher in Texas than it is in Pennsylvania, or Massachusetts, or some other State. In fact, it is just the opposite.

Mr. COLLINS. Do you know any place in Texas other than—I was very disturbed by this Lo Vaca case we had here where they had a bad supplier that is not meeting contractual terms, where they are in open market. Do you know of situations in Texas, can you name one here for the hearing, where in an open market situation they are paying more in an open market situation than they are in open market situations up East? Are we just talking in hypothetical terms?

Mr. HUBBARD. No, I cannot name one.

Mr. COLLINS. You talked quite a bit about monopoly in Texas. I am not aware of any monopolies down there. I don't know of any cartels. In fact I think the Governor would like to move in on them.

What monopolies in Texas can you name?

Mr. HUBBARD. I just named quite a few here.

Mr. COLLINS. You named the gas monopoly.

Mr. HUBBARD. Yes, sir.

Mr. COLLINS. Who has a gas monopoly, where have they had collusion in Texas?

Mr. HUBBARD. Among themselves and the Railroad Commission.

Mr. COLLINS. Are you saying that the Railroad Commission works with the gas companies in restraint of trade to establish a monopoly?

Mr. HUBBARD. I am not talking about how they do it. I don't know. What I am saying is the Railroad Commission in the past, historically, and that has changed, has generally upheld the position of the oil and gas companies in Texas. That is a well-known fact.

Mr. COLLINS. That doesn't mean a monopoly. If the court upheld you in a labor agreement would that mean the courts would be a monopoly?

Mr. HUBBARD. It is according to how they upheld me.

Mr. COLLINS. You have never known of any monopoly with the courts in labor agreements? Because they upheld you doesn't mean it is a monopoly.

Mr. HUBBARD. Well, again you and I can debate——

Mr. COLLINS. What really disturbs——

Mr. HUBBARD. We are talking about unregulated gas in Texas as compared to other States. That is what I am testifying to.

Mr. COLLINS. Have you all ever had a vote in your executive committee in favor of regulation of prices? Have you actually put this up to your board? Have you come out for price controls?

Mr. HUBBARD. The position I take here is the position of the Texas AFL–CIO convention that was held in Austin, Tex. in 1975.

Mr. COLLINS. You voted for price controls?

Mr. HUBBARD. That we voted to have regulated gas and oil in Texas.

Mr. COLLINS. Have you ever passed any resolutions on the subject of wages?

Mr. HUBBARD. I am not certain that we have.

Let me just point out to you, Mr. Collins, something maybe we overlooked in the testimony here. There are reasons we have to take this position. One is a Reynolds Aluminum Co. in Corpus Christi, Tex., is closed, shut down, people out of work, because they couldn't afford to pay for the gas. Now, a lot of people say, well, do you have proof of that? The only proof I have, this is what the company told the employees when they laid them off. Another plant in Big Spring, Tex., that went from $5,000 a month to a bill of $43,000, on the verge of having to close down. This is what disturbs us. We represent workers.

Mr. COLLINS. Well, now, we are on common ground, I understand that. We are told by a brick factory in Ohio, these factories all over the country were having to close down because they didn't have gas. This country only has about 12 years of gas reserves. How would you say we would solve the subject if we place price control and not create, not develop other additional gas reserves, and if we cut the price we would tend to decrease gas, wouldn't we?

Mr. HUBBARD. Mr. Collins, that I cannot debate with you. All I am here to testify to is what the people in Texas believe, and what they think. That is what we are talking about. For instance, 2 years ago we had the same thing about the price of gasoline. We had to run gasoline up to regulate it because we were going to run out. We had gasoline allotments, we cut the speed limits, and everything else, and as soon as the price of gas got to 70 cents a gallon, there evidently is plenty, you don't hear of anyone talking about the high price of gasoline driving down the use of the automobile or gasoline.

Mr. COLLINS. I have taken too much time. I want to take a survey made on energy out in west Texas by Pioneer Natural Gas, an independent survey, Computer Research Department. They asked would you favor either the State or Federal Government allocating available natural gas to the areas which need it most—and that is the basic issue you are raising here—and 73 percent of the people said no. And here is another question: If you had to choose would you prefer that the price be increased to assure you a continuing supply? Sixty percent said they would rather increase the supply to do it. This survey was under the direction of the Computer Research Department. I appreciate that.

Mr. Moss. We will place the survey into the record at this point.

[Testimony resumes on p. 39.]

[The survey referred to follows:]

CENTER FOR BUSINESS AND ECONOMIC RESEARCH
West Texas State University ■ Canyon, Texas 79016

July 26, 1976

Mr. Bob Mills
Director of Communications
Pioneer Corporation
Box 511
Amarillo, TX 79163

Dear Mr. Mills:

With regard to the recent survey that we conducted for Pioneer Corporation regarding the attitudes and opinions of people in West Texas about natural gas, the following information reflects the procedures used in order to provide a random sample and minimize bias.

The sample was selected by using a random number generator supplied by the Center for Business and Economic Research and inserted into a Pioneer Corporation program which passed over its account master file. The randome number generator selected approximately a 2% sample by generating a number between 0 and 99 which was used to skip from 0 through 99 records before selecting the next record. On the average, this technique selected every 50th record, but the actual selection was random. This method provides for a random selection of accounts to whom questionnaires were to be mailed no matter what order the master file was in.

Because a number of questions on the questionnaire involved a comparison of utilities, such as water to gas, the order in which possible responses were listed was rotated. In the case of a question involving gas and electricity, for example, on questionnaire Type I, of the 2250 that were mailed out, 1125 had gas listed as the first response and 1125 had electricity listed as the first response, thus minimizing any bias caused by which utility was listed first.

The Center for Business and Economic Research has enjoyed the opportunity to work with McCormick Advertising on this project. We trust that the results will be most informative and we are confident that the results do indeed reflect the attitudes and opinions of natural gas users in West Texas in as much as any unbiased random sample can.

Sincerely,

Bill Semmelbeck
Bill Semmelbeck, Co Director

Phil Gensler
Philip J. Gensler, PhD, Co Director

mjt

1976 SURVEY OF ATTITUDES AND OPINIONS OF THE ENERGY SITUATION IN WEST TEXAS

PREFACE

This is the second study commissioned by Pioneer Natural Gas Company to determine the awareness of and attitudes towards natural gas supply in the company's service area. The first study was done in April, 1975.

The two studies were purposely similar for the sake of comparison. Like the first study, this one was done by the Center for Business and Economic Research at West Texas State University. The format was the same. It consisted of mailing questionnaires to 4,500 residential and irrigation gas users in the Pioneer service area and computer tabulating the replies (1,389 vs. 1,513 in the initial study) as raw data and by demographic and geographic breakout. Presented here is a tabulation of the 1976 results compared with 1975.

As in the initial study, there were, in all, 15 awareness and attitude questions. This time, instead of four, there were only three questions dealing with demographics. The question asking the respondent to identify the occupation of head of the household was eliminated as being too subjective since individual answers had to be translated to catagories of occupation for tabulation.

To cut the length of the questionnaire and encourage responses, the awareness and attitude questions were divided between two questionnaires which were sent to alternate names on the list. Then, to eliminate sequential bias, each of the two questionnaires were printed in four versions to allow each of the multiple choice answers to appear first an equal number of times. Both of these procedures were followed on the first study.

The size of the sample was determined by the WTSU Research Center, using standard statistical procedure, to be representative of the total households served by Pioneer Natural Gas. The sample size of 4,500 represented 1.97% of the universe of 228,070. The responses to each of the two questionnaires were verified by the Center to have the same geographic profile as the total sample and consequently as the total population. This same procedure was followed in the initial survey.

There is no reason to doubt that this study accurately reflects the attitudes of the people of West Texas in about the same ratio as those attitudes existing among the total population of this area.

In comparing the results of the two studies, it is interesting to note that there has been little change in the attitudes and awareness of the people in the Pioneer service area during the past 15 months. They continue to show an understanding of the advantages of the use of natural gas and display a

greater awareness of the energy situation as it is in fact than do people in other parts of the country. This difference in awareness is even discernible within Pioneer's service area, with respondents living in areas closely related to the oil and gas business showing a greater understanding of the energy situation than do those in other areas.

As in the early study, there is an indication that the people in this area are not as concerned with the cost of gas as they are with having a continuing adequate supply.

Answers to the questions relating to government controls appearing on page three of this year's survey together with comments entered on the questionnaire continue to show indications that people in West Texas have a strong feeling against governmental control or allocation of the gas that is produced in Texas.

The total demographic breakout, as it applies to all the questions in the study, is available at Pioneer Natural Gas Company headquarters in Amarillo.

WOULD YOU FAVOR THE STATE OR FEDERAL GOVERNMENTS HAVING CONTROL OVER WHO MAY BUY THE NATURAL GAS PRODUCED IN TEXAS?

	NO RESPONSE	YES	NO	TOTALS
1976	37 5.20%	157 22.08%	517 72.72%	711 100.00%
1975	31 2.05%	306 20.22%	1,176 77.73%	1,513 100.00%

WOULD YOU FAVOR EITHER THE STATE OR FEDERAL GOVERNMENTS ALLOCATING THE AVAILABLE NATURAL GAS TO THE AREAS WHICH NEED IT MOST?

	NO RESPONSE	YES	NO	TOTALS
1976	16 2.36%	167 24.63%	495 73.01%	678 100.00%
1975	30 1.98%	394 26.04%	1,089 71.98%	1,513 100.00%

WHO CONTROLS THE RATE YOU PAY FOR

	NO RESPONSE	THE LOCAL GOVERNMENT	THE STATE GOVERNMENT	THE FEDERAL GOVERNMENT	THE DISTRIBUTOR	TOTALS
NATURAL GAS						
1976	122	165	102	84	238	711
	17.16%	23.21%	14.35%	11.81%	33.47%	100.00%
1975	120	282	75	39	253	769
	15.60%	36.67%	9.75%	5.07%	32.90%	100.00%
ELECTRICITY						
1976	133	168	103	68	239	711
	18.71%	23.63%	14.49%	9.56%	33.61%	100.00%
1975	108	344	56	22	239	769
	14.04%	44.73%	7.28%	2.86%	31.08%	100.00%

WHICH OF THESE STATEMENTS MOST NEARLY EXPRESSES YOUR VIEW OF THE NATURAL GAS SUPPLY SITUATION IN WEST TEXAS?

	NO RESPONSE	WE WILL CONTINUE TO HAVE PLENTY.	WE WILL HAVE ENOUGH IF WE CONSERVE.	IT DEPENDS ON HOW MANY NEW WELLS ARE DRILLED.	WE MAY RUN OUT IN THE FORSEEABLE FUTURE.	TOTALS
1976	37	78	335	150	111	711
	5.20%	10.97%	47.12%	21.10%	15.61%	100.00%
1975	62	112	365	145	85	769
	8.06%	14.56%	47.46%	18.86%	11.05%	100.00%

IS THERE A SHORTAGE IN WEST TEXAS?

	NO RESPONSE	YES	NO	TOTALS
OF NATURAL GAS				
1976	48	279	1,062	1,389
	3.46%	20.07%	76.47%	100.00%
1975	24	103	642	769
	3.12%	13.39%	83.49%	100.00%
OF ELECTRICITY				
1976	84	188	1,117	1,389
	6.05%	13.52%	80.43%	100.00%
1975	30	57	682	769
	3.90%	7.41%	88.69%	100.00%

HAS THERE BEEN AN INCREASE IN THE RATE YOU PAY FOR

	NO RESPONSE	YES	NO	TOTALS
NATURAL GAS				
1976	14	660	37	711
	1.97%	92.83%	5.20	100.00%
1975	19	689	61	769
	2.47%	89.60%	7.93%	100.00%
ELECTRICITY	19	655	37	711
1976	2.67%	92.12%	5.21%	100.00%
1975	18	689	62	769
	2.34%	89.60%	8.60%	100.00%

IF THE COST OF NATURAL GAS INCREASED, WHAT IN YOUR OPINION WOULD BE THE CHIEF FACTOR CAUSING IT?

	NO RESPONSE	INCREASED COMPETITION FOR IT.	INCREASED COST OF OF PRODUCING IT.		
1976	177 24.89%	87 12.24%	254 35.72%		
1975	156 20.29%	132 17.17%	239 31.08%		
	INCREASED PROFITS BY THE DISTRIBUTOR.		INCREASED COST OF DISTRIBUTING IT.	TOTALS	
1976	155 21.80%		38 5.35%	711 100.00%	
1975	200 26.01%		42 5.46%	769 100.00%	

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HOW WELL DO YOU FEEL THE UTILITY PEOPLE DO THEIR JOBS?

	NO RESPONSE	POORLY	SO-SO	OKAY	VERY WELL	TOTALS
ELECTRIC						
1976	9	31	65	302	304	711
	1.27%	4.36%	9.14%	42.48%	42.75%	100.00%
1975	14	25	70	316	344	769
	1.82%	3.25%	9.10%	41.09%	44.72%	100.00%
NATURAL GAS						
1976	8	51	84	211	277	711
	1.13%	7.17%	11.81%	40.93%	38.96%	100.00%
1975	15	35	102	309	308	769
	1.95%	4.55%	13.26%	40.18%	40.05%	100.00%
TELEPHONE						
1976	11	111	115	238	236	711
	1.55%	15.61%	16.17%	33.48%	33.19%	100.00%
1975	16	113	125	267	248	769
	2.08%	14.69%	16.25%	34.72%	32.25%	100.00%
WATER						
1976	65	59	98	276	213	711
	9.14%	8.30%	13.78%	38.82%	29.96%	100.00%
1975	57	60	107	302	243	769
	7.41%	7.80%	13.91%	39.27%	31.60%	100.00%

IF YOU HAD TO CHOOSE, WOULD YOU PREFER THAT

	NO RESPONSE	THE SUPPLY OF NATURAL GAS FOR YOUR USE BE RATIONED.	THE PRICE BE INCREASED TO ASSURE YOU A CONTINUING SUPPLY	TOTALS
1976	78 10.97%	204 28.69%	429 60.34%	711 100.00%
1975	81 10.53%	211 27.44%	477 62.03%	769 100.00%

HAVE YOU HEARD THE TERM "COST OF GAS (FUEL) ADJUSTMENT"?

	NO RESPONSE	YES	NO	TOTALS
1976	25 3.69%	582 85.84%	71 10.47%	678 100.00%
1975	24 3.23%	608 81.72%	112 15.05%	744 100.00%

WHAT DOES IT MEAN TO YOU?

	NO RESPONSE	THAT THE ENERGY DISTRIBUTOR IS INCREASING HIS PROFIT.	THAT THE RATE YOU PAY FOR ENERGY HAS BEEN INCREASED.
1976	35 5.16%	34 5.01%	69 10.18%
1975	48 6.45%	24 3.23%	66 8.87%

	THAT AN INCREASE IN THE COST OF OBTAINING ENERGY IS PASSED TO THE CONSUMER.	THAT THE DISTRIBUTOR IS USING FUEL OIL TO PRODUCE ENERGY.
1976	438 64.60%	9 1.33%
1975	418 56.18%	11 1.48%

	MULTIPLE RESPONSES.	TOTALS
1976	93 13.72%	678 100.00%
1975	177 23.79%	744 100.00%

WHAT DOES IT MEAN TO YOU?

	NO RESPONSE	THAT THE ENERGY DISTRIBUTOR IS INCREASING HIS PROFIT.	THAT THE RATE YOU PAY FOR ENERGY HAS BEEN INCREASED.
1976	35 5.16%	34 5.01%	69 10.18%
1975	48 6.45%	24 3.23%	66 8.87%

	THAT AN INCREASE IN THE COST OF OBTAINING ENERGY IS PASSED TO THE CONSUMER.	THAT THE DISTRIBUTOR IS USING FUEL OIL TO PRODUCE ENERGY.
1976	438 64.60%	9 1.33%
1975	418 56.18%	11 1.48%

	MULTIPLE RESPONSES.	TOTALS
1976	93 13.72%	678 100.00%
1975	177 23.79%	744 100.00%

WHICH ENERGY SOURCE IS LEAST EXPENSIVE TO DO THESE JOBS?

	NO RESPONSE	NATURAL GAS	ELECTRICITY	TOTALS
SPACE HEATING				
1976	48	570	60	678
	7.08%	84.07%	8.85%	100.00%
1975	58	620	66	744
	7.80%	83.33%	8.87%	100.00%
WATER HEATING				
1976	15	615	48	678
	2.21%	90.71%	7.08%	100.00%
1975	28	657	59	744
	3.76%	88.31%	7.93%	100.00%
CLOTHES DRYING				
1976	31	447	200	678
	4.57%	65.93%	29.50%	100.00%
1975	47	502	195	744
	6.32%	67.47%	26.21%	100.00%
COOKING				
1976	18	536	124	678
	2.65%	79.06%	18.29%	100.00%
1975	30	593	121	744
	4.03%	79.70%	16.26%	100.00%
AIR CONDITIONING				
1976	43	357	278	678
	6.34%	52.66%	41.00%	100.00%
1975	54	423	267	744
	7.26%	56.85%	35.89%	100.00%

WHO DO YOU LOOK TO FIRST TO BE ASSURED THAT YOU HAVE THE ENERGY YOU NEED FOR YOUR HOME?

	NO RESPONSE	THE NATURAL GAS AND ELECTRIC COMPANIES	THE CITY GOVERNMENT.	THE FEDERAL GOVERNMENT	THE OIL PRODUCTION COMPANIES	TOTALS
1976	28 4.13%	476 70.21%	31 4.57%	44 6.49%	99 14.60%	678 100.00%
1975	29 3.90%	573 77.02%	37 4.97%	38 5.11%	67 9.01%	744 100.00%

WHAT WOULD BE THE MOST LIKELY, LONG RANGE EFFECT OF A PRICE CEILING ON NATURAL GAS AT THE WELL HEAD?

	NO RESPONSE	THERE WOULD BE FEWER WELLS DRILLED AND THERE WOULD BE A SHORTAGE.	THE CONSUMER WOULD PAY LESS FOR NATURAL GAS AND ELECTRICITY.	TOTALS
1976	45 6.64%	514 75.81%	119 17.55%	678 100.00%
1975	54 7.26%	552 74.19%	138 18.55%	744 100.00%

WHICH FORM OF ENERGY REPRESENTS THE MOST EFFICIENT USE OF OUR NATURAL RESOURCES?

	NO RESPONSE	NATURAL GAS	ELECTRICITY	TOTALS
1976	41 6.05%	480 70.80%	157 23.15%	678 100.00%
1975	35 4.70%	571 76.75%	138 18.55%	744 100.00%

WHAT IS THE ENERGY SOURCE MOST USED TO PRODUCE ELECTRICITY IN WEST TEXAS?

	NO RESPONSE	NATURAL GAS	OIL	COAL	WATER (HYDRO)	TOTALS
1976	49 7.23%	540 79.65%	40 5.90%	16 2.36%	33 4.85%	678 100.00%
1975	35 4.70%	626 84.14%	44 5.91%	6 0.81%	33 4.44%	744 100.00%

RESPONSE BY DISTRICTS:

	NO RESPONSE	AMARILLO	BIG SPRING	BROWNFIELD	HEREFORD	LITTLEFIELD
1976	16 1.15%	300 21.58%	51 3.68%	54 3.89%	96 6.91	74 5.30%
1975	21 1.30%	359 22.30%	64 3.98%	80 4.97%	97 6.02%	111 6.89%

	LUBBOCK	MIDLAND	ODESSA	PAMPA	PLAINVIEW	TOTALS
1976	365 26.36%	125 9.03%	143 10.25%	59 4.26%	106 7.59%	1,389 100.00%
1975	402 24.97%	149 9.26%	136 8.45%	63 3.91%	128 7.95%	1,610 100.00%

AGE CATEGORIES:

	NO RESPONSE	UNDER 20	20-44	45-59	60 & Over	TOTALS
1976	3 .21%	16 1.16%	586 42.25	478 34.43%	306 21.95%	1,389 100.00%
1975	8 .53%	10 .66%	628 41.51%	488 32.35%	379 25.05%	1,513 100.00%

SEX:

	NO RESPONSE	MALE	FEMALE	TOTALS
1976	18 1.30%	1,037 74.64%	334 24.06%	1,389 100.00%
1975	18 1.19%	1,173 77.53%	322 21.28%	1,513 100.00%

TYPE OF ENERGY USERS:

	NO RESPONSE	RESIDENTIAL USER	IRRIGATION USER	RESIDENTIAL & IRRIGATION	TOTALS
1976	3 .22%	1,172 84.45%	6 .43%	208 14.90%	1,389 100.00%
1975	6 .40%	1,262 83.41%	9 .59%	236 15.60%	1,513 100.00%

Mr. Moss. Mr. Krueger.

Mr. KRUEGER. Thank you, Mr. Chairman.

Mr. Chairman, we are very happy to have Harry Hubbard here. He is someone I have known for some time and I don't think anyone doubts that he speaks and speaks well for the workers of the State, and we are pleased to have him, and Mr. Hubbard has always been tolerant enough when he and I don't agree on every issue, he or I fully respect that. That is not to say we are not pleased to see him here. We are.

I would like to go over with you, Mr. Hubbard, some of the unemployment figures in Texas because there were some suggestions earlier, not by your testimony, but by previous testimony, perhaps people are getting out of the State or they might get out of the State. The figures that I have seen suggest that some 700,000 jobs beween 1967 and 1974 left the Northeast States and 150,000 new industrial jobs came to Texas during that period of time.

Would that be roughly about right, in your judgment?

Mr. HUBBARD. I would imagine that is true. This is what the Industrial Commission said.

Mr. KRUEGER. So that during that period of time we didn't see, although we did see some rising energy costs, we did not see jobs leaving the State at that time.

I wonder is it also correct Texas had less unemployment during this recent recession than the national average?

Mr. HUBBARD. I think that would be a fair statement.

Mr. KRUEGER. So we have had less unemployment and more jobs moving into the State.

Now, during this period of time the figures that I have are that industrial production in Texas from 1974 to 1975, during the recession, dropped 7 percent in Texas but it dropped 17 percent in the U.S.A.

This would suggest that industrial production in Texas dropped less than half as much as it did across the Nation during a period of time that Texas was facing rising industrial costs, and I am aware of the problem that Reynolds has had in Corpus Christi where the information that I have is that they did not have long-term secure gas contracts at earlier established fixed rate.

If we look at the statewide average we would not see then as much, either as much unemployment or as much loss in industrial production in Texas during that period of time as we would in the country, and I guess as Texans we are both proud of that fact.

That would suggest that although we have been paying higher prices for energy, there comes some point maybe in a kind of a grass scale at which having adequate supplies at a higher cost is perhaps better than having no supplies at a lower cost. It is a similar kind of thing one can imagine industry looking at in terms of labor, they would rather get additional labor at a higher cost than not to get the labor they need to keep their plants operating.

The Governor of Ohio said that their State lost 1.6 million man-days of work in the 1975 recession just in Ohio because of the shortages of natural gas.

Now, we think of the importance of natural gas to Texas industry. Let's sort of picture a map of the U.S.A. and start off with all of the New England States and New York and New Jersey and Pennsylvania and Ohio and Illinois and Indiana and jump over to California or Oregon and Washington, putting together all of those States, putting together all of the gas used by those States for industry. All of those States together don't use as much gas for industry as Texas does.

Now, if we had a shortage of gas for industry in Texas, or if the Federal Power Commission is right that the estimated shortage in the interstate market this year is going to be 3.6 trillion cubic feet, almost as much as Texas uses. If there is a natural gas shortage and supply begins to be apportioned out, and all of those States put together don't use as much gas for industry as Texas, which might happen to Texas employment if we had allocation and there wasn't enough gas for those plants, would we not risk some substantial unemployment in Texas?

Mr. HUBBARD. That is a possibility, Congressman. Let me say this to your remarks. In the first place, let me make one thing clear. You are saying that if there is going to be a shortage let's let the oil companies kind of divide it out by pricing people out of the market and let them freeze to death or whatever. I don't think you and I either one want to see that. And besides talking about the unemployment in Texas, sure we are fortunate to have been a gas and oil producing State, but the only point that I keep coming back to, just because we are we ought not to have to pay more money for our own gas and oil being unregulated as they do in other States.

Mr. KRUEGER. I think I would agree 100 percent with you, we shouldn't have to pay more than other States. I couldn't agree more with you than to agree with that.

I wonder whether AFL–CIO feels that increased price can in any way bring on any additional supplies of gas or whether it does not feel an increase in price might bring on any additional supplies of gas?

Mr. HUBBARD. Congressman, let me see if I follow you. Are you saying we feel like an increase in price——

Mr. KRUEGER. Will bring on additional gas supplies.

Mr. HUBBARD. I personally don't think so unless there is something already in the works somewhere that the companies are saying, well, when you get up to a certain point we will go out and start getting more. That may be a possibility. I don't know. Certainly they have had every incentive so far to uncap them and explore for new oil and gas and we have not seen a whole lot of that at this point.

Mr. KRUEGER. I was wondering, because the Governor's Advisory Council did an analysis suggesting that additional price incentives could bring on additional supplies, and I was wondering whether either you or AFL–CIO disagreed with the Governor's Energy Advisory Council study on that point?

Mr. HUBBARD. Congressman, so far as I know this is one the Governor and I disagree on.

Mr. KRUEGER. And the Governor's Energy Advisory Council?

Mr. HUBBARD. And the Governor's Energy Advisory Committee, if that is their recommendation.

Mr. KRUEGER. This may be another area in which you disagree with that Council. That Council, I believe, suggested that one single job in an energy intensive industry in Texas tends to have a heavy multiplier effect so that one additional job brought in on an energy intensive industry such as perhaps some of the petrochemicals in which we have the U.S. total petrochemical employment and production, one new job there tends to bring on seven or eight additional jobs in the State, there is a very high multiplier effect in the State. Does AFL–CIO have any studies that suggest that isn't true or do they disagree with that assumption, do you know?

Mr. HUBBARD. We don't have any study, but I imagine that is a pretty fair assumption.

Mr. KRUEGER. If that is the case, then if the State were to begin drawing back in energy-intensive jobs, there would perhaps also be a multiplier effect on other kinds of employment in the State, and so that one can at least see some people might feel it is important that the supplies of gas in the State are there to keep those industries going, and I think with your example of Reynolds in Corpus you would agree with that.

Now, from 1970 to 1974, 21 times as much gas stayed in the intrastate market as went into the interstate market. That is, of all new discoveries of gas, there was better than well over 90 percent, almost 95 percent, new gas found in those years stayed in the intrastate market.

If that is the case, is it at least possible the people could feel that the presence of that gas would draw energy-related industries to Texas? Is it not the fact that that much new gas found during those years was staying almost entirely inside the State?

Mr. HUBBARD. I would say that would be a good drawing card.

Mr. KRUEGER. Well, it is. We agree it is a good drawing card. The question then is, I suppose, whether or not the State continues to have that drawing card if the Nation is facing shortages across the country, shortages that are estimated to be just about as great as the total use by the State of Texas, and if those supplies are apportioned across the country, what happens to the remainder of our energy supplies?

I think that probably for the moment that would conclude my testimony, Mr. Chairman. I want to thank you again for inviting Mr. Hubbard here. He has been not only a close personal friend of mine but someone who means a great deal to our State and we appreciate your having him here.

Mr. Moss. Before recognizing, I would ask the indulgence of the gentleman from Louisiana in order that we might recognize the presence of another member of the Texas delegation who has constituents in the hearing this morning, the very distinguished chairman of the Committee on Government Operations of the House of Representatives, the Honorable Jack Brooks of Texas.

STATEMENT OF HON. JACK BROOKS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Mr. BROOKS. I want to thank the chairman very much and say that I am particularly pleased to be here because Harry Hubbard is a longtime constituent of mine. He has a broad background at the grassroots level in the oil and gas industry. He doesn't own a lot of oil wells or a couple of refineries, but he has worked in them for a good many years. He understands something about the shiftwork and cost of production, and he has tried to improve those costs a little bit in labor management operations. But I don't think you have come very close, Harry, to multiplying it by four or eight or ten. The situation we have now in Jefferson County, where he was raised and where I live, which I represent, is that we produce a substantial amount of oil and gas, and we have major refineries. In that community where people process oil and gas products by the millions of cubic feet and millions of barrels annually, the gas rates have doubled and tripled and quadrupled.

Now, I am not a big oil and gas expert. I don't know all the answers to this. But I am telling you candidly that if something is not done to make it possible for people at fixed incomes and those who work for a living to buy the kinds of commodities they need at a reasonable cost related to an actual cost of production and a reasonable profit thereon, then something should be done at the national level to control that product.

I cannot believe that we want to continue a situation where retired people, social security annuitants, people with low incomes and ordinary working men and women, are subjected to those kinds of price fluctuations which they can ill afford. Of course, there is a tremendous discrepancy between $1.95 and 52 cents, and we can play games and semantics and talk about it and romance about it, but nothing has been done to alleviate the problem of the people in Texas and the people in my district whose gas rates to heat their homes, to cook their food, to air-condition their homes—if they can afford an air-conditioner—have gone up tremendously. It also creates a problem for some of Texas industry in that sometimes we have difficulty competing with other areas that get gas for less.

So unless something is done, shortly the Federal Government is going to have to take considerably more interest in how these price differentials are passed on and what the difference is in prices between the east coast and Texas and the west coast.

I commend the committee for having the courage to even take a look at it. It takes a good bit of courage just to examine gas and oil prices because some of those people are not heartened by your curiosity. And I commend the chairman and the members for taking a look at it, and for having this hearing. I would hope that some possible good results could come out and all the people in my district who are paying pretty substantial prices for their gas will look forward to the results. You can count on my support.

Mr. MOSS. Thank you very much.

Again I want to thank the gentleman from Louisiana, and now I will recognize him.

Mr. MOORE. I thank you.

My father was born and reared in Captain Jack's district in Beaumont, Texas, and I want to point out, Mr. Hubbard, my grandfather was a member of a union and worked all of his life in one of the plants producing oil and gas in Beaumont, Tex. I think we are all trying to represent workingmen.

There are a couple of things I think we ought to be sure we get clear so that as members of the committee we can understand exactly what Mr. Hubbard is trying to say.

No. 1, at the bottom of page 1 you indicate a wellhead price of 52 cents a thousand cubic feet. Now, to be sure we all understand, you are not saying that is the price the consumer actually pays in New York for natural gas, because obviously he has got to pay the delivery price on top of the wellhead price.

TESTIMONY OF HARRY HUBBARD—Resumed

Mr. HUBBARD. Right.

Mr. MOORE. According to our figures, that natural gas is selling in New York to the consumer at about $2.60 per M ft^2, which, of course, is a lot more than the same consumer you are worried about down in Texas paying $1.85 or so. Your delivery price in Texas is cheaper and you are coming out ahead.

Mr. HUBBARD. I said a while ago I think we would not be adverse to paying the delivery price. One of the farmers here would not be adverse to paying the delivery price for the oil being pumped out from under his house.

Mr. MOORE. I understand that. Certainly I agree with you. My people in Louisiana don't want to pay high delivery prices. We are producing in our State, too, and would like to have it as cheap as possible.

I think there is an indication that in the pricing system, something is wrong with it. I think you would have to agree that Texas can't be looked at all by itself. Most of the companies you named producing gas, natural gas, are producing it in Texas and all across the Nation and, therefore, their cost basis is not just what is going on in Texas but accounts for the whole market.

As the chairman points out, the FPC is so impressed with the fact the producer has to pay more, they want to raise the wellhead price from 52 cents up to $1.42. Even under regulation, which you have indicated, if all else fails we may have to go to the Federal Government. Even under regulation the price is going to rise, according to the Federal Power Commission, because it is regulated right now.

Mr. HUBBARD. Even under that if it were to rise for some people it would be lowered from $2 to $1.42, so it would still help us in Texas.

Mr. MOORE. So you are going to pay more than that under the regulated price. There is the hope if the whole thing becomes deregulated that the price might be such that it could be lowered all across the board or stabilize the figures. As long as we have some regulated and some unregulated I don't think we are ever going to know. Texas is a good record to say the process won't work. Even if you did regulate, you are going to find the Texans paying $1.85, which everybody

is going to pay under regulated intrastate price if the FPC new prices go through.

One thing concerns me greatly—I don't think there is a man in the committee or Congress that goes along with monopolies or unregulated monopolies or any sorts of violations of antitrust laws or our laws against monopolies in "ripping off the public."

I am concerned about your comment you think that is going on in Texas. If it is, it ought to be investigated.

I would ask the question just to try to get straight in my own mind—believe me, corporations don't vote, I get no votes from corporations. They are very popular to campaign against. Working people vote, retired people vote. I think we want to be accurate and be sure we have really got a problem by the horns here, and we are not just saying what we think is the case and not be able to prove it.

You made the comment 30 companies in Texas produce 90 percent of the natural gas. Do you have any idea how many companies produce the remaining 10 percent?

Mr. HUBBARD. No.

Mr. MOORE. You point out that A.T. & T. is a recognized monopoly, and they are pretty heavily looked at by this committee, among others—it is the only one of its kind—nobody competes with A.T. & T., we know that. Even by our own figures you have 30 gas companies competing in Texas producing 90 percent. We assume there are some more for the additional 10 percent. You have named the top 10 producers in Texas. The last one HNG Oil Co. is not a major oil company. That is an independent, albeit a pretty large one.

Do you know who the next 20 companies are in Texas? You have named the top 10. What are the next 20?

Mr. HUBBARD. No; I don't have the names of those.

Mr. MOORE. I am willing to bet if you look at them you will find we have an awful lot of small ones like we have in Louisiana, companies that may employ four or five people producing natural gas.

My point is that I am not sure your number can be concluded to show monopoly. That is what I am getting to. If they do they ought to be investigated. That is something that can't be tolerated under any circumstances.

I wonder. You indicate you suspect interlocking relations between those gas producers. I am sure you are talking about the top 30. Have you began any research to see if we have interlocking boards of directors or interlocking presidents?

Mr. HUBBARD. No; we have not made a survey in that regard.

Let me make the point—the point we are trying to make here is I assume that you are going to make decisions, if we can have some guarantee that there was no monopoly, no collusion, a free market would work, certainly we would be for it. We would rather have that, there is no doubt about it. We in the Texas AFL–CIO only bring to your attention what can happen and has happened in some cases and those who make the final decision, such as yourself, will have to make that determination.

Mr. MOORE. I would point out that most of the records of these corporations, all of them I think in Louisiana, I assume in Texas, too, are available to be searched out to see if there are interlocking directors.

I will agree with you completely, I can guarantee you personally as far as this Congressman is concerned from an oil producing State that, and I am sure everybody on the committee feels this way, we are not going to allow any sort of collusion. If we can get at it, see any proof of it or evidence of it, we think the law is spelled out as being illegal—if it hasn't we will spell it out further—there is not going to be collusion to fix prices.

Congressman Krueger and myself and Congressman Collins agree. We seem to think the best way to lower the prices or stabilize them is to let the free enterprise system work. We do not go along with the collusion of oil, we will not accept that for a second.

I appreciate your testimony and I think reasonable men can agree. I think your last comments indicate to us that you believe that a free enterprise system can work and if we can get all the collusion and price fixing out of it, if it is there now, you will be willing to go along with that rather than have the Federal Government regulate.

Mr. HUBBARD. We have pretty well said that. Let me say this while we are on the subject. I have said many, many times and continue to say and will say here that we in Texas labor have nothing to gain unless management is strong, unless the companies are strong, and we want to see them remain strong. The only thing about it we don't want to see them get so healthy that they get high blood pressure, and this is the only thing that we are saying. But what I have seen so far in an unregulated atmosphere in Texas is not working. That is all we are saying.

Mr. MOORE. I agree with your basic principle. I think we are all working toward the same end. We all have hopes that it will work in an unregulated, free enterprise environment, and as I was trying to point out, I am not sure what we have seen so far in Texas is an accurate picture of what will happen under nationwide deregulation. I agree with you that this is the best way for more jobs to come in and the best way to create jobs—we are trying to do this in our State although we are not doing as well as you are in your State, unemployment is much higher in my district, which is heavily industrialized. We are having problems getting the source of power.

I had a plant closed in my State, UniRoyal and a cement plant close because of natural gas problems. Our problem was we couldn't get it.

I thank you for your testimony and appreciate your candor.

Mr. Moss. Mr. Galloway?

Mr. GALLOWAY. Mr. Hubbard, approximately how many people belong to the Texas AFL–CIO?

Mr. HUBBARD. 262,000 approximately.

Mr. GALLOWAY. Ae your members located throughout the State of Texas?

Mr. HUBBARD. Yes, sir.

Mr. GALLOWAY. Does the situation which you described in your testimony extend throughout the entire State?

Mr. HUBBARD. Very definitely. We had people all over the State that were putting together petitions, writing letters, stacks and stacks, that we presented to the legislative hearings back there that came from every little city in Texas.

Mr. GALLOWAY. You mentioned the case of a consumer from Louisville, Tex., in your testimony. You pointed out that his utility bill went from $84 to $323. Is Louisville one of the communities that is served by Lo Vaca?

Mr. HUBBARD. No, I don't believe that they are. I am not certain.

Mr. GALLOWAY. Where is Louisville?

Mr. HUBBARD. Louisville is about 40 miles east of Austin; a small city there.

Mr. GALLOWAY. So it is your concern for jobs and your concern for the standard of living of your union members that has led you to conclude that there has to be some kind of regulation of gas prices in Texas; is that correct?

Mr. HUBBARD. As I said before, it has just not worked in the unregulated system so far.

Mr. GALLOWAY. Thank you.

I think we do have to differentiate between free enterprise and free competitive enterprise. I am a great believer in the miracle and genius of competition. I think it is a very essential element in the operating successfully of a system of free and vigorous capitalism, but as we move in many areas away from competition, as the major ingredient, we come perilously close to a kind of control that is not really answerable to anyone.

I do want to thank you and you are excused at this time with the appreciation of the subcommittee.

Mr. HUBBARD. Thank you, Mr. Chairman.

Mr. MOSS. If there are no further questions——

Mr. COLLINS. Could I ask for unanimous consent at this time? The Petrochemical Energy Group, which is a coalition of gas consumers who favor the deregulation, prepared a statement and I wondered if I could include their statement at this time and their exhibits?

Mr. MOSS. Yes, indeed, Mr. Collins.

[See p. 131.]

Mr. COLLINS. Thank you, Mr. Chairman.

Mr. MOSS. At this time I would like to place the statement of Coy Nichols of Reaves County, Tex., in the hearing record.

[Mr. Nichols' prepared statement follows:]

STATEMENT OF COY NICHOLS, REAVES COUNTY, TEXAS

Reeves County, Texas, has approximately 180,000 acres in irrigated land. Pecos County has approximately 120,000 acres of irrigated land; both counties are affected by the high price of natural gas. Natural gas is 98% of the fuel supply for pump motors for irrigation.

I do not have the accurate figures of the acres planted in Reeves County in 1975, but I will have them soon from the State Agricultural Department. There was less cotton planted in 1975 than in 1974.

In Reeves County in 1975, oats, barley, milo and alfalfa acres were increased by a minimum of 50%. There were also several hundred acres of sunflowers planted in 1975. There were approximately 1400 acres of cantaloupes planted in 1975. There were approximately 1100 acres of onions and 200 acres of cabbage and 200 acres of green bell peppers planted in 1975. There were a little over 200,000 head of cattle fed out in Reeves County in 1975, they had to have water. Milk produced was approximately 10,400,000 pounds in Reeves County.

All crops mentioned were produced with irrigation.

The gross income in Reeves County in 1975 was approximately $40,000,000.00.

In Reeves County there were 260 farmers in 1975.

There are one hundred eleven land owners (farm land).

In 1976 there are only 20 farmers that tried to farm using gas at present price of $1.85 per Mcf. They got their crops planted and had approximately $150.00 per acre invested and on April 30, we had a severe hail storm that destroyed all the cotton and approximately 80% of all small grain. The cotton was replanted after but due to weather conditions the majority of the farmers have plowed it up.

In January of 1976, Delhi Gas Company offered a contract to the farmers for natural gas at $1.85 per Mcf, but with a ten day written notice to farmers, the gas could be cut off at anytime, plus a deposit the farmers had to pay in advance in amount of 544% of the largest amount used in any month of 1975. The contracts were only open until April, at the price of $1.85 per Mcf. The final shut-off date is September 1, 1976. After that date Delhi said they would not sell farmers gas at $10.00 per Mcf.

We (the farmers) have tried to get gas from other sources at a cheaper rate. We did find gas available at a cheaper rate but could not deal with Delhi on the pipeline system. The lowest price Delhi would make us on the pipeline was $1,000,000.00 plus 25 miles of 8-inch pipeline for Delhi that would cost approximately $1,500,000.00 so therefore the farmers need $2,500,000.00 to buy the pipeline, which they do not have. Considering that the farmers signed a contract to use a certain amount of Mcf gas per year and they gave the right away for the pipeline. The gas company took the signed contract and easement we gave them and borrowed the money to lay the line in the year of 1955. The line was paid for in the first ten years.

The farmers of Reeves County need water in order to keep this land in production. But they also need to show a little profit and not go into debt every year. Otherwise they will have to turn this land back to rangeland and look elsewhere for a living.

I would like to include along with my statement a statement from A. D. Woody, owner of Pecos Tractor and Picker Service.

Mr. KRUEGER. In the last couple of questions that Mr. Moore was asking in which you said you favored strong management and strong industry—

Mr. HUBBARD. I said I favored strong management and labor relations.

Mr. KRUEGER. I see.

One of the things that I was wondering about is about a year ago when I talked with somebody in Washington about the oil and gas industry I was told by a high official of the AFL–CIO they favored nationalization of the gas and oil industry. I wonder if the Texas AFL–CIO favors nationalizing or if they favor remaining in private ownership or avoidance of monopoly?

Mr. HUBBARD. We have never taken any position as far as nationalization, Congressman.

Mr. KRUEGER. Thank you, Mr. Chairman.

Mr. MOSS. The Chair would like to indicate on that point that I know of no one on this subcommittee who favors nationalization of the oil industry or any industry if we can possibly avoid it and the subcommittee will seek, the Chair would seek to explore every possible alternative to any such drastic step.

We are going to have in about 10 minutes at least one or more quorum calls. I wonder if it might not be best to break at this point and return at 1:30 and be able to sit on through so that the panel can continue without interruption. We have two panels. We have Professor Thompson, professor of economics, University of Houston, and Dr. Jack Hopper, consulting economist from Austin, Tex.

On panel No. 2 then we have the panel with Mr. Robert Mullins, Mr. Carl King, and Mr. Ray Riley, as the first panel representing agriculture in Texas.

If that is agreeable, the subcommittee will stand in recess until 1:30 and we will then commence with the agricultural panel.

[Whereupon, at 11:50 a.m., the subcommittee recessed, to reconvene at 1:30 p.m., the same day.]

AFTER RECESS

[The subcommittee reconvened at 1:30 p.m., Hon. John E. Moss, presiding.]

Mr. Moss. The committee will be in order.

At this time we will hear from Mr. Robert Mullins, Texas Farmers Union; Mr. Carl King, farmer from Dimmitt, Tex.; Mr. Ray Joe Riley, a farmer from Hart, Tex.

Gentlemen would you step forward and be sworn.

Do you and each of you solemnly swear the testimony you are about to give this subcommittee shall be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. MULLINS. I do.

Mr. KING. I do.

Mr. RILEY. I do.

Mr. Moss. Identify yourselves to the hearing reporter for the record.

TESTIMONY OF ROBERT J. MULLINS, ASSISTANT TO THE PRESIDENT AND LEGISLATIVE DIRECTOR, TEXAS FARMERS UNION; RAY JOE RILEY, A FARMER OF HART, TEX.; AND CARL L. KING, REPRESENTING THE TEXAS CORN GROWERS ASSOCIATION AND GAS USERS ASSOCIATION

Mr. RILEY. My name is Ray Joe Riley. I am a farmer from Hart, Texas.

Mr. MULLINS. I am Robert Mullins from Waco, Tex., representing Texas Farmers Union.

Mr. KING. I am Carl King from Dimmitt, Tex. I represent Texas Corn Growers Association and Gas Users Association.

Mr. Moss. Gentlemen, if you will be seated. I assume we will go in the order of the scheduling, Mr. Mullins, Mr. King, Mr. Riley.

Mr. Mullins, we will be glad to hear from you. You may proceed in one of two fashions. You may enter the entire statement in this record at this point, or you may proceed to read it.

TESTIMONY OF ROBERT J. MULLINS

Mr. MULLINS. Mr. Chairman, at this point I will ask that the entire statement and documenting evidence be introduced in its entirety in the record. In the essence of time I will just summarize my statement.

Mr. Moss. Without objection, so ordered by the committee and the statement will be placed in the record immediately following your oral summation.

Mr. MULLINS. Mr. Chairman, I am Robert Mullins, assistant to the president and legislative director of the Texas Farmers Union, which is a general farm organization representing approximately 10,000

farm and ranch families in Texas. We are also an affiliate of the National Farmers Union.

I am pleased to have the opportunity to appear here today and present a general overview relative to the problem of natural gas prices as they affect the agricultural sector of the Texas economy.

Mr. Chairman, natural gas is vital to the production of food and fiber in Texas, as well as many other parts of the country. Natural gas is an integral component in the production of fertilizers and other essential agricultural chemicals. Most importantly, it is essential for irrigation in many parts of the State, used either directly or indirectly, and in certain regions of the State natural gas is also used for crop drying.

The natural gas industry in Texas, as far as intrastate commerce is concerned is, as you know, virtually unregulated, but this is even more true as far as agricultural use goes. Under the establishment of the public utilities commission law last session of the Texas Legislature there is some control in ratemaking processes in the State, although it doesn't rest with the public utilities commission, it rests with the Texas Railroad Commission. But as far as agriculture goes, the law specifically excludes the transportation, delivery or sale of natural gas for fuel for irrigation as well as for any other direct use in agricultural activities.

Now, Texas is the Nation's fourth largest producer of agricultural commodities. During 1975 Texas farmers raised crops which were valued at $3.2 billion. There were approximately 20 million acres in Texas under cultivation. This excludes any ranchland or pasture lands. Of this 20 million acres, nearly 9 million were under irrigation in the past year.

So as you can see, irrigation is an important factor in the productivity of Texas agriculture. Lack of it means economic disaster, I would refer you to exhibits A and B in my prepared statement.

Although less than half of the State's total harvested cropland is irrigated, the value of that irrigated crop production is approximately two-thirds or more of the total crop value in the State.

As far as the crops which are produced which make up the largest use of irrigation, we have grain sorghum, cotton, wheat, corn and rice, in that order. The High Plains area of Texas, which I would say stretches from the Lubbock region northward, accounts for nearly $5.9 million or about 68 percent of the total irrigated acres in the State. And this land is irrigated with underground water sources, which require of course power to bring the water to the surface for irrigation purposes.

Now, with the productive capacity of the land dependent to a great extent on use of irrigation, the twin problems of availability of power and the cost of that power for these irrigation pumps presents itself. Irrigation pumps in Texas utilize basically two forms of power, one direct natural gas-fueled engines or electricity.

In Texas about 90 percent of all electricity is generated from natural gas-fired plants.

So in either situation the cost of irrigation is directly tied to the cost of natural gas. I have attached in my statement from exhibit C

through F copies of actual production costs, bills that farmers have received for both natural gas and electrical usage over the past 3 years.

Basically I am looking at the period from 1973, 1974, 1975, and the early part of 1976. And we see the fuel adjustment cost has increased tremendously whether it be direct use of natural gas or the pass-through charges on the electrical charges. But not only have the actual costs increased, the supplier of most of this gas, the gas in the south plains region which is Pioneer Natural Gas, has told the farmers in that area that they can expect between a 2 and 2½ cents per thousand cubic foot per month over the next 2 years increase. They have contracts but these contracts are open end contracts, there are no guarantees on price.

Of course this can take place because of the position of the railroad commission in Texas on the pass-through. As I say, not only have the natural gas rates increased, but so have the electrical rates which the producers use.

I would just like to point out one that I have attached at exhibit E on an electrical pump, which is a 15 hp pump. In April of 1973 the passthrough charge was $5.62 cents. In February of this year the passthrough was $102.17. And as I say, we find this in natural gas, electricity, it doesn't matter which source of energy the farmers use to fuel their pumps.

What I hope this points out is the increased cost of production that farmers and ranchers have to bear to produce the food and fiber that this Nation needs. In 1972 a typical well-managed farmer was spending approximately 6.5 percent of his total production expenses for either—both for irrigation fuel and fertilizers. By the end of last year the same farmer was paying out approximately 14.75 percent of his production costs for these same two items. And you might say that it is only an 8 or 7.5 percent increase, but this is a large amount of money when you consider total expenditures for producing this food running any place from 100,000 to 200,000-plus a year. So you are talking about a substantial amount of money.

As I have stated previously, natural gas is also an integral part of the production of many fertilizers and related farm chemicals. And a very common fertilizer used in the plains area of Texas is anhydrous ammonia. In 1972 and 1973 this fertilizer was selling for approximately $75 a ton.

In the fall, by the fall of 1973 the price had increased to $80 a ton. By May of 1964 the price was $200 a ton. In January of this year fertilizer prices in the high plains basically for ammonia products had receded somewhat, at that time, and currently it is about $185 a ton. So we see from 1972 to January of this year we have had approximately $110 per ton increase in fertilizer.

Fertilizer and water are two absolute necessities in many regions of the State if production is to be maintained at its greatest potential. Without either one production would drop sharply. In fact, in a lot of regions of the State without both there simply would be no production, which is a serious threat to not only the State's economic well-being but that of the food supply of this Nation.

The farmers aren't the only ones directly affected by this increase in natural gas prices. Consumers, as you have already heard earlier today, Mr. Chairman, across the State are suffering ever-increasing utility costs. I am strictly interested in the cooperative problems at this point.

The electrical cooperatives traditionally have supplied service to rural areas and small towns, and they have to increase their charges to their patron-owners to meet the rising costs of this natural gas which is used as boiler fuel to generate electricity.

And of course, as I said, one of the reasons for these dramatic increases is that the Texas Railroad Commission allows natural gas suppliers to pass along a hundred percent to the consumer—be it generating facility or a power supplier—and of course ultimately this cost is paid by the final consumers, farmers, the businessmen, the householder.

To point up the real problems that we have with electrical rates, not only for agricultural use in irrigation, but just for home use, I direct your attention to exhibit J, from which I will just take two figures, this is from the Bailey County Electrical Co-op. Their power bill for 2 months—I will just compare it.

In February of 1973 the Cooperative purchased approximately 5 million kilowatthours at a cost of about 28.5, $28,500. Fuel adjustment charge in that month was $1,700 for a total bill of $30,000 plus.

In February of 1976 the Cooperative purchased 6.6 million plus kilowatthours at basically the same kilowatthour cost. They paid $37,497 for that 6 million kilowatthours. $37,000. The fuel adjustment charge was $53,922.82. Which means the fuel adjustment charge was land. so a shift in land utilization would not only mean a loss in avail-143 percent of the base kilowatthours bill.

And this is not unique. This is not unique. In fact, these people aren't supplied by Lo Vaca or Coastal States. These people are supplied by Brazos Electric Power Co. of Waco, but the story is the same all over Texas, whether it be in Bailey County or Fayette County, which I have included some cost figures from their electrical co-op.

The situation in the high plains of Texas may not be as critical as of yet as it is in the Trans-Pecos area, but it is severe. This situation is serious, and it is a threat to production capability of food and fiber for consumers both here at home and our overseas customers. And Texas agriculture provides a great deal of the production of wheat, grain sorghum, rice, so we have a vital stake there as well.

And it is simply that if current conditions are allowed to continue as dry land cropping or rangeland and when this happens the income from this irrigated cropland will be lost to the region. And if this occurs, even on a moderate scale, it could spell absolute economic disaster for that region of the State.

For most of these producers their entire lifesavings are in the many producers will be forced out of business. They simply cannot afford to produce. And their land will be diverted to other uses such able income, it would also mean a substantial loss of lifesavings as well.

Now, I don't mean to sit here, Mr. Chairman, and try to tell you all the problems of Texas and the producers all stem from increased natural gas prices. But I do say they play a major role in the problems faced by producers who are simply short on credit and a lot of them being forced to leave the land.

And bank loans, which are an absolute necessity tend to dry up just about as quickly as unirrigated cropland. Production costs continue to increase. But the market value that the farmer receives for his commodities just simply does not keep up. It is somewhat ironic that the Nation's suppliers of food and fiber are not guaranteed a return on their investment, as are the suppliers of input items, and I include natural gas suppliers there also.

Now, earlier this year I received a copy of a Federal Power Commission staff recommendation for new gas, which at that time I believe they recommended—for interstate sale, I believe they recommended 63 cents, after taking their formula and everything, into account. This guaranteed a rate of return between 15 and 18 percent to the natural gas suppliers.

Now, of course if this new FPC action goes into effect it is going to mean even greater returns, in our opinion. But the point I would like to make, Mr. Chairman, is simply that I would like to see our farmers get a 10 percent return on their investment, an average in Texas might be five, and right now it is probably running between 2 and 3 percent, if they make a profit at all, which in some areas of the State this year is very doubtful.

So, you know, they are faced with a serious, serious problem here just staying afloat, they are, you know, not making a profit. But even aside from the serious production consequences which will accrue, if farmers are forced off the land, there is going to be some serious social deterioration that takes place in the small towns and cities of the State.

All of the agricultural service suppliers are going to be affected. Any time there is decreased production and decreased numbers of producers, the economy of the small town in Texas is going to suffer. It is very simple. They cannot continue to do business when there are not the producers to buy and, along with that, the unemployment and consequential increased out migration with all the other social problems that go along with that.

And with a declining population and a shift in land utilization the economic base, the tax base in these areas is going to suffer tremendously. And can you imagine the real consequences on a local tax role of land that, let's say, was valued at $250 or $300 an acre, as irrigated cropland, being reevaluated at $25 an acre as rangeland? It would be very difficult to adjust community services to the needs of the community, as well as its fiscal capabilities.

Now I believe that I speak for a number of farmers and ranchers in Texas when I urge, as did delegates to the most recent National Farmers Union Convention in New Orleans this year, that, and I quote:

> At least until the concentrated corporate control in oil and gas is broken and sufficient competition is available to protect farmers and ranchers and other consumers of oil and gas products, Farmers Union (1) opposes any relaxation

of the regulation of natural gas at the wellhead by the Federal Power Commission, and supports reform of natural gas regulation by the FPC to extend the FPC's authority intrastate; (2) supports extension of effective price controls on oil, gas and refined petroleum products.

Mr. Chairman, that is my summary of my statement.

[Testimony resumes on p. 93.]

[Mr. Mullins' prepared statement and exhibits follows:]

STATEMENT OF ROBERT J. MULLINS, ASSISTANT TO THE PRESIDENT & LEGISLATIVE DIRECTOR, TEXAS FARMERS UNION

Mr. Chairman and members of the Subcommittee, I am Robert Mullins, Assistant to the President and Legislative Director of the Texas Farmers Union, which is located in Waco, Texas. Texas Farmers Union is a general farm organization representing approximately 10,000 farm and ranch families in Texas. We are also an affiliate of the National Farmers Union. I am pleased to have the opportunity to appear here today and present a general overview relative to the problem of natural gas prices as they affect the agricultural sector of the Texas economy.

Mr. Chairman, natural gas is vital to the production of food and fiber in Texas, as well as many other parts of the country. Natural gas is an integral component in the production of fertilizers and other essential agricultural chemicals. Most importantly, it is essential for irrigation in many parts of the state, either used directly or indirectly. Natural gas is also used for crop drying.

The natural gas industry in Texas, as far as intrastate commerce is concerned, is virtually unregulated particularly as far as agricultural use is concerned. This has been true in the past and will continue to be so under the provisions in the law which established the Texas Public Utilities Commission last year. Article I, Section 3 (3), outlining the powers of the Commission, excludes the transportation, delivery or sale of natural gas for fuel for irrigation wells or any other direct use in agricultural activities from the Texas Railroad Commission's regulatory authority. In Texas the jurisdiction over natural gas utilities lies with the Railroad Commission rather than the Public Utilities Commission.

The intrastate price for natural gas in Texas is nearing $2.00 a MCF, just about four times the highest price for gas sold in interstate markets regulated by the Federal Power Commission.

Texas is the nation's fourth largest producer of agricultural commodities. During 1975 Texas Farmers raised crops which were valued at $3.2 billion. Cotton and grain farmers produced approximately $2.9 billion of the total crop value, with grain sorghum, cotton and wheat representing most of that production. Crops such as soybeans, cottonseed, barley, oats, rye, rice, fruits and vegetables, and peanuts accounted for the remaining value. There are approximately 20 million acres in Texas under cultivation. This excludes range lands and pasture lands. Of this 20 million acres, 8,772,468 acres were under irrigation in 1974. Irrigation is an important factor in the productivity of Texas agriculture. Lack of it means economic disaster. (Exhibits A & B). Although less than half of the state's total harvested cropland is irrigated, the value of irrigated crop production is approximately two-thirds or more of the total value of all crop production. The percentage of total crop production which comes from irrigated land varies from year to year, depending primarily upon the amount of rainfall received.

Grain sorghum, cotton, wheat, corn and rice are the leading irrigated crops, in that order.

The High Plains area of Texas accounts for nearly 5.9 million acres or sixty-eight percent of the total irrigated acreage. Most of this land is irrigated with underground water, which necessitates the use of pumps to bring the water to the surface.

With the productive capacity of the land dependent to a great extent on the use of irrigation, the problems of availability of power and the cost of that power for these irrigation pumps presents itself. Irrigation pumps in the state utilize basically two sources of power, either direct internal combustion engines utilizing natural gas as a fuel or electricity, which utilizes natural gas to produce the electricity. Therefore, the cost of operating either of the two types of systems is directly related to the cost of natural gas, either used directly or as a boiler fuel. Currently over ninety percent of the electricity in Texas is generated by natural gas fired plants.

Natural gas supplies three-quarters of all energy used in irrigation in the state, which in turn accounts for 39 percent of all energy consumed in Texas agriculture. The state's agricultural industry consumes about 7 percent of all energy used in Texas.

Fifty-four percent of all fuel used in on-farm operations in the state is natural gas for irrigation.

What all this means to the farmer in Texas is simply his cost of production has increased dramatically over the past three years, in terms of power to operate his irrigation wells, fertilizer for increased production, herbicides, insecticides and machinery operation.

Rather than talk in abstract terms, I would like to present some examples of costs increases on a typical farm in Crosby County, Texas, which is located approximately 30 miles east of Lubbock, Texas, in an area where extensive irrigation is used. In April, 1974, this farmer was charged an additional .0382 cents per MCF as a cost of gas adjustment. His gross bill for that month for 856 MCF was $495.11. In May the cost of gas adjustment increased to .1684 cents per MCF. The following July, 1975, the cost of gas adjustment decreased slightly to .1388 cents per MCF. By September, the cost of gas adjustment had increased to .2497 cents per MCF. At the end of the year, 1975, it was at .2992 cents per MCF. (Exhibit C).

During the period from April 1974, to December 1975, the supplier of this natural gas, Pioneer Natural Gas Company, had raised the cost of gas adjustment charge per MCF from .0382 cents to .2992 cents. Currently this supplier is adding .3439 cents per MCF (rate effective 2/20/76.) Not only have these costs increased substantially, the supplier, Pioneer Natural Gas, has advised this farmer that he could expect to pay an additional 2 to 2½ cents per MCF per month over the next two years. In the fuel adjustment charge alone this represents a 783 percent increase over a twenty-nine month period. Not only has the cost adjustment increased substantially, the actual cost of the gas under contract has increased also. Depending upon the amount of gas utilized by the farmer for irrigation purposed, his cost of gas has increased from 34 percent to 226 percent. The attached copies of rate schedules used by Pioneer Natural Gas Company for rates for operation of Internal Combustion Engines on Irrigation Wells clearly show the increase. (Exhibit D).

Not only have the gas rates for irrigation pumps increased but so have the rates charged users of electrical power to generate their irrigation pumps. An example of this increase in costs to the electrical user is shown in the comparision between April 1973 and February 1976 for a 20 horsepower pump, operating for 720 hours of pumping using approximately 10,800 KWH for the month.

At the old rate, this pump operation would have cost the farmer $247.62 for the month's operation. The cost at that time was 2.5 cents per KWH for the first 8,000 KWH, 1.5 cents per KWH for the next 2,800 KWH and a fuel adjustment charge of $5.62, making his monthly operating costs $247.62. In 1976, that same pump cost him 47 percent more to operate. The first 8,000 KWH increased from 2.5 cents to 2.7 cents per KWH, the second 2,800 KWH increased from 1.5 to 1.6 cents per KWH. This is a relatively small increase of only $18.80 on the base cost of his power supply. However, the real increase, over 18-fold, came as a result of the fuel adjustment charge, $5.62 in April, 1973 to $102.17 in February, 1976. (Exhibit E).

I have figures from the Lighthouse Electric Cooperative, Inc., of Floydada, Texas, northeast of Lubbock, showing cost of 15 horsepower irrigation pump. In June, 1973, the fuel cost for 3,440 KWH was $1.26. One month later, using 6,120 KWH the fuel cost $2.24. By April, 1974, the fuel cost for 7,790 KWH usage on a 15 HP pump increased to $11.69. A year later, in June 1975, the adjustment cost on 5,360 KWH had increased to $26.68 or approximately 22 percent of the entire bill. By August, 1975, the fuel adjustment rate amounted to 24 percent of the entire bill. (Exhibit F).

What I hope these cost figures illustrate is the increased cost of production that farmers and ranchers must bear to produce food and fiber. In 1972, a typical farmer in the South Plains area of Texas spent approximately 6.54 percent of his production expenses for irrigation fuel and fertilizers. In 1973, that figure was approximately 5.39 percent, largely due to less irrigation because of a wet year in the region. In 1974, the percentage rose to 8.55 percent. Last year the same farmer paid out 14.75 percent of his production costs on fertilizer and irrigation expenditures. These percentage figures represent a very large expenditure when you consider operating expenses running from $100,000 to $200,000 depending on area and crop. (Exhibit G).

As I have stated before, natural gas is an integral part of the production of many fertilizers and related farm chemicals. A very common fertilizer used in the Plains area of Texas is Anhydrous Ammonia. In 1972 and early 1973, this fertilizer was selling for $75.00 a ton. In the fall of 1973 the price had increased to $80.00 per ton. By May of 1974, the price had skyrocketed to $200.00 a ton. It was during this time and through early 1975 that we kept hearing of fertilizer shortages. However, farmers in all areas of the state have told me and others that there was no insurmountable difficulty in obtaining fertilizer if one was willing to pay the price. Also during this same period, several small fertilizer plants that had previously been closed down as outmoded and less than productive, were reopened in the area around Plainview, Hale Center and Lubbock, Texas. By January of this year, fertilizer prices in the High Plains had receded somewhat, at that time it was selling for approximately $185.00 a ton with no problem of availability. (Exhibit H).

Fertilizer and water are absolute necessities in many regions of Texas if production is to be maintained at its greatest potential. Without either one, production would drop sharply, in fact, in some regions of the state and with various crops, if there were no irrigation or fertilization, there simply would be no production.

Farmers are not the only ones directly affected by this increase in natural gas prices. Consumers throughout the state are being subjected to ever-increasing utility costs. Cooperatives, which have traditionally supplied electrical service to rural areas and small towns are having to increase their charges to the patron-owners to meet the rising costs of natural gas to use as boiler fuel to generate electricity. As an example, Bailey County Electric Cooperative, northwest of Lubbock, has had to increase its electrical service charges to its patrons to pay for the increased cost of natural gas.

One of the reasons for these dramatic increases is that the Texas Railroad Commission allows natural gas suppliers to charge a 100 percent pass through cost to the buyer, be it a generating facility or power supplier. Ultimately, of course, this cost is paid by the final consumer, the farmer, businessman, household.

In February of this year, the Bailey County Electric Cooperative purchased 6,696,000 KWH from its supplier, Brazos Electric Power Cooperative of Waco, at a total KWH cost of $37,497.60. This is virtually the same cost per KWH as the cooperative paid in 1973, excluding the fuel cost adjustment. In 1973, the cooperative paid an additional $1,796.01 as a fuel adjustment charge on 5,085,000 KWH purchased. Three years later (1976) the same cooperative paid $53,922.89 in fuel adjustment charges on 6,696,000 KWH purchased, more than the base rate of the electricity purchased by 143 percent. (Exhibit J). As you will see on the attached chart (Exhibit K) the fuel adjustment cost as a percent of the total bill paid by the Bailey County Electric Cooperative increased from 5 percent in 1973, to 14 percent in 1974, 38 percent in '75 and up to 58 percent in February of this year. Similarly, you will see the fuel adjustment cost as a percent of the base KWH cost increased from 8 percent in 1973, to 17 percent in '74, 61 percent in '75 and an astronomical 143 percent in 1976. (Exhibit L).

Unfortunately, the Bailey County story is not unique. For example, the Fayette Electric Cooperative, in Fayette County, Texas, some 600 miles to the southeast of Bailey County has suffered the same fate. In January, 1973, the cooperative purchased 4,348,920 KWH of electricity from its suppliers, Lower Colorado River Authority, for $28.455.81. During January of this year, Fayette Electric Cooperative purchased 4,570.540 KWH of electricity at a cost of $123,782.61. (Exhibit M). This tremendous increase occurred because the Texas Railroad Commission allowed the original supplier, Coastal States Gas Producing Company, to increase its gas price to whatever the cost might be for natural gas during any month of operation.

All of the foregoing examples are typical of the increased cost that producers across the state are experiencing to one degree or another. The situation in the High Plains area of Texas may not be as critical yet as in other parts of the state, notably the Trans-Pecos area, but it is severe. The situation for producers is serious and this is a threat to the production capability of food and fiber for consumers both here at home and our overseas customers.

Many producers, if current conditions continue, will be forced out of production by the laws of economics. Their land will be diverted to dry-land crop or range land with less than optimum production and the income from irrigated production will be lost to the region. Dr. Ronald D. Lacewell, research economist

for the Texas Agricultural Experiment Station, had this observation, "The High Plains and other irrigated regions are approaching a situation similar to that of the Trans-Pecos. If the price continues to rise past the current $1.30 per MCF, it will likely result in a reduction of water pumped, irrigated acreage and agricultural production." Dr. Lacewell also predicted a possible shift from crop to livestock production in West Texas. If this were to occur, even on a modest scale, it would spell economic doom for that part of the country. For most of these producers their entire life savings are in the land. A shift in land utilization and the resulting devaluation would mean not only a decrease in personal income, but a substantial loss of life savings as well.

Certainly I do not mean nor attempt to imply that the critical problems in rural areas all stem from increased natural gas prices, but I do say that they are a major component in the problems faced by producers who are short on credit and being forced to leave the land.

Bank loans, an absolute necessity in the farming business, tend to dry up just about as fast as unirrigated land.

One banker in the Pecos region summed up quite well that industry's attitude toward loans to farmers facing critical production cost situations, such as the current natural gas crisis, "We're not in risk banking. If we wanted to gamble, we'd go out and buy the farms and take the profits or losses ourselves."

The machinery sales across Texas are indicative of the number of farmers being forced off the land because they can no longer afford to produce, caught as they are in the cost-price squeeze. Production costs continue on a steady incline, but the market prices the farmer receives for his commodity does not keep up.

It is ironic that the suppliers of the nation's food and fiber are not guaranteed a return on their investment as are the suppliers of his input items. An earlier Federal Power Commission staff recommendation for new gas prices for interstate sales ranged from 46.2 cents per MCF to 63 cents per MCF. Those prices were based on current costs with allowance for a rate of return between 15 and 18 percent. Of course, recent FPC action has increased the prices even more dramatically.

If only the farmer could receive a parity of return for his investment, the problems faced by the agricultural segment of our society and the outlook for the future of farm families wouldn't seem quite so dim.

Even aside from the serious production consequences which will accrue if farmers are forced off the land, there will also result serious social deterioration as well in the small towns and cities of the state. There is no doubt that agriculturally related businesses will decline. Fertilizer, seed, implement, and other agricultural service suppliers will have a greatly reduced market. Decreased production will also affect such local businesses as cotton gins, grain elevators and supply and processing cooperatives. Reduction in business brought on by a reduction in the number of producers and production, will mean increased unemployment along the agricultural service establishments. Thus, an increased out-migration with all the accumulated social consequences.

With a decline in population and with the ad valorem property tax base decreasing because a change in the use of the land (Can you imagine the total tax impact of having land formerly valued at $200–300 an acre as cropland re-evaluated at $25 an acre as rangeland), with such declines, a serious situation will arise in which it will be very difficult to adjust community services to the needs and fiscal capabilities of the community.

I believe I speak for a large number of Texas producers when I urge, as did the delegates to the most recent National Farmers Union Convention held in New Orleans, Louisiana, March 14–18, 1976 that:

"At least until the concentrated corporate control in oil and gas is broken and sufficient competition is available to protect farmers and ranchers and other consumers of oil and gas products, Farmers Union (1) opposes any relaxation of the regulation of natural gas at the wellhead by the Federal Power Commission, and supports reform of natural gas regulation by the FPC to extend the FPC's authority intrastate; (2) supports extension of effective price controls on oil, gas and refined petroleum products."

Mr. Chairman, this concludes my statement, and I will attempt to answer any questions you or the other members of the subcommittee may have.

EXHIBIT A

The Impact of An Increasing Natural Gas Price On Irrigated Crop Production In The Trans-Pecos Region of Texas

Gary D. Condra
Area Economist-Management
Texas Agricultural Extension Service
Texas A&M University

Statement of the Problem

The Trans-Pecos region of Texas is a semi-arid region characterized by range livestock and irrigated crop production. The annual rainfall of 10-13" is not sufficient for dryland crop production, therefore water is pumped from ground water sources for irrigation. The primary fuel used in pumping ground water is natural gas because in the past this fuel has offered considerable cost advantages over other fuels. However, producers in this region are now faced with price increases for natural gas from past levels of $ .40 per thousand cubic feet (mcf) to $1.85/mcf. This represents an increase of over 450% in a production input which constitutes a major factor of production in irrigated crops. Rising energy costs are expected to increase production costs for fertilizer, herbicides, insecticides, and machinery operations, but the effect in the Trans-Pecos region will be most dramatic in terms of irrigation pumping costs. Translated into terms of water pumped, producers using $ .40/mcf natural gas incurred a cost of $2.12 per acre inch of water pumped compared to $3.40 per acre inch of water pumped at $1.85 per mcf for natural gas. To further illustrate the effect this price increase will have on production costs, consider some of the major crops grown in the region and typical water levels applied by irrigation as shown in Table 1.

Table 1. Increased Costs of Production Associated With Increase[a] In Natural Gas Price

Crop	Water applied typically (acre-inches)	Increased pumping cost (per acre-inch of water)	Increased production cost (per acre)
Alfalfa	72[b]	$1.28	$92.16
Barley	38	1.28	48.64
Cantaloupe	24	1.28	30.72
Cotton-Pima	44	1.28	56.32
Cotton-Upland	44	1.28	56.32
Sorghum-Forage	36	1.28	46.08
Sorghum-Grain	28	1.28	35.84
Wheat-Spring	48	1.28	61.44
Wheat-Winter	24	1.28	30.72

[a] $ .40/mcf to $1.85/mcf

[b] Under furrow irrigation. Sprinkler is typical for area but represents much higher total cost of pumping because of increased operating head and increased fixed costs. Application level under sprinkler would be about 48".

Sources: (1) Johnson, Phil, "Texas Crop Budgets - Projected 1975," Texas Agricultural Extension Service
(2) Condra, Gary D. "Texas Crop Budgets - Projected 1976," Texas Agricultural Extension Service

Analysis

The producer must receive a return for his production which covers all costs of production including land, labor, management and capital. Therefore, if returns are insufficient to cover all factors of production, the producer must cease to produce in the long run. Producers in the Trans-Pecos can and probably will continue to produce for some indefinite period in the short run without receiving returns which cover all costs of production because many factors such as land, management and equipment are not readily transferred to other enterprises. However, the fact remains that new management will not be attracted, equipment will not be replaced, and land (as crop producing land) will not be transferred if all costs are not covered. The ultimate outcome of this situation is cessation of irrigated crop production and reversion of land to less intensive uses. Table 2 shows the crop prices which will be required to cover all costs of production at a natural gas price of $1.85 per mcf.

These figures (Table 2) show that all crop enterprises except winter wheat are currently returning less than costs of production. It should be noted for many of the crops that returns to the producer under current crop prices will not cover all production costs even at a natural gas price of $ .40/mcf. For example, alfalfa, cantaloupe, cotton and grain sorghum would not produce sufficient returns at current crop prices to cover fixed costs such as land charges, depreciation, and return on investment. However within the possible range of price fluctuation these crops might break even--without the added burden of increasing natural gas prices. Winter wheat, while indicating a possible alternative for producers, has become much less attractive due to the uncertainty in recent months surrounding export market availability.

Table 2. Current and Breakeven Prices for Major Crops, Trans-Pecos Region of Texas, Natural Gas Price of $1.84/mcf

Crop	Unit	Current Price[a]	Break-even Price[b]
Alfalfa	ton	$55.00	$102.00
Barley	bu.	2.75	3.43
Cantaloupe	crate	6.50	7.03
Cotton-Fine	lb. lint	.70	1.16
Cotton-Upland	lb. lint	.50	.72
Sorghum-Forage	ton	12.00	13.20
Sorghum-Grain	cwt.	4.50	6.59
Wheat-Spring	bu.	4.00	5.07
Wheat-Winter	bu.	4.00	3.94

[a] estimated

[b] Price required to cover all costs of production including land, labor, capital (9%), and management (5% of gross receipts).

Sources: (1) Johnson, Phil, "Texas Crop Budgets - Projected 1975", Texas Agricultural Extension Service
(2) Condra, Gary D. "Texas Crop Budgets - Projected 1976", Texas Agricultural Extension Service

Vegetable crops other than cantaloupe are not shown because they are characterized by high market risk and the market for vegetables can not be shown at this time to be stable enough to support a massive increase in production. Based on the disparity between current crop prices and prices required to break-even it must be concluded that the majority of land in the Trans-Pecos region will not be held in production indefinitely under the current input and output price situation.

The Trans-Pecos region, while covering a vast area of Texas, has crop production basically concentrated in Culberson, Pecos and Reeves counties. These counties encompass 7.2 million acres in total with over 100,000 acres in irrigated crop production. Crop production is roughly divided with about 50,000 acres of cotton, 25,000 acres of small grains, 10,000 acres each of alfalfa and grain sorghum, and 5,000 acres of vegetables. Average regional production of these crops (excluding vegetables) are shown in Table 3.

Based on the estimates shown in Table 3, annual income to the region (Culberson, Pecos and Reeves counties) from irrigated crop production is in excess of 20 million dollars not including vegetables, fruits, nuts, and grazing of livestock on irrigated crops; and if irrigated crop production is discontinued, a large portion of this income will be lost to the region. Some land will remain in vegetable production and some will shift to pecan production, but the majority will return to extensive livestock operations which yield much less income per acre.

Income from irrigated crop production at 22.9 million dollars represents 39% of the annual 58.8 million dollars income to these three counties from agriculture. While income from irrigated crop production constitutes less than 10% of the total income to this area of 323 million dollars, it is

Table 3. Estimated Total Production[a] and Gross Receipts[b] For Major Crops, Trans Pecos Region of Texas

Item	Unit	Production	Price	Receipts
Alfalfa	tons	47,000	55.00	$ 2,585,000
Barley	bu.	553,000	2.75	1,520,750
Cotton-Pima	lb. lint	7,000,000	.70	4,900,000
Cotton-Upland	lb. lint	24,000,000	.50	12,000,000
Sorghum-Grain	cwt.	278,000	4.50	1,251,000
Wheat	bu.	177,000	4.00	708,000
		Total Receipts . . .		$22,964,750

[a] 1972-1974 average
[b] Based on current price estimates

Source: Production and acreage estimates were taken from selected bulletins of the Texas Crop and Livestock Reporting Service

important to note that there is a multiplier effect which must be considered in measuring total regional economic effects from agriculture. Producers buy inputs such as fertilizer and fuel from local suppliers and market products to local processors such as cotton ginners, grain elevators, etc. It is often difficult to isolate the exact geographical area within which the multiplier effect is operable. Therefore it is granted that the full multiplier effect may or may not be realized within the geographical limits of these three counties. Considering the multiplier effect the total impact of irrigated crop production on the regional economy is about 66 million dollars.

It has been stated that agricultural producers must cover all costs in order to continue production in the long run. It has also been shown that present technology, input prices, and crop prices will not provide this required return. There are few alternatives available to producers and none which is available to all producers. Prices of LP gas and diesel are already relatively higher than natural gas for pumping irrigation water. Electricity is being considered; however, uncertainty regarding investment costs for conversion of equipment and building new lines, combined with uncertainty regarding future price increases in electricity (based on natural gas generation), is definitely retarding any large conversion to this alternate fuel. In some areas the price of electricity is presently about $ .02 per kilowatt hour (kwh) which is relatively more economical than $1.85/mcf for natural gas. But in other areas the price has already risen to over $ .03 per kwh which is nearing the price of electricity ($ .035/kwh) which is equivalent to $1.85/mcf for natural gas. Therefore, at this time it can only be shown that electricity can provide lower cost irrigation water, but it can not be readily shown that it is economically feasible to develop irrigation using electricity in the Trans-Pecos or convert current wells to electricity. This situation will not change unless

there are some relatively stable estimates of price increases in electricity.

Some producers will likely shift production to vegetables and other highly intensive crops, however, this alternative is not available to all producers because of limitations in the market, management, and/or capital.

Other producers are attempting to reduce water requirements and cost by installing sprinklers, but this alternative does not appear to be economically feasible in the long run. The savings in water use are largely offset by increased fixed costs unless the system is used in such a manner as to maximize the number of acres covered. There are a few high level managers who will be able to accomplish this feat, but the much larger group of typical managers will not have the ability or capital to succeed with this alternative.

The majority of producers, if current conditions continue, will be forced out of production by the laws of economics. Their land will revert to range land with less than native productivity and the income from most of the irrigated production will be lost to the region. For most of these producers their entire life savings are invested in the land. Land is a residual claimant to profits and the value of agricultural land is based on its capacity to generate a return. When this return declines, the value of the land in agricultural production must eventually decline. Thus, not only will producers lose their means of making a living, but their savings will also be reduced to a much lower level. This factor alone is causing concern to many agricultural lenders in the Trans-Pecos because the collateral for many of their loans is subject to being diminished in this manner, leaving the lender in a very vulnerable position.

The three counties of the Trans-Pecos which have been discussed are populated by about 33,000 people. Many of these people work either directly in agriculture or in agriculturally related fields. It is questionable whether these communities can maintain this population base if income is reduced by 20%.

Certainly Reeves county will be much harder hit [illegible] dependence on irrigated agriculture. Over 60% of the Trans-Pecos irrigated acreage is located in Reeves county which represents about 14 million dollars in one. The total income of Reeves county is about 66 million dollars, and, disregarding the multiplier effect, irrigated crop production accounts for about 20% of the economic activity. There is little doubt that a 20% reduction in total income will have a marked effect on this community. Culberson county is not so highly dependent on irrigated crop production and thus should not suffer as greatly. Pecos county has a high proportion of income from minerals, but this situation can not be expected to continue indefinitely. Also the distribution of this income is not nearly as uniform as agricultural income.

Conclusions and Limitations

There are several important conclusions which may be drawn from this discussion. However, as with all economic studies there are certain limiting assumptions upon which these conclusions rest. In this study the assumptions which are most critical are those dealing with water pumping costs. These estimates are based on a typical well which is pumping about 800 gallons of water per minute from a depth of 350 feet with an assumed pump efficiency of 50%. Lift, yield, and pump efficiencies vary greatly from well to well, therefore estimates of pumping costs are more nearly an average cost than that of any particular producer or well. Those producers whose wells are not as deep, or whose pumps are more efficient, will incur less cost for water.

The following conclusions will be limited somewhat by a natural overestimation of water costs for some producers.

Current input prices, crop prices, and technology have also been assumed. Input prices are not likely to lessen, however there is an [illegible] technology to lower input and/or crop prices to rise. These factors must be [illegible] in viewing the conclusions.

The time period within which the conclusions will be valid is undetermined. Factors which will affect this variable are (1) financial strength of producers (2) age of operators and (3) present condition of equipment. Producers who are strong enough financially can withstand several years of net losses whereas most producers will be unable or unwilling to do so. Some producers have few alternatives for employment of their labor and management capability and therefore may be willing to accept a low return for their own time and capital. Many operators will not realize the full costs of production which they have incurred until equipment must be replaced. Thus, it is difficult to make any accurate estimates of the time involved in the completion of these processes. This unknown variable, however, should not affect the ultimate validity of these conclusions.

One conclusion which has already been drawn in the analysis is that the majority of the irrigated acreage in the Trans-Pecos region will not return in crop production if the price of natural gas remains at $1.35/mcf. There will be some production of traditional crops and some shifts to vegetables, fruits and nuts, but much of the land will return to range livestock production.

Land prices will likely [illegible] the pressure of diminishing values and decreased profitability. The profits of many producers will be eroded

and their life savings may be reduced by as much as 50 to 75% as their land sells for reseeding to native grasses.

Agriculturally related businesses will probably decline. Fertilizer, seed, implement and other input suppliers will face a greatly reduced market for their services. Lower levels of output will also eliminate the demand for much of the local processors such as cotton gins, grain elevators, etc. The reduction in the number of this type of firms coupled with the reduction in the number of farms will likely result in increased unemployment and/or migration of these people to other areas.

Declines in population and the ad valorem property tax base generally lead to a situation in which it is very difficult to adjust community services to both the need and capacity of the community. It is difficult to estimate the total effect on the communities involved which will result if the previous conclusions come to pass. However, it is readily apparent that the effects will definitely be detrimental to the standard of living for a sizeable portion of the population.

ST. LOUIS POST-DISPATCH April 13, 1976 EXHIBIT B

Cost Of Gas Is Drying Up Texas Farmland

By MIKE COCHRAN
Of the Associated Press

PECOS, Tex.

Mike Burkholder gazed across his flat, flaking farmland and said, "We may be finished. We may be going out of business. I guess there's no question about it."

Then, squinting into a dying sun, he added: "This situation may be unique at the moment. But it won't be for long . . . sooner or later it will equalize. And if people think food prices are high now, tell 'em to wait a year or two."

What Burkholder, 39, was talking about was a skyrocketing rise in the price of natural gas, which farmers here need to pump from the earth the water that irrigates their crops.

The farmers used to pay 30 to 40 cents for 1000 cubic feet (mcf) of natural gas. But last Dec. 31 their contracts expired and they say the new rate — $1.65 per mcf — outstripped overnight their ability to raise virtually any crop at a profit.

Asked where that left the farmer, one landowner had a quick reply: "Now who the hell's gonna grow food or fiber at a loss?"

By most estimates, less than 20,000 acres will be in production here this year, down about half from last year. And no one need point out the implications when $250-an-acre farmland is re-evaluated as pasture land on the tax rolls at $25 an acre.

Pecos, county seat of semiarid Reeves County, is likely to survive on the area's other assets: cattle, natural gas and oil.

But that still leaves the farmers who — in an area where rainfall averages only 11 to 12 inches annually — need the underground water to grow their cotton, canteloupes, grain and vegetables.

Bank loans, the life blood of the farm industry, also tend to dry up, much like the land when, uncultivated, its fertility is destroyed by salt deposits.

"We're not in risk banking," one banker said when asked about loans for farms. "If we wanted to gamble we'd go out and buy the farms and take the profits or losses ourselves."

"People have their life and their life's savings invested in this land and they're both going down the drain," said Burkholder. "It's a terrible situation."

And some here — Burkholder among them — feel this isolated community of nearly 15,000 has simply been the first hit by what may be a spreading problem.

". . . We're just the first of many farming areas going to go out of production because we can't afford to irrigate," Burkholder said. "Irrigation is what gives stability to food production in the United States."

What's ironic to Burkholder, a Reeves County farmer for 17 years, is that his own land contains natural gas.

"My farm lies atop one of the largest gas fields in the country, if not the world. And I do get a small royalty off it. But I have to buy it back at $1.85.

"At the same time, I got some friends in Arizona in the cotton business and they're buying gas about a dollar cheaper than I am. And, by golly, it's my gas!"

As Burkholder's comment indicates, farmers in other states do not pay as much for natural gas and not all natural gas sells at the wellhead to distributors for the almost $2 now being paid by the Delhi Gas Pipeline Corp., which serves farmers here.

But a Delhi spokesman says that, even with some gas coming from old wells at cheaper prices, the company can't make a "reasonable profit" by selling the gas to farmers at $1.85 per mcf.

The reason that gas is more costly for farmers here is that in other places it's sold on the federally regulated interstate market where the price is less than 60 cents per mcf. In Texas, on the unregulated intrastate market, the price is whatever the market will bear.

"Under the current system," grumbled McKinney, "it comes out of our area at $1.85 and goes to New York at 55 cents. If the guy on the East Coast had to pay the same price we do for gas, the money we get for our farm products might increase."

The Senate and House of Representatives have passed legislation that would deregulate some natural gas prices. But the bills are markedly different and observers do not expect any quick agreement that could affect prices — either interstate or intrastate.

Archie Scott, a cotton financier and banker, says the farmers here did not anticipate the rise in price and should have asked for longer contracts under the old, cheaper prices.

"They could have contracted for 50 years, but they thought 10 was enough and that gas might get cheaper. But I don't think gas is going to get any cheaper," Scott said.

"Gas production costs are tremendous," he said. "It cost anywhere from $2,000,000 to $3,000,000 to drill one of the deep wells out here.

"So you can't really blame the company. Delhi bought the system as a business proposition. If the farmers found gas on their land, they wouldn't want to sell it at 30 cents when they could get $2."

The Delhi spokesman said the company is trying to provide a service but added: ". . . It is not our obligation to provide their gas so they can make a profit in the farming business."

At the same time, Delhi is vigorously trying to sell its natural gas distribution system.

"I think the real solution is for the farmers to buy the system themselves," the spokesman said. "They're smart people and there's lots of gas out there. And we'll work with them and help them any way we can . . .

"The choice is this: do you want energy at a reasonable cost or do you not want any energy at all? That's what it's coming down to."

EXHIBIT C

PIONEER NATURAL GAS COMPANY

BOX 245
CROSBYTON,TX.
79322

PLEASE RETURN THIS PORTION OF BILL WITH PAYMENT

21 062 100 03340 0 IF PAID BY 5-08-74

METER READING PRESENT	METER READING PREVIOUS	M.C.F	AMOUNT	CODE
535	305	230	.00	

POOL BILL

125 7273

* EXCLUDES $.0922 COST OF GAS ADJUSTMENT EFFECTIVE BETWEEN RATE SCHEDULES PUBLISHED 4/15/73 AND 4/15/74. TARIFF AVAILABLE AT LOCAL OFFICE. GROSS .00 PAY TOTAL NET .00

COST OF GAS ADJUSTMENT PER MCF	STATE TAX	BILL NO	SERVICE TO
* .0382	.00	1116490	4-16-74

8:00 AM - 5:00 PM
MONDAY - FRIDAY

DETACH - KEEP FOR YOUR RECORD

PIONEER NATURAL GAS COMPANY

P.O. BOX 245
CROSBYTON,TEXAS 79322

MARTIN,LLOYD 258
%LLOYD MARTIN
%RT 1
CROSBYTON TEXAS
79322

7 S2 SUR19 WCRRCO A177
CROSBYTON,TEXAS

ACCOUNT NO. 21 062 100 03350 0 BILL NO. 8491

125 7273

M.C.F. USED 856 5-08-74

GROSS	NET
495.11	450.10

PIONEER NATURAL GAS COMPANY

BOX 245
CROSBYTON,TX.
79322

21 062 100 03340 0 IF PAID BY 6-08-74

METER READING PRESENT	METER READING PREVIOUS	M.C.F	AMOUNT	CODE
611	535	76	.00	MC

POOL BILL

BANK DRAFT

GROSS .00 PAY TOTAL NET .00

COST OF GAS ADJUSTMENT PER MCF	STATE TAX	BILL NO	SERVICE TO
.0506	.00	1574018	5-15-74

8:00 AM - 5:00 PM
MONDAY - FRIDAY

DETACH - KEEP FOR YOUR RECORD

PIONEER NATURAL GAS COMPANY

P.O. BOX 245
CROSBYTON,TEXAS 79322

MARTIN,LLOYD
%LLOYD MARTIN
%RT 1
CROSBYTON TEXAS
79322

7 S2 SUR19 WCRRCO A177
CROSBYTON,TEXAS

ACCOUNT NO. 21 062 100 03350 0 BILL NO. 4019

M.C.F. USED 301 6-08-74

GROSS	NET
211.83	192.57

PIONEER NATURAL GAS COMPANY

BOX 245
CROSBYTON, TX.
79322

PLEASE RETURN THIS PORTION OF BILL WITH PAYMENT

21 062 100 03340 0 — METER READING

IF PAID BY 9-08-74

PRESENT	PREVIOUS	M.C.F.	AMOUNT	CODE
231	69	162	.00	

POOL BILL

B A N K D R A F T 7

GROSS .00 — PAY TOTAL NET .00

COST OF GAS ADJUSTMENT PER MCF	STATE TAX	BILL NO	SERVICE TO
.1684	.00	2368185	8-16-74

8:00 AM - 5:00 PM
MONDAY - FRIDAY

2368185

PIONEER NATURAL GAS COMPANY

P.O. BOX 245
CROSBYTON, TEXAS 79322

DETACH - KEEP FOR YOUR RECORD

MARTIN, LLOYD
%LLOYD MARTIN
RT 1
CROSBYTON TEXAS
79322

S2 SUR19 WCRRCO A177
CROSBYTON, TEXAS

ACCOUNT NO.	BILL NO.
21 062 100 03350 0	8186

M.C.F. USED 498	9-08-74
GROSS 386.62	NET 351.47

PIONEER NATURAL GAS COMPANY

P.O. BOX 245
CROSBYTON, TEXAS 79322

ACCOUNT NUMBER
21062 10003400 MARTIN, LLOYD

IF PAID BY 8-08-75

METER READINGS

PRESENT	PREVIOUS	M.C.F.	AMOUNT
541	437	104	.00
		0	

POOL BILL

B A N K D R A F T 7

PLEASE RETURN THIS PORTION OF BILL WITH PAYMENT

TOTAL GROSS .00 — TOTAL NET .00

COST OF GAS ADJUSTMENT PER MCF	SALES TAX	BILL NO	METER READING PERIOD THRU
.1388	.00	1338600	7-17-75

PIONEER NATURAL GAS COMPANY

P.O. BOX 245
CROSBYTON, TEXAS ~~79322~~

CUSTOMER'S COPY

21 062 100 03350 0

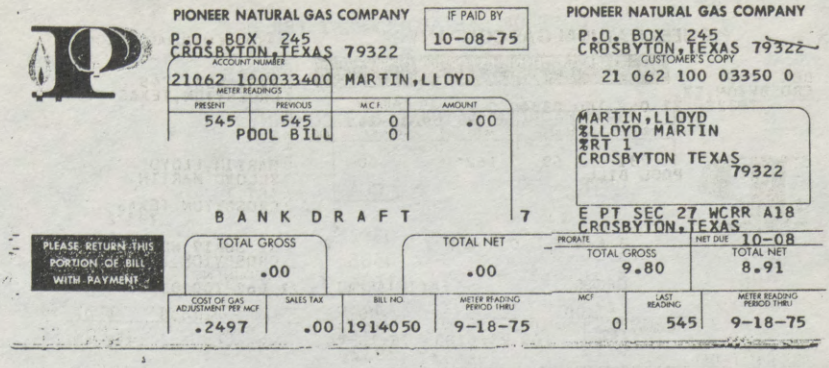
MARTIN, LLOYD
%LLOYD MARTIN
RT 1
CROSBYTON TEXAS
79322

E PT SEC 27 WCRR A18
CROSBYTON, TEXAS

PRORATE — NET DUE 08-08

TOTAL GROSS	TOTAL NET
371.24	337.49

MCF	LAST READING	METER READING PERIOD THRU
121	540	7-17-75



PIONEER NATURAL GAS COMPANY
P.O. BOX 245
CROSBYTON, TEXAS 79322
ACCOUNT NUMBER
21062 100033400 MARTIN, LLOYD

IF PAID BY
10-08-75

METER READINGS

PRESENT	PREVIOUS	M.C.F.	AMOUNT
545	545	0	.00
POOL BILL		0	

BANK DRAFT 7

PLEASE RETURN THIS PORTION OF BILL WITH PAYMENT

TOTAL GROSS	TOTAL NET
.00	.00

COST OF GAS ADJUSTMENT PER MCF	SALES TAX	BILL NO.	METER READING PERIOD THRU
.2497	.00	1914050	9-18-75

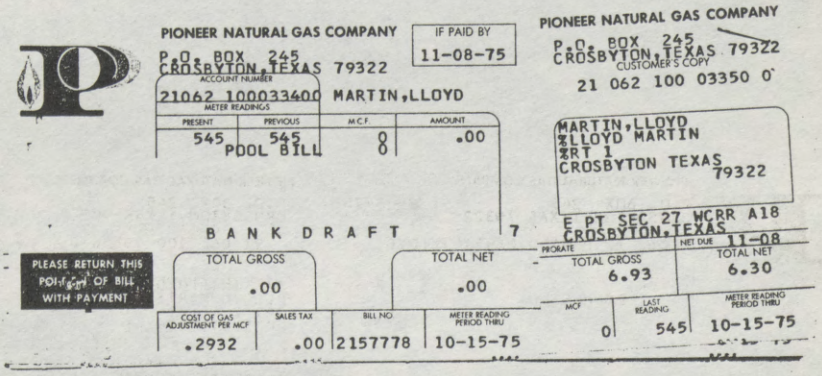
PIONEER NATURAL GAS COMPANY
P.O. BOX 245
CROSBYTON, TEXAS 79322
CUSTOMER'S COPY
21 062 100 03350 0

MARTIN, LLOYD
%LLOYD MARTIN
%RT 1
CROSBYTON TEXAS 79322

E PT SEC 27 WCRR A18
CROSBYTON, TEXAS

PRORATE	NET DUE 10-08
TOTAL GROSS 9.80	TOTAL NET 8.91

MCF	LAST READING	METER READING PERIOD THRU
0	545	9-18-75



PIONEER NATURAL GAS COMPANY
P.O. BOX 245
CROSBYTON, TEXAS 79322
ACCOUNT NUMBER
21062 100033400 MARTIN, LLOYD

IF PAID BY
11-08-75

METER READINGS

PRESENT	PREVIOUS	M.C.F.	AMOUNT
545	545	0	.00
POOL BILL		0	

BANK DRAFT 7

PLEASE RETURN THIS PORTION OF BILL WITH PAYMENT

TOTAL GROSS	TOTAL NET
.00	.00

COST OF GAS ADJUSTMENT PER MCF	SALES TAX	BILL NO.	METER READING PERIOD THRU
.2932	.00	2157778	10-15-75

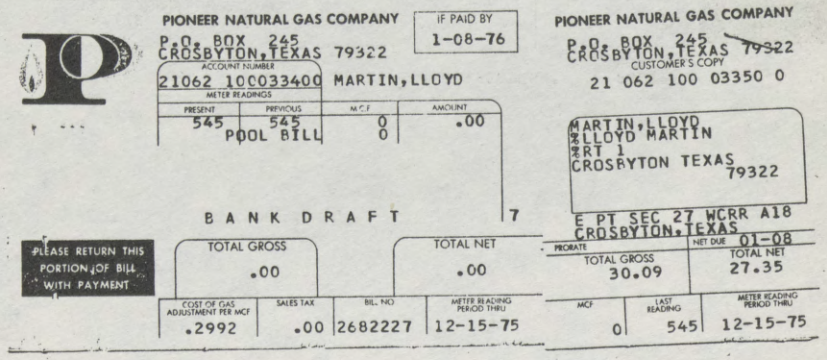
PIONEER NATURAL GAS COMPANY
P.O. BOX 245
CROSBYTON, TEXAS 79322
CUSTOMER'S COPY
21 062 100 03350 0

MARTIN, LLOYD
%LLOYD MARTIN
%RT 1
CROSBYTON TEXAS 79322

E PT SEC 27 WCRR A18
CROSBYTON, TEXAS

PRORATE	NET DUE 11-08
TOTAL GROSS 6.93	TOTAL NET 6.30

MCF	LAST READING	METER READING PERIOD THRU
0	545	10-15-75



PIONEER NATURAL GAS COMPANY
P.O. BOX 245
CROSBYTON, TEXAS 79322
ACCOUNT NUMBER
21062 100033400 MARTIN, LLOYD

IF PAID BY
1-08-76

METER READINGS

PRESENT	PREVIOUS	M.C.F.	AMOUNT
545	545	0	.00
POOL BILL		0	

BANK DRAFT 7

PLEASE RETURN THIS PORTION OF BILL WITH PAYMENT

TOTAL GROSS	TOTAL NET
.00	.00

COST OF GAS ADJUSTMENT PER MCF	SALES TAX	BILL NO.	METER READING PERIOD THRU
.2992	.00	2682227	12-15-75

PIONEER NATURAL GAS COMPANY
P.O. BOX 245
CROSBYTON, TEXAS 79322
CUSTOMER'S COPY
21 062 100 03350 0

MARTIN, LLOYD
%LLOYD MARTIN
%RT 1
CROSBYTON TEXAS 79322

E PT SEC 27 WCRR A18
CROSBYTON, TEXAS

PRORATE	NET DUE 01-08
TOTAL GROSS 30.09	TOTAL NET 27.35

MCF	LAST READING	METER READING PERIOD THRU
0	545	12-15-75

COST OF GAS ADJUSTMENT PER MCF

LLOYD MARTIN, CROSBYTON, TEXAS

PIONEER NATURAL GAS COMPANY

	DATE	CGA
April	4/74	.0382¢
May	5/74	.0506¢
Aug.	8/74	.1684¢
July	7/75	.1388¢
Sept.	9/75	.2497¢
Oct.	10/75	.2932¢
Dec.	12/75	.2992¢

EXHIBIT D

PNG 193 (R. 4-15-75)

PIONEER NATURAL GAS COMPANY

Rate No. 11

For Gas Service for Internal Combustion Engines on Irrigation Wells

Availability

This schedule is available to a consumer who will enter into a contract with the company and who requires gas service for fuel for an internal combustion engine on an irrigation well up to a specified maximum hourly connected load. Service hereunder is interruptible in conformity with Provision No. 3 of the Terms and Conditions.

Territory — West Texas Service Area

Rate The net monthly bills shall be computed at the following rate:

	For	1,000 cu. ft.	$2.4642 per month.
	For	2,000 cu. ft.	$2.8284 per month.
	Next	8,000 cu. ft. per month,	114.72 cents per M.cu.ft.
	Next	40,000 cu. ft. per month,	107.32 cents per M.cu.ft.
	Next	50,000 cu. ft. per month,	91.02 cents per M.cu.ft.
	Next	200,000 cu. ft. per month,	79.02 cents per M.cu.ft.
	Next	200,000 cu. ft. per month,	73.02 cents per M.cu.ft.
	Next	500,000 cu. ft. per month,	69.02 cents per M.cu.ft.
	All Over	1,000,000 cu. ft. per month,	68.02 cents per M.cu.ft.

The rates stated above shall be adjusted upward or downward each month by the amount the current monthly average cost of gas to the Company for its West Texas Transmission System is more than or less than 58.70¢ per Mcf at 14.65 psia (54.49¢ at 13.6 psia). Changes per Mcf in the average cost of gas shall be computed to the nearest one-hundredth cent (.01¢) above or below 54.49¢ and such changes shall be applied to each Mcf of gas billed hereunder.

Availability Charge:

$2.10 per month - net.

Prompt Payment Provision:

Net bill is payable on or before the 10th day following date of issuance of monthly bill. If bill is not paid within such time, 10% of total bill is added and becomes due.

The Company reserves the right to change the above rate at any time, on 30 days' notice, by publication or individual notice.

Effective Date:

Effective for all bills rendered on or after April 15, 1975.

PNG 193 (R-4-72)

PIONEER NATURAL GAS COMPANY
Schedule of Rates for Operation of Internal
Combustion Engines on Irrigation Wells

Rate No. 11

For Gas Service for Internal Combustion Engines on Irrigation Wells

Availability

This schedule is available to a consumer who will enter into a contract with the company and who requires gas service for fuel for an internal combustion engine on an irrigation well up to a specified maximum hourly connected load. Service hereunder is interruptible in conformity with Provision No. 3 of the Terms and Conditions.

Territory

West Texas Service Area

Rate

The net monthly bills shall be computed at the following rate:

	First	2,000 cu. ft. or less per month, $2.10
	Next	8,000 cu. ft. per month, 76.8 cents per M. cu. ft.;
	Next	40,000 cu. ft. per month, 69.4 cents per M. cu. ft.;
	Next	50,000 cu. ft. per month, 53.1 cents per M. cu. ft.;
	Next	200,000 cu. ft. per month, 41.1 cents per M. cu. ft.;
	Next	200,000 cu. ft. per month, 35.1 cents per M. cu. ft.;
	Next	500,000 cu. ft. per month, 31.1 cents per M. cu. ft.;
	All Over	1,000,000 cu. ft. per month, 30.1 cents per M. cu. ft.

Availability Charge:

$2.10 per month - net. (Includes consumption of 2,000 cu. ft. or less.) The availability charge will be made each month even though service may be temporarily discontinued at the consumer's request. During monthly billing periods when gas is delivered, the availability charge will be applied to the first 2,000 cu. ft. or less delivered.

Prompt Payment Provision:

Net bill is payable on or before the 10th day following date of issuance of monthly bill. If bill is not paid within such time, 10% of total bill is added and becomes due.

The Company reserves the right to change the above rate at any time, on 30 days' notice, by publication or individual notice.

The above rate is subject to adjustment each April 15th for changes in the average cost of gas in the same manner as the West Texas System General Service Rate. Notice of any such adjustment shall be given prior to April 15th.

Effective Date:

Effective as to all meter reading periods beginning on or after April 15, 1972.

EXHIBIT E

/ 20 Hz [illegible]

[illegible] 2000 KwH @ 2.4 /Kw [illegible]
[illegible] 2000 KwH @ 1.6 /Kw 44.80
[illegible]

[illegible] 102.17
[illegible]

[illegible] 2000 KwH @ 2.5 200.00
1973 2000 KwH @ 1.5 42.00
242.00

[illegible] 5.62
April 1973 247.62 [illegible]

[illegible]

EXHIBIT F

Lighthouse
ELECTRIC COOPERATIVE, INC.
FLOYDADA, TEXAS

DUE FIRST OF EACH MONTH

METER READING		K W H USED	NET	FUEL COST (INCLUDED IN NET AMOUNT)	TAX	ARREARS DR – ● CR – CR	TOTAL DUE
PREVIOUS	PRESENT						
4,310	7,750	3,440	66.80	1.26	2.67	.00 ●	
				JUN 13 '73			69.47 *

If Payment is not made on or before the 20th of the month, contact will be made by Collection Dept.
A Collection Charge of $5.00 will be added.

CODES:

CR – Credit-CR
DR – Debit-●
1 – Farm & Home
2 – Irrigation Wells
3 – Small Commercial
4 – Large Commercial
5 – Schools & Churches

Failure To Receive This Bill Does Not Insure Discount

Lighthouse
ELECTRIC COOPERATIVE, INC.
FLOYDADA, TEXAS

PLEASE BRING THIS BILL WITH YOU
TO AVOID DELAY

DUE FIRST OF EACH MONTH

METER READING		K W H USED	NET	FUEL COST (INCLUDED IN NET AMOUNT)	TAX	ARREARS DR – ● CR – CR	TOTAL DUE
PREVIOUS	PRESENT						
69,820	75,920	6,100	112.04	2.24		.00 ●	
				JUL 16 '73			112.04 *

If Payment is not made on or before the 20th of the month, contact will be made by Collection Dept.
A Collection Charge of $5.00 will be added.

CODES:

CR – Credit-CR
DR – Debit-●
1 – Farm & Home
2 – Irrigation Wells
3 – Small Commercial
4 – Large Commercial
5 – Schools & Churches

Failure To Receive This Bill Does Not Insure Discount

Lighthouse Electric Coop. Inc.
P. O. Box 580
Floydada, Texas 79235

5082457606 01 — ACCOUNT ID NUMBER
1723 64 9 — MAP REFERENCE NO.

PLEASE DETACH THIS STUB, AND RETURN WITH PAYMENT.

LLOYD MARTIN
RT 1
CROSBYTON TX
79322

SERVICE TO — ACCOUNT ID NUMBER — LOC #
N 42031474 5082457606 1

DESCRIPTION OF CHARGE	CODES	AMOUNT
CREDIT BALANCE	04	- 7133
ENERGY USED		9738
FUEL COST		1169

OWNED BY THOSE WE SERVE

4 4 100 9395 8616
METER NUMBER
28119342 7790
KW USED
42 031474
306902 BANK DRAFTED AS PREVIOUSLY ARRANGED

AMOUNT NOW DUE
3774
DATE DUE
04/20/74

4 28119342 3774
METER NUMBER AMOUNT DUE
15 HP
SERVICE ADDRESS

Lighthouse Electric Cooperative, Inc.
P.O. Box 580
Floydada, Texas 79235

Lighthouse Electric Coop. Inc.
P. O. Box 580
Floydada, Texas 79235

5082457606 01 — ACCOUNT ID NUMBER
1723 64 9 — MAP REFERENCE NO.

PLEASE DETACH THIS STUB, AND RETURN WITH PAYMENT.

LLOYD MARTIN
RT 1
CROSBYTON TX
79322

SERVICE TO — ACCOUNT ID NUMBER — LOC #
N 41051475 5082457606 1

DESCRIPTION OF CHARGE	CODES	AMOUNT
CREDIT BALANCE	06	7503
ENERGY USED		9048
FUEL COST		2615

OWNED BY THOSE WE SERVE

4 4 100 2148 1632
METER NUMBER
28119342 5300
KW USED
41 051475
170119 BANK DRAFTED AS PREVIOUSLY ARRANGED

AMOUNT NOW DUE
4760
DATE DUE
06/10/75

4 28119342 4760
METER NUMBER AMOUNT DUE
15 HP
SERVICE ADDRESS

Lighthouse Electric Cooperative, Inc.
P.O. Box 580
Floydada, Texas 79235

Lighthouse Electric Coop. Inc.
P. O. Box 580
Floydada, Texas 79235

5082457606 01 — ACCOUNT ID NUMBER
1723 64 9 — MAP REFERENCE NO.

PLEASE DETACH THIS STUB, AND RETURN WITH PAYMENT.

LLOYD MARTIN
RT 1
CROSBYTON TX
79322

SERVICE TO — ACCOUNT ID NUMBER — LOC #
N 41071575 5082457606 1

DESCRIPTION OF CHARGE	CODES	AMOUNT
ENERGY USED	08	5598
FUEL COST		1789

OWNED BY THOSE WE SERVE

4 4 100 2592 2281
METER NUMBER
28119342 3110
KW USED
41 071575
314203 BANK DRAFTED AS PREVIOUSLY ARRANGED

AMOUNT NOW DUE
7387
DATE DUE
08/13/75

4 28119342 7387
METER NUMBER AMOUNT DUE
15 HP
SERVICE ADDRESS

EXHIBIT G

MOORE + MOORE FARM A
ROUTE 4 FLOYDADA TEXAS 79235

IDENTIFICATION NUMBER - 002017800

****
* PRODUCTION *
* SUMMARY *
* DEC 1972 *
****

AGRO-SYSTEMS
COPYRIGHT 1967 BY GERS INC.

ITEM	MONTH	YEAR	MO DIF	YR DIF	BEG BAL	ITEM	MONTH	YEAR	CUR BAL
**********	SOLD	**********		INVESTMNT		**********	PURCHASED	**********	
CAT C	0.00	11253.41	0.00	10683.41	0.00	CAT C	0.00	570.00	-10683.41
ENG 292	0.00	0.00	0.00	-803.98	0.00	ENG 292	0.00	803.98	803.98
PIPE	0.00	0.00	0.00	-696.32	0.00	PIPE	0.00	696.32	696.32
ROLO 28	0.00	0.00	0.00	-1520.00	0.00	ROLO 28	0.00	1520.00	1520.00
SHREDDER	0.00	0.00	0.00	-250.00	0.00	SHREDDER	0.00	250.00	250.00
SHRED 4	0.00	0.00	0.00	-1535.00	0.00	SHRED 4	0.00	1535.00	1535.00
STACKER	0.00	0.00	0.00	-1681.50	0.00	STACKER	0.00	1681.50	1681.50
15 ONEWAY	0.00	0.00	0.00	-330.00	0.00	15 ONEWAY	0.00	330.00	330.00
282 STRIP	0.00	0.00	0.00	-6200.00	0.00	282 STRIP	0.00	6200.00	6200.00
71PLANT	0.00	0.00	0.00	-329.48	0.00	71PLANT	0.00	329.48	329.48
*TOTALS	0.00*	11253.41*	0.00	-2662.87	0.00		0.00*	13916.28*	2662.87

NOTE - BEFORE CALCULATING THE CUR BAL THE COMPUTER AUTOMATICALLY CHANGES THE ABOVE + OR - SIGNS OF MONTHLY AND YEARLY DIFFERENCES

**********	BORROWED	**********		LOAN		**********	REPAID	**********	
LOAN FNB	8500.00	67000.00	-11438.11	-26845.24	0.00	LOAN FNB	19938.11	93845.24	-26845.24
LOAN VM	0.00	0.00	0.00	-1135.39	0.00	LOAN VM	0.00	1135.39	-1135.39
*TOTALS	8500.00*	67000.00*	-11438.11	-27980.63	0.00		19938.11*	94980.63*	-27980.63

NOTE - A NEGATIVE CURRENT BALANCE INDICATES MONEY OWED TO YOU. A POSITIVE CURRENT BALANCE INDICATES MONEY YOU OWE.

**********	INCOME	**********		FAMILY		**********	EXPENSES	**********
*TOTALS	0.00*	0.00*	0.00*	0.00*	0.00*	*TOTALS	0.00*	0.00*

MOORE + MOORE FM ACT 002017803
BOX 55 DOUGHERTY TEXAS 79231

* MASTER PROD PROFIT OR LOSS *
* FIN1 1973 *

INCOME							EXPENSES				
ITEM	MONTH	YEAR	PER ACRE	PCT	MONTHLY DIFFERENCE	YEARLY DIFFERENCE	ITEM	MONTH	YEAR	PER ACRE	PCT
C INS	0.00	6373.50	2.33	5.33			B CHEM	0.00	102.40	0.04	0.11
C SEED	0.00	455.76	0.17	0.38			C CHEM	0.00	1701.70	0.62	1.88
COTTON 72	0.00	23855.87	8.74	19.94			C FERT	0.00	348.10	0.13	0.38
DIV	0.00	251.22	0.09	0.21			C HOE	0.00	1238.25	0.45	1.37
GOVT PMT	0.00	20123.12	7.37	16.82			C INS	126.00	126.00	0.05	0.14
M GRAIN	0.00	14662.50	5.37	12.25			C SEED	0.00	4206.60	1.54	4.65
W GRAIN	0.00	53938.39	19.76	45.08			C SPRAY	0.00	604.00	0.22	0.67
							CAT TRIP	0.00	5.67	0.00	0.01
							CS FEED	0.00	5360.64	1.96	5.92
							CS HAY	0.00	692.50	0.25	0.77
							CS VS	0.00	55.03	0.02	0.06
							DUES	0.00	25.00	0.01	0.03
							FUEL B	0.00	687.62	0.25	0.76
							FUEL D	0.00	2036.23	0.75	2.25
							FUEL G	0.00	1894.36	0.69	2.09
							FUEL IR	0.00	2033.25	0.74	2.25
							FUEL O	0.00	513.20	0.19	0.57
							HAULING	0.00	150.00	0.05	0.17
							HEDGE	0.00	3500.00	1.28	3.87
							INS	0.00	87.00	0.03	0.10
							INS F	0.00	560.00	0.21	0.62
							INS P	0.00	186.00	0.07	0.21
							INT	0.00	2068.38	0.76	2.29
							LBR-LABOR	0.00	20852.58	7.64	23.05
							LEGAL	0.00	507.50	0.19	0.56
							M CHEM	0.00	719.47	0.26	0.80
							M FERT	0.00	1201.70	0.44	1.33
							M SEED	0.00	1245.40	0.46	1.38
							M SPRAY	0.00	1274.75	0.47	1.41
							MACH HI	0.00	16555.35	6.06	18.30
							MARGIN	0.00	1000.00	0.37	1.11
							OFF SUP	0.00	41.48	0.02	0.05
							PETTY CSH	0.00	240.00	0.09	0.27
							RENT	0.00	120.00	0.04	0.13
							REPAIRS	0.00	2322.61	0.85	2.57
							SO SEED	0.00	791.50	0.29	0.87
							SUB	0.00	28.00	0.01	0.03
							SUP	0.00	4484.44	1.64	4.96
							TAX S	0.00	55.79	0.02	0.06
							TAXES	0.00	238.64	0.09	0.26
							TAXES T	0.00	15.94	0.01	0.02
							UTIL	0.00	638.76	0.23	0.71
							WALT RT	0.00	13.00	0.00	0.01
							W CHEM	0.00	131.81	0.05	0.15
							W FERT	0.00	1294.03	0.47	1.43
							W INS	0.00	4903.64	1.80	5.42
							W SEED	0.00	1018.04	0.37	1.13
							W SPRAY	0.00	2047.58	0.75	2.26
							72 TAX SS	0.00	560.56	0.21	0.62
*TOTALS	0.00	119660.36	43.83	100.00	-126.00	29175.86	*TOTALS	126.00	90484.50	33.14	100.00

MOORE&MOORE FM ACCT 012017804
BOX 55 DOUGHERTY TEXAS 79231

****
* MASTER PROD PROFIT OR LOSS *
* DEC 1974 *
****

INCOME

ITEM	MONTH	YEAR	PER ACRE	PCT	MONTHLY PROFIT	YEARLY PROFIT
COTTON 73	0.00	33241.57	15.11	12.34		
COTTON 74	9896.36	9896.36	4.50	3.67		
CS INS	0.00	16206.43	7.37	6.01		
CS STEERS	0.00	98002.47	44.55	36.37		
CUS CUT	948.52	1504.52	0.68	0.56		
CUST STRP	0.00	2212.69	1.01	0.82		
HAY MM	0.00	872.00	0.40	0.32		
M GRAIN	4847.60	68827.24	31.29	25.54		
MACH HI	0.00	2582.90	1.17	0.96		
SOY B	0.00	4851.00	2.21	1.80		
W GRAIN	0.00	30251.80	13.75	11.23		
W PAST	1010.55	1010.55	0.46	0.38		
*TOTALS	16703.01	269459.51	122.48	100.00	-58149.03	46144.40

2062.59 Pat. Adv.

271,522.10

EXPENSES

ITEM	MONTH	YEAR	PER ACRE	PCT
AD NK Adv	0.00	107.27	0.05	0.05
C CHEM	0.00	2960.00	1.35	1.33
C FERT	0.00	3771.74	1.71	1.69
C HOE	0.00	1335.45	0.61	0.60
C PAST	0.00	31.91	0.01	0.01
C SEED	0.00	2000.29	0.91	0.90
C SPRAY	0.00	2014.00	0.92	0.90
CAT C	0.00	50.00	0.02	0.02
CAT CF Feed	0.00	100.00	0.05	0.04
CS Purchase	62590.38	64354.38	29.25	28.82
CS FEED	5217.51	52433.90	23.83	23.48
CS HAUL	0.00	273.60	0.12	0.12
CS HAY	0.00	47.60	0.02	0.02
CS PAST	0.00	1520.25	0.69	0.68
CS VET	0.00	578.75	0.26	0.26
DUES	0.00	25.00	0.01	0.01
FUEL B	0.00	1488.65	0.68	0.67
FUEL D	234.78	5081.77	2.31	2.28
FUEL G	323.16	2880.11	1.31	1.29
FUEL IR	6.84	5781.40	2.63	2.59
FUEL D	0.00	247.37	0.11	0.11
INS	0.00	966.55	0.44	0.43
INS CB	0.00	106.00	0.05	0.05
INT	171.05	8969.75	4.08	4.02
LBR-LABOR	5195.50	28371.70	12.90	12.70
LEGAL	35.00	610.88	0.28	0.27
M CHEM	0.00	575.00	0.26	0.26
M FERT	0.00	5342.85	2.43	2.39
M SEED	0.00	827.05	0.38	0.37
M SPRAY	0.00	732.00	0.33	0.33
MACH HI	0.00	3430.85	1.56	1.54
MACH HIRE	526.16	526.16	0.24	0.24
PETTY CSH	0.00	75.00	0.03	0.03
REPAIRS	131.39	7543.49	3.43	3.38
SUB - Due	0.00	28.00	0.01	0.01
SUP	341.36	5971.34	2.71	2.67
TAX State	0.00	125.74	0.06	0.06
TAX TAG	0.00	37.14	0.02	0.02
TAXES	0.00	331.22	0.15	0.15
TRIP FW - Bus	0.00	306.31	0.14	0.14
UTIL	78.91	577.35	0.26	0.26
VALT RT rental	0.00	12.00	0.01	0.01
W FERT	0.00	4203.84	1.91	1.88
W INS	0.00	3083.18	1.40	1.38
W SEED	0.00	2363.20	1.07	1.06
73 TAX SS	0.00	1115.07	0.51	0.50
*TOTALS	74852.04	223315.11	101.50	100.00

80

MOORE & MOORE FM ACC 070017805
BX 55 DOUGHERTY TX 79231

****
* MASTER PROD PROFIT OR LOSS *
* FIN1 1975 *
****

********** INCOME **********

ITEM	MONTH	YEAR	PER ACRE	PCT	MONTHLY PROFIT	YEARLY PROFIT
C PAST	0.00	892.80	0.41	0.67		
C SEED	0.00	5943.31	2.70	4.43		
CAT PAST	0.00	939.49	0.43	0.70		
CAT S H	0.00	1465.00	0.67	1.09		
COTTON 74	0.00	29779.80	13.54	22.19		
GOVT PAY	0.00	15961.97	7.26	11.89		
LEASE	0.00	150.00	0.07	0.11		
MACH HI	0.00	800.00	0.36	0.60		
75 WHEAT	0.00	78270.30	35.58	58.32		

2 2
2.77
6.45
2.78
4.02
14.02

********** EXPENSES **********

ITEM	MONTH	YEAR	PER ACRE	PCT
B CHEM	0.00	1187.50	0.54	0.99
C CHEM	0.00	2352.92	1.07	1.97
C HOE	0.00	2100.01	0.95	1.76
C INS	0.00	3307.50	1.50	2.77
C SEED	0.00	2780.45	1.26	2.33
C SPRAY	0.00	330.00	0.15	0.28
CAT PAST	0.00	1919.00	0.87	1.61
COMM	0.00	668.09	0.30	0.56
DUES	0.00	135.00	0.06	0.11
F INS	0.00	219.68	0.10	0.18
FICWH	0.00	815.57	0.37	0.68
FUEL B	0.00	802.79	0.36	0.67
FUEL D	0.00	6379.03	2.90	5.34
FUEL G	0.00	2281.66	1.04	1.91
FUEL IR	0.00	6666.08	3.03	5.58
FUEL O	0.00	588.57	0.27	0.49
G LINE	0.00	900.00	0.41	0.75
HAND T	0.00	68.36	0.03	0.06
INS	0.00	641.36	0.29	0.54
INS FL	0.00	294.00	0.13	0.25
INS IR	0.00	75.00	0.03	0.06
INS P	0.00	159.20	0.07	0.13
INSCL	0.00	54.00	0.02	0.05
INT	1.00	4375.61	1.99	3.67
LBR-LABOR	22.50	28575.31	12.99	23.94
LEASE	0.00	31.50	0.01	0.03
LEGAL	0.00	655.00	0.30	0.55
M CHEM	0.00	1315.00	0.60	1.10
M FERT	0.00	7694.18	3.50	6.45
M SEED	0.00	819.10	0.37	0.69
M SPRAY	0.00	971.39	0.44	0.81
MACH HI	0.00	11662.25	5.30	9.77
MISC	0.00	10.00	0.00	0.01
RENT	0.00	52.50	0.02	0.04
RENTAL	0.00	36.66	0.02	0.03
REPAIRS	0.00	5032.45	2.29	4.22
REPAIRS C	0.00	264.74	0.12	0.22
RFCL	0.00	114.00	0.05	0.10
SUB	0.00	24.50	0.01	0.02
SUP	3.78	6806.98	3.09	5.70
TAX IRS	0.00	30.14	0.01	0.03
TAX SCH	0.00	79.69	0.04	0.07
TAX SON	0.00	597.33	0.27	0.50
TAX SS 74	0.00	830.88	0.38	0.70
TAX TAG	0.00	10.42	0.00	0.01
TAXES T	0.00	148.21	0.07	0.12
TAXES TTG	0.00	91.12	0.04	0.08
TRIP FW	0.00	495.00	0.23	0.41
TRIP SA	0.00	295.70	0.13	0.25
UTIL	0.00	673.60	0.31	0.56
VA RENT	0.00	12.00	0.01	0.01

MOORE & MOORE FM ACC 070017805
BX 55 DOUGHERTY TX 79231

****
* MASTER PROD PROFIT OR LOSS *
* FIN1 1975 *
****

ITEM	MONTH	YEAR	PER ACRE	PCT	MONTHLY PROFIT	YEARLY PROFIT
********** INCOME **********						
*TOTALS	0.00	134202.67	61.00	100.00	-27.28	14833.04

0.00 MONTHLY INCOME PER $1.00 EXPENSE
1.12 YEARLY INCOME PER $1.00 EXPENSE

ITEM	MONTH	YEAR	PER ACRE	PCT
********** EXPENSES **********				
W FERT	0.00	3246.42	1.48	2.72
W INS	0.00	2456.25	1.12	2.06
W SEED	0.00	4745.60	2.16	3.98
W SPRAY	0.00	2490.33	1.13	2.09
*TOTALS	27.28	119369.63	54.26	100.00

UNIT ACRE | MO CHANGE 00.00 | TOTAL UNITS 2200.00

		TOTAL DOLLARS MONTH	TOTAL DOLLARS YEAR	PER ACRE MONTH	PER ACRE YEAR
INCOME		0.00	134202.67	0.00	61.00
EXPENSES		-27.28	-119369.63	-0.01	-54.26
CASH PROFIT OR LOSS		-27.28**	14833.04**	-0.01**	6.74**
BEGINNING BALANCE		0.00	0.00	0.00	0.00
DEMAND ON PROFITS-DEPRECIATION YEAR TOTAL	00	0.00	0.00	0.00	0.00
PROFIT OR LOSS		-27.28**	14833.04**	-0.01**	6.74**
DEMAND ON PROFITS-FAMILY PYMT FOR LABOR-MGMT		0.00	0.00	0.00	0.00
AMT REMAINING AFTER PROD., FAMILY+DEPREC. ARE PAID		-27.28**	14833.04**	-0.01**	6.74**
TOTAL EXPENSES-PRODUCTION, FAMILY, + DEPRECIATION		-27.28**	-119369.63**	-0.01**	-54.26**

EXHIBIT H

CAPROCK CHEMICAL CO

335 AYRSHIRE 675-2379
CROSBYTON, TEXAS 79322

NO.	DESCRIPTION	PRICE	AMOUNT
3600 #	NH_3 on feed	.375	135 00
	10% discount 13.50		
Lloyd	1/3 - 90 00		
Estate	1/3 - 45 00		
	Thanks		

DATE 2-16-72

SOLD TO Lloyd Martin Estate

6252

GUAR. ANALYSIS		
% N	% AVAIL P_2O_5	% SOL K_2O
82		

CAPROCK CHEMICAL CO.

335 AYRSHIRE 675-2379
CROSBYTON, TEXAS 79322

DESCRIPTION	PRICE	AMOUNT
1551 L.H. in my pp		
3620 # 5		
5610	3.75	210 00
Thank you		

DATE 6-8-73

SOLD TO Lloyd Martin

8654

GUAR. ANALYSIS		
% N	% AVAIL P_2O_5	% SOL K_2O

CAPROCK CHEMICAL CO.

335 AYRSHIRE 675-2379
CROSBYTON, TEXAS 79322

NO.	DESCRIPTION	PRICE	AMOUNT
1990	NH3 — 4 yrs		
4720	" Jake 2		
2960	" — 19		
1670		4	386 80
Paid	1/3 - $128.94		
Owed	2/3 - $257.86		

DATE 9-17-73

SOLD TO Lloyd Minter
~~Coleman Minter~~
Collision Trust-Dixie

9097

GUAR. ANALYSIS			
% N	% AVAIL P_2O_5	% SOL. K_2O	
82			

CAPROCK CHEMICAL CO.

335 AYRSHIRE 675-2379
CROSBYTON, TEXAS 79322

NO.	DESCRIPTION	PRICE	AMOUNT
1990	4 mi Nig		
360	# —		
2350		4¢	94 00

DATE 9-26-73

SOLD TO Lloyd Minter

9123

GUAR. ANALYSIS			
% N	% AVAIL P_2O_5	% SOL. K_2O	
82			

CAPROCK CHEMICAL CO.

335 AYRSHIRE 675-2379
CROSBYTON, TEXAS 79322

NO.	DESCRIPTION	PRICE	AMOUNT
26c	in app		
4320	NH3		
4640	NH3	10	464.00
	SPUR		

DATE 5-29-74

SOLD TO Lloyd Morton

10291

GUAR. ANALYSIS		
% N	% AVAIL P_2O_5	% SOL K_2O
82		

CAPROCK CHEMICAL CO.

335 AYRSHIRE 675-2379
CROSBYTON, TEXAS 79322

NO.	DESCRIPTION	PRICE	AMOUNT
12,32[illegible]	# 16-20-8-6		
1248[illegible]	—		
1200			
1220			
1400			
6122	# 16-20-8-6	10¢	612.2

DATE 1-25

SOLD TO Lloyd Morton

10662

GUAR. ANALYSIS		
% N	% AVAIL P_2O_5	% SOL K_2O
16	20	8

CAPROCK CHEMICAL CO.

335 AYRSHIRE 675-2379
CROSBYTON, TEXAS 79322

NO.	DESCRIPTION	PRICE	AMOUNT
10960	# 16-20-0		
9770	# 16-20-0		
8340	# 16-20-0		
9650	# 16-20-0		
11696	16-20-0		
13400	16-20-0		
3210		8¢	5056.80
	Application		316.00
			# 5,372.80

DATE 12-17-75

SOLD TO Lloyd Masters

11852

GUAR. ANALYSIS		
% N	% AVAIL P_2O_5	% SOL K_2O
16	20	0

CAPROCK CHEMICAL CO.

335 AYRSHIRE 675-2379
CROSBYTON, TEXAS 79322

NO.	DESCRIPTION	PRICE	AMOUNT
320	# Mtg in Nig		
4790	# " " 33		
650	# " " 18		
5760		9¢	$ 53[illegible]

DATE 1-14-76

SOLD TO Lloyd Masters

11940

GUAR. ANALYSIS		
% N	% AVAIL P_2O_5	% SOL K_2O
82		

Anderson Grain Corporation

Main Office
P. O. BOX 1238 PHONE 894-4984
LEVELLAND, TEXAS 79336

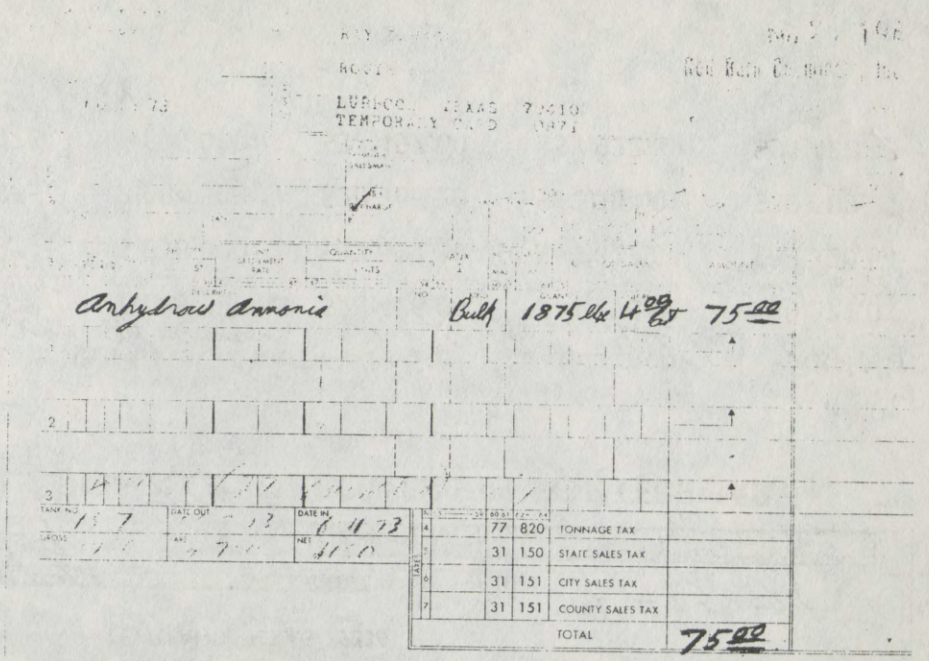
Name Ray Savage Date 2-15-75
Address RT 5 Box 249 Customers Order No.
City Lubbock, Tex State 79407

Sold By	Cash	C O D	CHARGE ✓	ON ACCT	MDSE RETD.	PAID OUT

All claims and returned goods MUST be accompanied by this bill.

QUANTITY	DESCRIPTION		UNIT PRICE	AMOUNT
4,340 lb	Anhyd Amm	82-0-0	14 2/cwt	615.40

87


LUBBOC TEXAS 79410
TEMPORARILY CLOSED
Anhydrous Ammonia
Bulk 1875 lbs 4.00 CT 75.00
2
3
TANK NO. 157
GATE OUT
DATE IN 6 11 73
GROSS
NET 410
77 820 TONNAGE TAX
31 150 STATE SALES TAX
31 151 CITY SALES TAX
31 151 COUNTY SALES TAX
TOTAL 75.00

BAILEY COUNTY ELECTRIC EDITION

EXHIBIT J

TEXAS CO-OP POWER

PUBLISHED BY YOUR HOME-OWNED ELECTRIC COOPERATIVE

MARCH • 1976

YOUR COOPERATIVE'S POWER BILL FOR FEBRUARY

Date	KWH Purchased	KWH Cost	Fuel Cost Adjustment	Total
February, 1973	5,085,000	$28,476.00	$ 1,795.01	$30,271.01
February, 1974	5,838,000	$32,692.80	$ 5,627.84	$38,320.64
February, 1975	3,604,500	$20,185.20	$12,504.01	$32,689.21
February, 1976	6,696,000	$37,497.60	$53,922.89	$91,420.49

68

EXHIBIT K

FUEL COST AS A PERCENT OF TOTAL BILL

FEBRUARY 1973	5%
FEBRUARY 1974	14%
FEBRUARY 1975	38%
FEBRUARY 1976	58%

EXHIBIT L

FUEL ADJUSTMENT COST AS A PERCENT OF KWH COST

FEBRUARY 1973	8%
FEBRUARY 1974	17%
FEBRUARY 1975	61%
FEBRUARY 1976	143%

EXHIBIT M

Fayette Electric Co-operative, Inc.

P.O. DRAWER 490
LAGRANGE, TEXAS 78945
March 25, 1976

Mr. Jay Naman, President
Texas Farmers Union
800 Lake Air Dr.
Waco, Texas 76710

Dear Mr. Naman:

Fayette Electric Cooperative is a member-owned electric utility serving the rural areas of Fayette and six adjoining Counties. The majority of its consumers are farmers, ranchers and dairymen who depend upon electric energy for water, sanitation and other human needs including the production and processing of food and fiber.

We are a distribution Cooperative and purchase our wholesale power, under contract, from the Lower Colorado River Authority which is a State Agency. Up until September 27, 1973 our wholesale cost of power was based on a stable and reasonable rate which afforded retail rates that were within the financial budgets of our consumer-owners. However, on that date this harmonious condition changed and the cause of the change was due to the Texas Railroad Commission issuing their Interlocutory Order, Gas Utilities Docket #500. In effect that order set aside the contract between the Lower Colorado River Authority and its natural gas supplier, Coastal States Gas Producing Company, and allowed Coastal States to increase its gas price to whatever the cost might be during any month of operation. The order was a temporary measure to assure a sufficient gas supply during the winter of 1973 and after that time a final order was to be issued to resolve the matter. Over two and a half years have lapsed since the date the order was issued and the Railroad Commission refuses to take any action. As a result of their failure to issue a final order, our power supplier is paying over $1.80 per 1000 cu. ft. for natural gas today compared to a cost of approximately 23¢ per 1000 cu. ft. on the date the order was issued. That amounts to an increase of over 750% in two and a half years. To illustrate the effect of this unrealistic increase, we purchased a total of 4,348,920 kilowatt-hours of electricity in January of 1973 at a cost of $28,455.81. During January of this year we purchased 4,570,540 kilowatt-hours at a cost of $123,782.61.

By authority of the Railroad Commission, escalating costs of natural gas are passed on to our power supplier who passes them on to us and our consumers and the resulting effect has been electric bills that many members find impossible to pay. We have joined with the other wholesale customers of the Lower Colorado River Authority to bring about remedial action that would relieve our members of this unjust burden but our past efforts have proven fruitless.

Please bear in mind that by the Railroad Commission allowing Coastal States, and its subsidiary Lo-Vaca Gathering Company, to pass on to its customers all increased cost they pay for natural gas the market is being forced upward every day. As a result our problem will soon be duplicated throughout the entire state.

Considering our past efforts and failures we are of the opinion that Legislative action is the only recourse remaining to relieve consumers of this unjust burden. At their March meeting our Board of Directors adopted resolutions addressed to the Governor and all Legislators calling for a special session to bring about legislative action to resolve the unfair pricing arrangement being allowed by the Railroad Commission and to establish a realistic ceiling price on natural gas; a price that would allow the producer to continue to perform his function and remain viable as an energy producer and still affordable by the consumer.

We feel that our problem is of concern to the members of your organization, not only in the form of electric bills that are becoming impossible to pay, but also in the inevitable increase in costs of fertilizer and other derivatives of natural gas that are used in their farm and ranching operations. Only through the legislative process can your members and our members obtain the relief they so desperately need. We solicit your support and favorable response to help cause such action to become an immediate reality.

Sincerely

J. C. Warhol

J. C. Warhol
Manager

Mr. Moss. Thank you very much.
Mr. Riley.

TESTIMONY OF RAY JOE RILEY

Mr. RILEY. Thank you, Mr. Chairman and distinguished members.

My name is Ray Joe Riley, and I am a farmer and lamb and cattle feeder near Hart, in Castro County, Tex., which is located about 65 miles northwest of Lubbock, Tex., there on the High Plains. I raise cotton, corn, sorghum and wheat, and feed lambs and cattle for the market. This is the way I make my living. Most of the commodities in our area are produced by small family-type farmers.

I am the unpaid president of the Texas Lamb Feeders Association, and past president of Plains Cotton Growers, Inc., a producers association of some 23,000 members in the 25 counties in the High Plains which surround Lubbock.

While the High Plains area of production is diversified, it is totally committed to food and fiber production for domestic consumer usage and export markets to help our balance of trade position. The crops, corn, sorghum, cottonseed, feed lambs, and cattle for quality grain fed meat for the consumers of this Nation. Wheat and part of the corn and cottonseed production is for human food through further processing.

Some of our corn will be used for processing into corn chips and related products. Cottonseed is used in part for vegetable oil for high quality cooking oil.

This 25-county area comprising the Plains cotton growers region there normally produces over two million bales of fiber for the domestic consumer and export market. And I might say here, Mr. Chairman, that according to the National Cotton Council, it takes only approximately one-fifth the energy to produce a pound of cotton as is required to produce a pound of synthetic fiber.

And I could relate that in terms of petroleum, that cotton, the cotton plant is a much more efficient converter of petroleum energy to fiber than is a synthetic fiber plant. And I believe your distinguished committee looking into energy might want to have this information available to it.

The cotton plant is able to perform this near miracle by utilizing the energy of the sun, as we know, on the green leaves to manufacture food to be turned into the natural cotton fiber.

Along this same line, a lamb is able to turn forage into wool with less than one-fiftieth the energy required to produce a pound of synthetic fiber. And you wonder why it would take any energy to produce any wool. It might be a matter of hauling, freight, gasoline or diesel used in transporting these lambs and whatever might be used in a pickup to check them. That would be about the only energy that you would think of they would use. But these natural fibers again are efficient in their use of energy to produce a pound of usable fiber for the consumer. Now, these crops produced in the semiarid High Plains are dependent upon our irrigation water. We pump this water from deep wells put in, dug, established, cased, line-piped at our own expense. These wells depend in great majority of the cases upon natural gas for power. The irrigated High Plains area, encompassing some 11 million acres there in Texas along with additional acreage

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in California and other States, provide a stabilizing effect on the national food supply, particularly in the years that we know of drought, hail, blight, flood, insects, frost or other causes of famine, and I think the stabilizing effect of the irrigated production should certainly be considered.

While there is greatly reduced corn, cotton, grain sorghum, or wheat produced in Texas, when this production is reduced there will be a corresponding reduction in lambs, cattle, and hogs fed, and in the total meat, wool, and cotton fiber supply produced of course in the area.

And consumers could well suffer a shortage in certain years of grain, feed, wheat, and other foods, as well as a shortage of cotton and wool and greatly increased prices for the small amount then available, were it not for the stabilizing effect of the irrigated production wherever it is.

The High Plains area, being dependent on irrigation water for crops being produced, must first then have the energy to pump the life-giving water, but just as important the energy must be available at a price that the irrigator can afford to pay.

This then, Mr. Chairman, I believe as you pointed out this morning, is a paradox that we find ourselves in. With lowered prices for agricultural commodities produced in this area, and with drastically escalated natural gas costs, the point of nonprofitability is rapidly being approached, if indeed it has not already been reached in many cases.

Cost of production figures by Federal, State, and private agencies conclusively show that based on today's market the total cost of production in a dry year is above expected income.

These costs of production studies provided particularly by Texas Agricultural Extension Service, USDA and commodity organizations show singularly and in concert a growing gap between cost and return on today's market. Certainly this is known all too well by the producer who is the man who is paying the gas bill. This cost of production information shows that we cannot continue to produce agricultural products under the present commodity prices and spiraling natural gas costs for irrigation.

I brought my 9-year-old boy, Jodie, up here with me on this trip, and I would hope that some day he would be able to be a farmer in that area. But at this point I am really not very optimistic about his chances, looking at the present circumstances. He may need to be a geologist and get in the oil business, or something. I don't know what he would do. He may need to look for another occupation.

The price we pay for intrastate natural gas that we use of course, as you well know, is not regulated. One thing, that the State of Texas has refused to regulate it, and this irrigation gas the railroad commission does not have the authority to regulate under State law, and we by necessity, because we feel that we need to turn to folks who will have a reasonable ear, are asking for your consideration in this case.

These gas costs that we use have escalated from a rather stable 35 cents per thousand cubic feet in the 1960's and early 1970's to nearly $1.40 per thousand cubic feet now in 1976.

We worked hard and have continued to work hard to retain No. 2 priority for irrigation gas used for essential food and fiber production. In hearings last year in Lubbock, Albuquerque, Phoenix, and

Washington it was proven over and over again that realistically there are no alternate fuels feasible for irrigation. After fighting hard to win the priority battle, are we now going to lose the opportunity to use a priority No. 2 gas at unregulated intrastate prices we cannot afford to pay? This is the question that is certainly before us. Price and priority are the same. When we can't afford to pay the price we are out of gas, or we just as well be. When our costs are more than the income, we are out of business.

These are the essential questions that we are looking at, and the producers in the High Plains trust that you can find an answer to escalating unregulated intrastate natural gas prices that we find increasingly difficult to pay each month to an unregulated monopoly.

I have heard the testimony this morning and the questions and, gentlemen, I don't profess to be an expert on monopolies, but it is my thinking, I always thought that a monopoly was when you didn't have any other source to turn to. We don't have any other supplier. We don't have anyone anywhere else we can get natural gas from.

The thing that makes this unfair lies in the fact that representatives of this same monopoly earlier told us that gas would always be available. Based on this statement, we spent an average of a thousand dollars per well building our own natural gas lines from our wells to the transmission line of the monopoly. Your efforts to alleviate this gross miscarriage of justice will perhaps constitute one of the greatest things you could do for the American housewife. And I know I don't have to convince any member of this committee because you already know it.

Many people fail to realize that food and fiber takes a much smaller percent of the income in our good country than in any other country in the world, even though we are the best fed and clothed nation in the world.

The trans-Pecos area has been mentioned today and, gentlemen, do not be misled. If the farms in the trans-Pecos area do not produce this year, and in the Great High Plains next year, then these areas will not be returned to production in one or two years. This will happen only after many, many bankruptcies, after the American consumer has been required to pay several times over what she is now paying for food and fiber.

Your efforts may well mean preventing a food and fiber and natural fiber famine in this country.

Thank you, Mr. Chairman, for your consideration.

[Mr. Riley's prepared statement follows:]

STATEMENT OF RAY JOE RILEY, A FARMER FROM HART, TEXAS

Mr. Chairman and distinguished members, my name is Ray Joe Riley, and I am a farmer and lamb and cattle feeder near Hart, in Castro County, Texas, which is located about 65 miles Northwest of Lubbock, Texas, there on the High Plains. I raise cotton, corn, sorghum and wheat, and feed lambs and cattle for the market. This is the way I make my living. Most of the commodities in our area are produced by small family-type farmers.

I am the unpaid President of the Texas Lamb Feeders Association, and past President of Plains Cotton Growers, Inc., a producers association of some 23,000 members in the 25 counties.

While the High Plains area of production is diversified, it is totally committed to food and fiber production for domestic consumer usage and export markets to help our balance of trade position. These crops, corn, sorghum, cottonseed, feed lambs and cattle for quality grain fed meat for the consumers of this nation. The wheat production and part of the corn and cottonseed production is

for human food through further processing. For example, some of my corn is used for further processing into corn chips and related products. My cottonseed is processed into vegetable oil as a high quality cooking edible oil.

The twenty-five County area comprising the area represented by Plains Cotton Growers, Inc. normally produces over two million bales of cotton fiber for the domestic consumer and export markets. I might say at this point, Mr. Chairman, that according to the National Cotton Council, it takes only approximately one-fifth (1/5) the energy to produce a pound of cotton fiber as is required to produce a pound of synthetic fiber. The cotton plant is able to perform this near miracle by utilizing the energy of the sun on its green leaves to manufacture food to be turned into the natural cotton fiber. Along this same line, a lamb is able to turn forage into wool, with less than 1/50 the energy required to produce a pound of synthetic fiber.

The crops produced in the dry, semi-arid High Plains are dependent upon irrigation water, which we pump from deep wells put in and operated at our own expense. These wells depend on natural gas for power.

The irrigated High Plains area, encompassing some eleven million acres in Texas, along with additional irrigated areas in New Mexico, Arizona, California, Oklahoma, Colorado, Kansas, Utah, Nevada, Nebraska, and parts of other states, provides a stabilizing effect on the national food supply, particularly in years of drought, hail, frost, flood insects, blight, or other causes of famine.

When there is greatly reduced corn, cotton, grain sorghum, or wheat produced in the Plains area, there will be a corresponding reduction in lambs and cattle fed and in the total meat, wool and cotton fiber produced in this area. The consumer could well suffer a shortage of grain fed meat and other foods as well as a shortage of cotton and wool, and experience greatly increased prices for the smaller amount then available if it were not for the stabilizing irrigated production.

The High Plains area, being dependent on irrigation water for the crops produced, must first have the energy to pump the life-giving water, but just as importantly, the energy must be available at a price the irrigator can afford to pay. This, then, is the paradox the irrigator finds himself in. With lowered prices for agricultural commodities produced in this area, and with drastically escalated natural gas costs, the point of non-profitability is rapidly being approached, if indeed it has not already been reached in many cases. Cost production figures by Federal, State, and private sources conclusively show that based on today's markets, the total cost of production in a dry year is above expected income.

Research and statistical cost of production studies provided by commodity organizations, the Texas Agricultural Extension Service, and the USDA, singularly and in concert, show the strikingly narrowing gap between cost and return on today's market. This is known all too well by the producer, who is in fact the man who is paying the gas bill. This cost of production information shows that we cannot continue to produce agriculture products under present commodity prices and spiraling natural gas costs for irrigation.

The price we pay for the intrastate natural gas we use is not regulated. These gas costs have escalated from a stable 35¢ per mcf in the 1960s and early 1970s to over $1.40 per mcf in 1976.

We are working hard to retain a No. 2 priority for irrigation gas used for food and fiber production. In the May, 1975, testimony in Lubbock, Texas. Albuquerque, New Mexico, and Phoenix, Arizona, and Washington, D.C. hearings, it was proven over and over again that realistically there are no alternate fuels feasible for irrigation. After fighting to win the priority battle, are we now going to lose the opportunity to use a Priority No. 2 gas at unregulated intrastate prices we can't afford to pay? This is the question that is before us. Price and priority are the same to us. When we can't afford to pay the price, we are the same as out of gas. When our costs are more than the income, we are out of business. Will the irrigated High Plains we know as a food and fiber stabilizing production area for this country cease to exist as it is today? Will the sacrifice and work that has gone on before be lost? Will the export benefits to the national balance of trade account be lost?

The producers of the High Plains trust that you can find an answer to escalating, unregulated intrastate natural gas prices we find increasingly difficult to pay each month to an unregulated monopoly. Gentlemen, the thing that makes this so unfair lies in the fact that representatives of this same monopoly told us that gas would always be available, and based on that statement, we spent an average of $1,000 per well building out own natural gas lines from our wells to the transmission line of the monopoly.

Your efforts to alleviate this gross miscarriage of justice will constitute the greatest thing you can do for the American housewife.

I know I don't have to convince any member of this Committee—you already know it—but many people fail to realize that the food and fiber in this country takes a much smaller percent of income than any other country in the world, even though we are the best fed and clothed nation in the world.

Gentlemen, do not be misled—if the farms in the Trans-Pecos area do not produce this year, and in the Great High Plains next year, then these areas will not be returned to production in one or two years, but this will happen only after many, many bankruptcies, and after the American consumer has been required to pay several times what she is now paying for food and fiber.

Your duty is clear. Your efforts may well mean preventing a food and natural fibers famine in this great country.

Thank you.

Mr. Moss. Thank you, Mr. Riley.

Before we undertake the direct questions to the members of the panel, we will take a break for 15 minutes to permit the members to respond to a roll call now in progress.

I anticipate upon return we will have at least an hour free without interruption and pursue questions.

The Chair will recess the subcommittee now until 2:30.

[Brief recess.]

Mr. Moss. The subcommitte will be in order.

This time we are very pleased to have the testimony of Mr. Carl King.

Mr. King, I apologize. I skipped you and passed on to Mr. Riley. I don't know why. You are conspicuously present.

TESTIMONY OF CARL L. KING

Mr. KING. That is quite all right, Mr. Chairman.

Mr. Chairman and honorable members of this committee, I am Carl King of Dimmitt, Tex., and president of the Texas Corn Growers Association, representing approximately 1,000,000 acres of corn, and I make my living farming.

I farm 1,300 acres of corn, milo, wheat, cotton, and sugar beets. I also raise some lambs and cattle. My farms are located 65 miles southwest of Amarillo, Tex., or 85 miles northwest of Lubbock, Tex. At this juncture I might remind you that most of us farmers farm from 320 to 640 acres, on an average, and most farm products are marketed by the small operators.

In west Texas, which is a dry, semiarid area, we depend entirely upon irrigation to develop our crops, and of course we depend primarily on natural gas as fuel to irrigate these crops.

In the brief time that I am allowed I would like to acquaint you with a cost of production index for 1 acre of corn.

In the essence of time, Mr. Chairman, I will just read the bottom figures. You have the exhibit in front of you and if there are questions later we would be glad to answer them.

This is exhibit A, and it is important to look at exhibit A and then I will explain to you the difference between exhibit A and exhibit C, the difference in these production cost indexes.

Exhibit A is where a farmer owns his own land, and primarily works his own land, and doesn't rent it out, and that cost of production at this date is $326.10 an acre.

Skipping over two pages and skipping exhibit B, exhibit C, cost of production index is where a renter, where he rents land, pays $447.52, and the difference in these costs of production is land cost, which is figured as rent.

EXHIBIT A

Cost of production index (per acre of corn on the High Plains of Texas)

Ground preparation	$36.50
Fertilizer	57.50
Seed	15.00
Herbicide	8.00
Insecticide and application	20.00
Irrigation	49.00
Harvest	34.00
Drying	15.30
Interest	15.00
Management (cost of living)	20.00
Total cost per acre (December 1974)	270.30
Plus land costs and taxes	9.00
Plus 20-percent increase due to inflation since December 1974	55.80
Total	326.10

EXHIBIT B

CORN FOR GRAIN, IRRIGATED, TEXAS HIGH PLAINS REGION II, ESTIMATED COSTS AND RETURNS PER ACRE HIGH-LEVEL MANAGEMENT

	Unit	Price or cost per unit	Quantity	Value or cost
1. Gross receipts from production corn (total)	Bushel	2.25	150.00	$337.50
2. Variable costs:				
Preharvest:				
Seed	Pound	.90	25.00	22.50
Fertilize (180-60-0)	Acre	54.00	1.00	54.00
Insecticide	do	4.00	1.00	4.00
Hail insurance	Dollar	.08	140.00	11.20
Machinery	Acre	3.47	1.00	3.47
Tractors	do	7.44	1.00	7.44
Irrigation machinery	do	18.72	1.00	18.72
Labor (Tractor and machinery)	Hour	4.75	5.48	15.07
Labor (irrigation)	do	2.75	2.95	8.12
Interest on operating capital	Dollar	.10	63.69	6.37
Subtotal, Preharvest				150.89
Harvest costs:				
Custom combine	Bushel	.30	150.00	45.00
Custom haul	do	.20	150.00	30.00
Custom drying	do	.10	150.00	15.00
Subtotal, Harvest				90.00
Total variable cost				240.89
3. Income above variable costs				96.61
4. Fixed costs:				
Machinery	Acre	6.32	1.00	6.32
Tractors	do	5.55	1.00	5.55
Irrigation machinery	do	27.36	1.00	27.36
Land (net rent)	do	48.85	1.00	48.85
Total fixed costs				88.08
5. Total costs				328.97
6. Net returns				8.53

Note: Land (net rent) based on landlord's share of ⅛ of gross income less ⅛ of fertilizer, insecticide, harvesting, hauling, drying, and 50 percent of fixed irrigation costs. Projected, 1975. Budget identification No. 72-002601-220-0; annual capital month, 10.

EXHIBIT C

Cost of production index

[Per acre of corn on the High Plains of Texas]

Ground preparation	$36.50
Fertilizer	57.50
Seed	15.00
Herbicide	8.00
Insecticide and application	20.00
Irrigation	49.00
Harvest	34.00
Drying	15.30
Interest	15.00
Management (cost of living)	20.00
Total cost per acre (December 1974)	270.30
Plus land costs and taxes and irrigation machinery	112.00
Plus 20 percent increase due to inflation since 1974	65.22
Total cost	447.52

Mr. KING. These costs weren't just picked out of the air. Texas A. & M. University has a cost index very close to ours, with the exception being that Texas Corn Growers Association has a more updated index, and this is one I just read to you, being land cost.

With the cost of producing one acre of corn exceeding $400 plus per acre, and the present price of corn as of August 1976 being $4.77 per hundredweight—and, incidentally Mr. Chairman, I called in to our elevator man late yesterday evening and got these prices, so this is what appeared on the board this morning.

And based on an 8,000-pound yield, which we feel is a little bit high, but I went ahead and took it on some of my own corn, we come up with a $381.60-per-acre gross to the farmer. I think you can readily see that this is a losing situation for the farmer. He is really living off his past equities and depreciation.

As you probably know, USDA just recently announced an increase in loan rates, and this was done back in March and I have updated this statement, Mr. Chairman, so some of these I will try to reiterate to you and tell you the reason. They did this back in February.

And target prices on feed grains, wheat and cotton. These were provided by the escalator provision of the 1973 Agriculture Act. After the raise of 15 cents per bushel on the price of corn these figures will still be below the costs of production and current market levels.

Now, we all know that inflation is everywhere in this country, and why single out fuel costs? Fuel costs have been steadily rising for years, but the reason it takes the spotlight is because it has escalated much faster than other items in our costs of production, and I point out that on my own costs which is down here on the cost index taken in February 1975, and the gas costs averaged 95 per mcf, or thousand cubic feet of gas, and February 1976 gas averaged $1.31 per mcf. That was an increase if 37.8.

Now, since then, and I might point out to the committee, so we don't have to deceive you, we do have a fluctuating rate of costs of natural gas, the more you use the less the costs, would be. The figures I just gave you would be read in what we thought was an average

cost, the winter months are higher, summer months cheaper during high pumping period. And again I will skip over some of these exhibits, in the essence of time, so we can get into question and answer.

EXHIBIT D

PIONEER NATURAL GAS CO., AMARILLO, TEX.—SUMMARY OF GAS USED IN 1974 AND 1975 BY CARL KING ON MOBLEY & RENFRO GROUP

	Thousand cubic feet	Money	Average
1974:			
January	58	$44.22	0.76
February	73	53.43	.73
March	704	325.89	.46
April	1,511	686.21	.45
May	2,955	1,388.53	.47
June	3,147	1,513.27	.48
July	3,702	1,955.97	.53
August	3,399	1,862.40	.55
September	2,280	1,384.07	.61
October	990	659.26	.67
November	74	72.46	.98
December	66	64.23	.97
Total (average 0.6383)		10,009.94	7.66
1975:			
January	91	86.66	.95
February	97	92.62	.95
March	112	106.65	.95
April	170	155.75	.92
May	1,815	1,315.05	.72
June	2,055	1,635.74	.80
July	1,790	1,537.22	.86
August	2,052	1,750.02	.85
September	1,782	1,719.92	.97
October	2,254	2,165.42	.96
November	339	386.36	1.14
December	150	188.33	1.26
Total (average 0.9442)		11,139.74	11.33

In addition to these costs, most farmers in our area installed their own gas lines and, as Mr. Riley has just testified, we furnish the upkeep and repair, which reflects no cost to the gas company.

This particular gas company, Pioneer Natural, that we buy from, can raise their rates any time they choose. We farmers know that this company is mainly a distributor of natural gas, and they have to pay more for their gas, also.

However, I might point out that just this past February they declared a 20 percent cash dividend to shareholders, and again I state we are victims of an unregulated monopoly.

We know that Texas intrastate gas is not regulated in Texas, but regulated out of Texas at a much cheaper rate.

I would like to emphasize to the committee that there is no substitute for food, and the American farmer has always done his best to supply this food. But if fuel costs continue to rise and the farmer is forced out of business, just in the irrigated belt of this country, not only food costs will rise but food may be unavailable.

This irrigated farm area lacks only 272.000 pounds, producing 2 billion pounds of beef, pork and lamb. And in exhibit E from Texas A. & M. University showing feed cattle, sheep, beef calves, stock cattle and hogs totaling 1,999,728,000 pounds of meat.

EXHIBIT E

TEXAS AGRICULTURAL EXTENSION SERVICE,
THE TEXAS A&M UNIVERSITY SYSTEM,
Dimmitt, Tex., March 3, 1976.

Mr. CARL KING,
President, Texas Corn Growers Association,
Dimmitt, Tex.

DEAR CARL: According to our Extension Economist Marvin Sartin, the High Plains produces the following lbs. of meat per year.

Sheep—11,000,000 lbs. Fed Cattle—1,360,000,000 lbs. (3,400,000 head). Beef calves—146,200,000 lbs. Stocker cattle—400,000,000 lbs. (2,000,000 head). Hogs—80,080,000 lbs.

Total—1,999,728,000 lbs. of meat.

Yours truly,

CHARLES L. HOTTEL,
County Agent.

Mr. KING. These animals depend on our irrigated feed grains, mainly corn and milo, and if you are not familiar with milo, it is a red feed grain similar to corn, a little less in feed value, but it puts meat on the tables of all Americans.

In Dimmitt, Tex., we have a 30,000 bushel per day corn starch and sirup plant, which is affected by the price of gas also. This plant furnishes corn sweeteners called Amerose for canning purposes and for many other food items. So we are a basic area of food, and we want to continue to supply this food at the lowest possible price to the consumers, but if the cost of gas to supply these items continues to rise, this will be an impossible job.

The effect on industry in the area is tremendous—some 10,000 people work at different jobs affected directly or indirectly by agriculture.

We are still engaged in a battle to retain No. 2 priority for the availability of natural gas through the Federal Power Commission, but our priority won't do us much good if we cannot afford to buy it.

So, not only would the farmer be in trouble if he can't afford to buy gas, but the rest of the country as well.

Farm exports—to which this natural gas using, irrigated area has contributed greatly—has helped the U.S. balance of payments position, as you people well know.

Texas Corn Growers Association is a strong believer in farm exports. We realize the American consumer is interested in quality, quantity and costs. We would like to produce food at a price they can afford to pay. And Government has a role in all these areas.

So, in releasing all controls on gas and oil, it would probably make all consumers pay accordingly, but I personally have my doubts that it would make our natural gas any cheaper, and in my honest opinion, will make it cost more.

The following figures were taken from The First State Bank of Dimmitt, Tex.:

In Castro County the average size farm is 1,001 acres.

The farmer has approximately $123.00 per cultivated acre invested in machinery alone. On this machinery he owes a debt of $46.00 per cultivated acre.

Therefore, gentlemen, you can see we have a large investment of $50 million in machinery and equipment alone in Castro County.

Machinery sales alone in Castro County last year amounted to approximately $10,000,000.

The Bank further states that 20 percent on repairs is an average repair bill for the average farmer. Add 20 percent to repairs, and you have $2 million just in repairs.

Fuel, repairs, labor, and fertilizer account for 75 percent of production expenses. The point we are trying to make is that when natural gas, along with other inflationary items, reaches the point that the farmer cannot afford to farm, the repercussions will be felt all over the country.

I know I don't have to convince any member of this committee but many people fail to realize that food and fiber in this country takes a much smaller percentage of the average income of the American family than any other country in the world, even though we are the best fed and best clothed in the world.

I hope you won't be deceived, if farmers in Pecos, Tex. cannot produce this year, and the rest of the farms in the Great High Plains of Texas cannot produce next year, this area will not be returned to production in 1 year or in 2 years, but this will happen only after many, many bankruptcies, and after the American consumer has been forced to pay three or four times what he is now paying for food and fiber.

It seems to me you have a clearcut duty to the American farmer and to the consumer of this Nation. And I conclude by saying thank you, but I would like to add, Mr. Chairman, that I have no proof of this, this is hearsay, and maybe you would not want it said, but I thought you could just tell me to strike it out, but we constantly hear wells being dug and capped in the High Plains area, up in the Dumas area especially, and this is my personal opinion: We feel that they are waiting for deregulation. And this is the only commodity I have to buy for my farm operations, which I have to purchase from this unregulated monopoly.

I would like to digress just for a moment, if you will allow me, we did have one other company which went in some 4 years ago, by the name Northern, and I had one well for this particular company that I purchased gas from. So I thought well, I have got a competitive angle here, if it just gets too high I will just run this line a mile and I can put it on my present line and buy all Northern Gas. But it didn't take long for Pioneer to buy them out. In fact, they were only in business less than a year or 1½ years.

Now, I would like to point out some letters I brought with me in regard to this priority thing—this is from Deaf Smith Electric Co-op. I believe you have got a copy:

To Whom It May Concern: Please be advised that at the present time this electric cooperative is not accepting applications for electric service for loads presently being served by any other source of power. This is meant to include natural gas, butane, propane, diesel, or gasoline.

We do accept applicants for electric service for new, never before served loads. We cannot anticipate when we can again serve loads that are conversions from gas to electricity, but if the present projections prove correct, it will be beyond 1981, at least, if ever.

Sincerely,

James T. Hull.

He is manager of that particular cooperative.

Then I have another letter from Texas Energy Co. which is a local supplier in Dimmitt, Tex. They supply diesel, butane, propane. They say:

TO WHOM IT MAY CONCERN: At this time we as a propane supplier could not compete with natural gas as well as fuel for a number of reasons:

No. 1—the availability of the fuel.

No. 2—converting of the engine.

No. 3—tanks to supply the customers.

No. 4—and most important from our view is the cost factor of our product compared with natural gas, plus the cost of trucks and manpower to deliver it.

If we did supply, under these conditions the price of propane as alternate fuel would be prohibitive.

This is signed J. Claborn, manager of that particular supplier.

Mr. KING. I think I did bring along, after visiting with several economists, Mr. Condra from A. & M. University, visiting with my own local mechanic on what an average engine in the High Plains area, would be a 100-horsepower engine, it uses 15 cubic foot per minute of gas, if you are interested in these figures, on an average well, 500 gallons a minute, 700,000 gallons in 24 hours.

This is 900 cubic foot per hour of gas, or 21,600 cubic foot per day; based on $1.30 per G ft^2, costs per acre-inch is $1.05.

It takes 24 hours to water. This would be based on very minimum cost, if you watered with a 500-gallons per minute well, watering 24 hours, you would get approximately 5 acres watered, and it would cost you about $5.25 an acre. It could run as high as $11 or $12 an acre, depending on whether you water in winter months, the first watering, or what have you.

I will quit at this time, Mr. Chairman. I could go on too long, so I will turn it back to you. Thank you, sir.

Mr. Moss. Thank you, Mr. King. Mr. Collins.

Mr. COLLINS. Thank you, Mr. Chairman.

Mr. Moss. We have Mr. Mullins, Mr. King, and Mr. Riley.

Mr. COLLINS. Mr. King is the one that just got through.

Mr. KING. Yes, sir.

Mr. COLLINS. Now, are you an economist?

Mr. KING. I don't claim to be.

Mr. COLLINS. Have you gone through A. & M.?

Mr. KING. No, sir. Went 1 year to Texas Tech. I am a farmer.

Mr. COLLINS. You just learned it right out there on the farm.

Mr. KING. Mostly. That is the best way to learn.

Mr. COLLINS. Well, you made the statement here about monopoly. and earlier you heard the testimony where they said we had 30 companies in Texas that were distributing gas.

Mr. KING. This morning; yes.

Mr. COLLINS. That made up 90 percent of the distribution.

Now, monopoly is when one company or one individual controls it. but here we have 30. Do you know of any collusion, do you know of any price fixing that they have done among themselves?

Mr. KING. Well, if we knew that we would already be after them. Mr. Collins.

Mr. COLLINS. Sir?

Mr. KING. I said if we knew that for sure we would already be after them on antitrust.

Mr. COLLINS. Well, I am asking you. You had made a statement they had a monopoly. I know you have some basis.

Mr. KING. Well, the reason I said that, Mr. Collins, a monopoly is that is the only company I can buy fuel from, and they bought out or leased the line from the only single competition we had some years ago. We can't prove there was collusion, no.

Mr. COLLINS. What you really meant, you have a single source of supply?

Mr. KING. That is right. But we consider it a monopoly.

Mr. COLLINS. There is a lot of difference between a single source of supply and being a monopoly. For instance, you have other ways you can get energy.

Mr. KING. No.

Mr. COLLINS. You can use coal.

Mr. KING. No.

Mr. COLLINS. You can use wood.

Mr. KING. No; I just read you some statements. That says it would be prohibitive. The Federal Power Commission and Judge Wagner certainly accepted it.

Mr. COLLINS. What you are saying is the alternative sources cost even more, is that right?

Mr. KING. Well, certainly anything costs more than natural gas.

Mr. COLLINS. We are getting down to basic sources. What you are saying is all sources of energy have priced themselves very, very high.

Mr. KING. Oh, sure.

Mr. COLLINS. It isn't just gas, but all of it.

Mr. KING. Correct.

Mr. COLLINS. We are talking now about economics. You have been a farmer out there. When you were a boy what did you all get, about 10 cents a pound for cotton?

Mr. KING. Oh, a nickel sometimes.

Mr. COLLINS. As low as a nickel?

Mr. KING. Oh, yes, back in the 1930's.

Mr. COLLINS. That is right.

At that time oil was $3 a barrel. Now oil today is $12 a barrel, and it is on an open market, and oil and gas are related, they are very closely related, you can even switch them from one to another, so it has increased four times over.

Now, if we took cotton, even at a dime, and carried it to 40 cents, a farmer just couldn't make it on 40 cents, could he?

Mr. KING. Well, you see, I know what you are trying to get at, I think, Mr. Collins—

Mr. COLLINS. We couldn't have price control.

Mr. KING. Well, we don't, personally. I am kind of like the Mayor testified, Mayor Faust, this morning. He did not see more government controls possible and we don't, either. We don't see any alternative, I made a statement at a natural gas meeting last week that we felt like, in the long range, maybe deregulation might be the answer. But what is going to happen in the short term? How many guys are going to go broke, like myself and Mr. Riley, and what will happen to the

future of our children and their children in the farming operation we don't know, because if we go out it is not going to be coming back right away.

Mr. COLLINS. I agree with you completely, anybody who knows any more about a farmer, they work more to get less than any group of people on God's green earth.

Mr. KING. They are a strange breed.

Mr. COLLINS. I think they are, and basically it shakes me up if a farmer believes in regulation. They are the biggest free enterprisers in the world, basically.

Mr. RILEY. Mr. Collins, could I respond to some of your questions?

Mr. COLLINS. Yes.

Mr. RILEY. I am like most of these farmers, I want the least amount of regulation you can have, but where you have a single supplier and he had a little competition edging in back there and they bought them out, and then in fact a group of farmers back there in about 1966 through 1968 started putting in, we tried to form some cooperatives and corporations, we were going to build our lines—we owned them anyway—through to some interstate line areas. And some way, I don't know what happened for sure, but after about the early or middle part of January 1969, we couldn't get any more of our cooperatives tied onto those interstate carriers. So we don't have any competition, and personally I feel like our regulation started with the OPEC nations' activities in 1973.

And as far as I am concerned, if I am going to be regulated by something, by the Arabs, I would rather be regulated by Americans.

Mr. KING. I agree with you.

Mr. COLLINS. You know, you are absolutely right about this. In Texas as the situation really developed because they criticize American business, but when they set the tempo for prices it wasn't severe, it went when the Arabs got control of the market.

Mr. RILEY. That is correct, and we are in effect going to be regulated by these Arabs, and if we are going to do that I take America any day.

Mr. KING. You see, Mr. Collins, we are between the frying pan and the fire, we only have a disaster farm program now, it barely takes care of your seed, and it certainly isn't anything to brag about. I would certainly hate to think about getting a disaster payment, but a lot of farmers have. This is a very minimum farm bill, and with the President putting an embargo on our farm products, where we can't have a free and open market system, we can't come up here and do anything but ask for some type of regulation in the meantime, or a special rate for irrigation gas which I know sounds ridiculous to you.

Mr. COLLINS. But all farmers were opposed to the embargo.

Mr. KING. Certainly. Certainly. We were promised free, open market, but got an embargo. But Texas farmers can't advocate diverting acres without violating the Fair Trade Act, but the President and George Meany can do it.

Mr. COLLINS. I agree with you, this thing we are talking about, embargos on any farm—but going back, the real problem, I want to come back where I started with, it is not gas but all energy sources

have priced themselves too high for farmers, isn't that the basic problem?

Mr. RILEY. Well, sir, that is part of it, but that energy has gone up faster than anything else.

Mr. COLLINS. In other words, if you try to use coal, as an example, if you try to use lignite, it doesn't matter what you try to use. We had in your statement the fact, and I don't know who wrote this part of it, but I want to quote this sentence:

"It should be noted for many of the crops that returns to the producer under current crop prices will not cover all production costs even at natural gas prices of 40 mcf." Forty cents, in other words, you all are on such a barrel.

Mr. MOSS. That is not in the statement of any of these witnesses, Mr. Collins.

Mr. WUNDER. Mr. Chairman, that is in exhibit A of Mr. Mullins' statement.

Mr. MULLINS. This was Impact of Increasing Natural Gas Price, the study from Texas A. & M. University.

Mr. RILEY. I guarantee you I can get mine produced on 40 cent gas.

Mr. MOSS. The Chair pointed out that was not the statement of any of the witnesses now before the committee as a panel.

Mr. COLLINS. Let me get this straight. Who made this statement?

Mr. WUNDER. This was Exhibit A of Mr. Mullins' statement as made by Gary D. Condra of Texas A. & M.

Mr. COLLINS. Let's get away from 40 cents. You have to live with the real world. Right now the whole hearing brought on by FPC, raised interstate prices up as high as $1.42, which is of course tremendously different from what we have. Is there any other energy today in the open market, and all the other sources on open market, could you use coal, could you use fuel oil, could you use residuals of some type, could you use wood? Is there any other source of energy that you could use and make it, or are all of them priced too high also?

Mr. RILEY. Mr. Collins, I think we could use coal if we had coal right there handy to us, like we have that natural gas. Or use wood, figure out a way to burn it, make steam, or something if we had those forests right there next to us. But they are a long way from us.

Mr. COLLINS. Let me tell you about gas. People don't understand when they pay for gas only 20 cents of the price they pay was the raw material price. In other words, this was the thing people seem to keep missing, if they are paying if they have got a bill out there $50 a month, only $10 of that went for the raw gas. It is just like when you sell something, as you know when it finally gets to that grocery store I don't know what percent you have, sometimes only 20 percent of it goes to the farmer.

Mr. KING. We get about 8 cents out of a loaf of bread. You know what bread costs. I will tell you, I see your defense.

Mr. COLLINS. You have got to have the farmer.

Mr. KING. I might point out that I read a financial statement last week from this particular area and they paid $36.8 million more in stockholders' equity than 1974, and I realize they own some machinery companies, but they didn't sell all that stock so they are making plenty of money.

Mr. RILEY. Yes, but Mr. Collins, it would be all right, if I really sincerely thought that these energy companies would really go back and reinvest, and all this money that they want for this oil and gas, and plow it back in and really try to bring on the competition and bring on the supplying. But, you know, it gets a little bit—causes you to wonder quite a bit, when you see some of these large energy companies buying out, or, Montgomery Ward, and trying to negotiate and buy Ringling Brothers Circus, and we know these gas companies are buying out big machinery deals. Well, that makes me think they are not plowing it back into production.

Mr. COLLINS. Let me give you two facts.

No. 1 is they decided oil and gas is a sorry business to be in, so they would rather be a Montgomery Ward, they agreed with you it is a sorry business, they would rather invest elsewhere.

No. 2, we checked the statistics on major oil and gas companies in this country and for a 10-year period they reinvested in exploration, drilling, and development more than their gross earnings during that period. In other words, they put their depletion back in, and they do have the best record of any industry.

Now, the illustration you gave I don't know about. He had one where they were paying a big dividend, but normally they have done a tremendous job, and the return on investment in the oil industry is just average for all industry as a whole.

Mr. KING. Well, we want to make sure to point out we don't want it misunderstood, we believe in everybody making a profit, even oil companies, but I used to work for an oil company when I got out of the Navy in World War II. I thought they were always a little gluttonous. That again is my personal opinion, Mr. Collins. I want a fair return on money, and you know we are on the hind end, you know that. But we do think that unless something is done about these fuel costs the way they are escalating, I can assure you the State of Texas, isn't going to do it with that Railroad Commission.

Maybe some day we will get a utility commission established and we can do something else, but those people are not going to do anything, and I have got here right in front of me a petition to the Governor, it was a petition signed by several farmers trying to get him to call a special session.

I have visited personally with him, I am not blaming Governor Briscoe altogether. I don't think it would do any good. And I am not condemning him altogether. The point is we are not getting anything done in Texas, and that is why we are down here.

Mr. COLLINS. Thank you, Mr. Chairman.

Mr. Moss. Mr. Krueger.

Mr. KRUEGER. Thank you, Mr. Chairman.

I too appreciate your being here, and I particularly appreciate Mr. Riley being here, because I believe he is in the business of buying lamb and that means he is probably buying from some of the people in the 21st Congressional District who produce more lambs and goats than any place in the United States.

While you are up here, I do hope maybe you will see something about getting some predator control. You get an awful lot of—this might not be a bad committee to start with, though that isn't our

official subject, for some people who don't believe coyotes eat lambs, they think coyotes just perform in Walt Disney movies.

But those who know different might want to spend a little time on some of those subjects, because they can probably affect some of your costs too.

I would appreciate a little assistance on those matters.

I was struck, Mr. Riley, about what you said about your son being up here and you didn't know whether he would want to go into farming, or agriculture. I did a survey in my district and I have got a lot more ranchers and farmers, although as you know Runnels County and parts of Pecos and a number of others do have a good deal of farming, some irrigated and some dry land, the majority of people in my district, majority of whom are ranchers, are not encouraging their children to enter agriculture.

It isn't only the farmers, it isn't a farmer with irrigation, it is a national problem, a very important one, and one that I think deserves the attention of this country, if the largest food producer in the world, this country, somehow isn't able to encourage people to go on into agriculture.

Now, I have got several things I would like to talk about. Let me begin maybe with some of the questions of lamb prices. Lamb prices around Easter I think were getting around 62, 63 cents for fat lambs. It is down to—What are they paying now, 29 or 30?

Mr. RILEY. Yes, sir. I bought some lamb down in your territory, some feeder lambs, for 63 cents, and those same lambs are for sale now after fattening at 42 cents—they will lose at least $9 a head.

Mr. KRUEGER. That is the kind of——

Mr. RILEY. That is if you don't like the business you can get out of it.

Mr. KRUEGER. That is the kind of variation we are seeing in lamb prices, which is even a sharper variation maybe than what we are seeing in gas prices in a 6-month period. It is an even sharper kind of juggling with regard to prices.

Now, I am wondering, I know that south of Lubbock, I believe that it is Mr. King who farms north of Lubbock; is that right?

Mr. KING. I am north of Lubbock.

Mr. KRUEGER. South of Lubbock it is largely dry land farmer; is that right?

Mr. KING. Yes, sir.

Mr. KRUEGER. And up north you still have your irrigation. Am I correct that a lot of pumps that are now used in pumping the water for irrigation were originally diesel engines that were used in many cases for driving oil field equipment, and thinks like that, and then were converted over from the use of diesel engines to gas. Is that still true?

Mr. KING. Very few diesel.

Mr. KRUEGER. No, very few diesel left.

Mr. KING. It started out with diesel.

Mr. KRUEGER. It started out with diesel.

Mr. KING. During the old days back, costs were prohibitive, to even drill a well, because of the price of farm products and of course then it went to propane mainly, and then natural gas.

Mr. KRUEGER. And then natural gas.

Mr. KING. Butane.

Mr. KRUEGER. Some of the natural gas that is now used for pumping is used in the engines that originally ran on diesel though, is that correct, or not too much left, not too many of those?

Mr. KING. No, they phased them out 15 years or more ago.

Mr. KRUEGER. We may be a little bit behind down in my district, I don't know.

Mr. KING. Yes.

Mr. KRUEGER. You mentioned the study of Condra, who is the Texas Extension Economist. I would like unanimous consent at this point to insert in the record something he wrote in Southwest Press May 13, 1976, on pumping of fuel and the percentage that it contributes to the cost of agriculture.

Mr. MOSS. Without objection, the item referred to will be made a part of the record at this point.

[The article referred to follows:]

[From the Southwest Farm Press, May 13, 1976]

ON HIGH PLAINS: PUMPING FUEL COST FIGURED INTO EXPENSES

(By Marvin Sartin,
Texas extension economist-management)

Interest has been expressed by several groups in measuring the impact of rising natural gas rates on farmers' incomes. Several alternative approaches could be used to describe this impact.

However, the expression of irrigation fuel costs as a percentage of gross income and total production costs may be meaningful to most who are interested.

To accomplish this objective, many assumptions are necessary. Therefore, the calculations herein may not closely relate to an individual's situation. They do depict, though, generalizations across much of the Texas High Plains.

ASSUMPTIONS

The data were calculated assuming a 300-foot lift and furrow distribution systems with overall pumping efficiencies of 16 and 10 percent. *A 16 percent efficiency from a natural gas-powered unit should be expected if the equipment is in good repair and if the pump is properly designed. Some pumping plants will significantly exceed this level of efficiency.*

However, *many of our pumping units are less efficient.* To illustrate the impact of reduced pumping efficiency, similar calculations were made for a unit with overall pumping efficiency of 10 percent. *Efficiencies much below this level should not be tolerated, though some less efficient units are currently operating.*

Three rates for natural gas were used for comparison. Last year's cost was estimated at $.85 per MCF, *the current rate at $1.25 per MCF,* and the late 1976 projection at $1.50 per MCF.

Fuel costs per acre-inch were calculated for the 16 percent efficient unit as $.46, *$.68,* and $.82 for the three fuel rates respectively. The 10 percent efficient plant should incur fuel costs of $.74, $1.09, and $1.30 per acre-inch for the selected gas rates.

FOUR CROPS

Four primary crop enterprises were selected for this analysis. The quantity of water pumped for each of these was assumed as follows: *cotton—14 ac-in.; corn—28 ac-in.; sorghum—22 ac-in.; wheat—30 ac-in.* Based on these quantities of irrigation water, the three fuel rates, average expected yields, and current projections of 1976 commodity prices, a table was generated showing irrigation fuel as a percentage of gross income and total production costs.

With an efficient pumping plant, irrigation fuel costs currently represent from 3.4 percent (cotton) to 9.7 percent (wheat) of gross income compared to a range of 2.3 percent to 6.6 percent for the same crops at last year's rate. Irrigation fuel represents from 4 percent (cotton) to 10.1 percent (wheat) of total production costs at current rates.

If the pumping unit is less efficient, costs are proportionately higher. It is important to compare the effect of efficiency on irrigation costs. Irrigation fuel costs at $1.25 per MCF are less expensive per acre-inch for a pumping unit with efficiency of 16 percent than were the costs at $.85 per MCF for a unit with overall efficiency of 10 percent.

PERCENTAGE INCREASE

Perhaps it would be meaningful to calculate the increase in gross income (either price, yield or both) necessary to offset the increase in fuel costs. The date in the second table express in percentage the increase in gross income required to pay the increase in irrigation fuel costs from $.85 per MCF.

The data show that crops with high gross returns and-or low water requirements are less sensitive to the increase in fuel rates than those with low gross returns.

Wheat which was assumed to require the most water also had the lowest gross return. At current fuel rates the gross from wheat would have to *increase from 3–5 percent or net profit* would suffer (not accounting for increase in gross requiring larger land rental). However, *for our traditional row crops, a 1–2 percent increase is all that is required if pumping units are efficient.*

The data included herein must be interpreted with the assumptions clearly in mind. The enterprise budgets, pumping lifts, and efficiencies are not likely applicable to many individual situations. They should, though, provide generalized guidelines for the primary South Plains irrigated area. These data repeatedly show that pumping plant efficiency is very important as fuel rates increase.

However, any increase in the costs of producing crops necessarily reduces farmers' incomes. With the fluctuating yields in our area due to weather conditions and price variability, higher production costs increase farmers' risks.

Irrigation fuel is not the only contributor to rising production costs but the recent increases exemplify the problem farmers are facing with most inputs.

PERCENTAGE INCREASE IN GROSS INCOME REQUIRED TO OFFSET INCREASE IN NATURAL GAS RATES FROM $0.85 PER THOUSAND CUBIC FEET

Enterprise	Pump efficiency							
	16 percent				10 percent			
	1.20	1.25	1.30	1.50	1.20	1.25	1.30	1.50
Cotton	0.9	1.1	1.2	1.8	1.5	1.7	1.9	2.8
Corn	1.4	1.6	1.9	2.7	2.2	2.6	2.9	4.1
Sorghum	1.5	1.8	2.0	2.9	2.4	2.8	3.2	4.6
Wheat	2.7	3.1	3.6	5.1	4.3	5.0	5.6	8.0

IRRIGATION FUEL COST EXPRESSED AS PERCENTAGE OF GROSS INCOME AND TOTAL PRODUCTION COSTS FOR COTTON, CORN, SORGHUM, AND WHEAT

	Overall pumping efficiency 16 percent			Overall pumping efficiency 10 percent		
	$0.85	$1.25	$1.50	$0.85	$1.25	$1.50
Cotton:						
Percent of gross income	2.3	3.4	4.1	3.7	5.4	6.4
Percent of total costs	2.7	4.0	4.7	4.3	6.2	7.3
Corn:						
Percent of gross income	3.4	5.0	6.1	5.5	8.1	9.6
Percent of total costs	3.6	5.2	6.2	5.7	8.1	9.5
Sorghum:						
Percent of gross income	3.7	5.5	6.7	6.0	8.9	10.6
Percent of total costs	4.4	6.4	7.6	6.9	9.8	11.5
Wheat:						
Percent of gross income	6.6	9.7	11.7	10.6	15.6	18.6
Percent of total costs	7.1	10.1	11.9	30.8	15.3	17.7

Mr. KRUEGER. Now, in that study he compares the costs of pumping four various products and he also talks about the efficiency of various pumps. He says that a 16-percent deficiency from natural gas per

unit should be expected if equipment is in good repair and the pump is properly designed, but he says most of many of our pumping units are less efficient.

So he gives cost figures for a 10-percent efficiency rating and also a 16 percent. Now, he figures that when the pump is operating at 16 percent, that if gas is selling at a dollar-and-a-half, then gas for cotton constitutes 4 percent of the production costs. This study breaks it down for various costs of gas and for various products, cotton, corn, sorghum, and wheat. I think the most expensive cost is wheat, the least would be the cost of cotton.

But we are figuring then according to Mr. Sartin whom you quoted earlier anywhere from 4 to perhaps as high as 15 percent of the production costs come from the energy costs for irrigation and I think that that might be useful as a part of the prospective that costs of people who are in irrigated farming in our high plains area face.

Now, I am wondering what is happening to the water planes in high plains in Reeves County and some of these areas, how fast has it been dropping compared to what was expected some years ago; what kind of energy is required to pump water now compared to what would have been required 5, 10, or 15 years ago?

Mr. RILEY. Well, Mr. Krueger, I would say on the fringe areas out around the rim this decline has been probably more noticeable than in the heart land area of the irrigated high plains, the decline would be somewhat, but it is less noticeable and it would be less percentage yearly. The aquifer is. It is kind of like a bowllike and when you get closer to the middle with the greater volume the decline would be of course perhaps less and less noticeable, certainly percentagewise.

Mr. KRUEGER. Now, some of the people in Reeves County, for example, would probably be on the edge of that rim; is that right?

Mr. RILEY. I believe if I am not mistaken that, Mr. Krueger, the Reeves County aquifer would be an entirely different aquifer than the Ogalala formation.

Mr. KRUEGER. Your part of the Ogalala.

Mr. RILEY. We are part of the Ogalala, and I believe your region is a different aquifer.

Mr. KRUEGER. Yes, the Ogalala is the same aquifer as supplies Runnels County.

Mr. RILEY. Yours vary year by year with recharge from the mountains; is that right?

Mr. KRUEGER. That is right, and one of the things that we are told is that the Ogalala is going down because it was charging for some thousands of years and we have been going out of it for what, about 20 years now, a little over 20.

Mr. RILEY. Yes, sir, 20 to 30.

Mr. KRUEGER. Yes, 20 to 30 years. So during that period of time it is not surprising if it takes more energy, at least in some parts for irrigated farming, than it did in the past because we are having to draw that water longer distances and the flow not as great in some places; is that correct?

Mr. KING. No, I believe that would not be significant, Mr. Krueger.

Mr. KRUEGER. It is significant in your part of the country?

Mr. KING. No, the water table has not had that significant a drop. In other words, when they drill a new well, let's just say 300 feet is an average depth, 400 feet to red bed, 350 to 400 feet, when we get to red bed that is where they quit, because there is no need going any further. They are pumping that water, say, 150, 200 feet. Most of the farmers in that area have been pumping that same depth for years. It is just a matter of maybe putting an extra stage. They don't usually put extra stages, just lengths on the pump, they do add some to production fuel consumption, drill more wells.

Mr. KRUEGER. It must be in other parts of that reservoir then those people are having those problems.

Now, we were talking about lamb prices. Would that also be true? I took a tour, I guess, 2 weeks ago with the Runnels County Soil Conservation, and they were talking to me about yield which they got from milo in that area. Now, they are bringing in about, what is it, about 3,000—could it be 30,000?

Mr. KING. Three thousand pounds to an acre.

Mr. KRUEGER. Yes, about 3,000, is that about what you——

Mr. KING. No.

Mr. KRUEGER. You probably——

Mr. KING. No, we double that or better.

Mr. RILEY. It is irrigated.

Mr. KRUEGER. I see, you are irrigated, ours is dry land.

Mr. RILEY. You get more rainfall than we do, but for that rain you can raise better types of crops.

Mr. KING. That is pretty good for dry land.

Mr. KRUEGER. Yes, it is good. That has not been a bad year. They were talking about the neighborhood of 50 to 75, a hundred, so they were talking in about 150 an acre, on that sorghum.

Mr. RILEY. About four-and-a-quarter would be the market now, about four.

Mr. KING. Yes, this morning's market on the milo was $4.05.

Mr. RILEY. $4.05 a hundred.

Mr. KING. December futures, $3.05.

Mr. KRUEGER. Not dropping as fast as sorghum. They got a pretty good contract at $4.75.

Mr. KING. Yes, sir; sure do wish I had some.

Mr. KRUEGER. OK.

Now, what was the price of milo a couple of years ago?

Mr. KING. Up until the time Mr. Ford didn't embargo anything——

Mr. KRUEGER. I don't think there is going to be any dispense of Mr. Ford's embargo from anybody here.

Mr. KING. No.

Mr. KRUEGER. Probably not even the White House, any more.

Mr. KING. Probably not, but I would say——

Mr. MOSS. The gentleman would not infer, if I could interrupt for a moment, would not infer that Mr. Ford is guilty of a "flip-flop" on the embargo, would he?

Mr. KRUEGER. I am sure that no politician ever changes his mind, or his statements, but some just keep silent at points, and maybe they will be more silent.

Mr. KING. It was higher, Mr. Krueger, two or three.

Mr. MULLINS. $5-plus.

Mr. KING. Cost of production much higher and much cheaper.

Mr. RILEY. At one point it got up near $6.

Mr. KING. $5.75.

Mr. RILEY. $5.75.

Mr. KRUEGER. OK.

Now, that is helpful to me in terms of what we are dealing with here, because I wondering what kind of price—Mr. Collins has had a statement from someone that even 40 cent gas would not warrant production.

Now, you said that if you can get 40 cent gas, you could make a profit on your land.

Mr. KING. Well, I don't know what figure he is using, but oh, yes, we could have plenty of gas.

Mr. KRUEGER. They are evidently, or so he says, from the appendices of your tables.

Mr. MULLINS. Yes, Mr. Krueger. This was a study done by an economist with the Agricultural Extension Service out of A. & M., a statement of problem, and I think what he is talking about here, and this was based strictly on the Trans-Pecos area, that is the only area that this economist is addressing, the question, too, and if you read the entire statement, he talks about, the specialty crops, that have been grown in the Trans-Pecos area, alfalfa, cantaloupes, pima, cotton, crops that, you know, are very limited in the areas in which we can grow, showing current and break-even prices for these major crops in this region. Based at a $1.85 gas, and they are almost unbelievable, alfalfa, for example, current price $55, or at the time of this study $55 a ton, break-even price, $102 a ton. Cantaloupe, $6.50 a crate, current price, break-even $7.03.

So the point this economist was trying to make, all the rest, when you talk about these specialty crops you have to take into consideration some other factors.

Mr. RILEY. Mr. Krueger, I might add at this point back there in the early seventies we got along all right on that 40 cent gas. We could live on that.

Mr. KRUEGER. You could live on that. What price were you getting for your cotton and your milo?

Mr. RILEY. Oh, I would say 35, 40 cents on cotton.

Mr. KRUEGER. What are you getting now, about 60 cents?

Mr. KING. We haven't sold any just yet.

Mr. KRUEGER. You haven't sold it; you don't know.

Mr. KING. We wouldn't mind it.

Mr. RILEY. We would not mind it. We need it, got to have it.

Mr. KING. To make up some of these gas prices.

Mr. KRUEGER. I shouldn't be too tough, representing woolen mohair distributors, it always concerns me when I see some synthetics.

Mr. KING. You are not looking at mine.

Mr. RILEY. Cotton, wool, I bought it on sale.

Mr. MULLINS. Wool.

Mr. RILEY. You can't beat those natural fibers.

Mr. KRUEGER. No, my natural fibers are 8 years old, and I am still breathing. I wonder whether we could consider the statement of Mr. Mullins. I would like to look at a couple of things that you

talked about. I wonder, Mr. Mullins, what the shift in the land costs is? Or maybe it would be better to have Mr. Riley and Mr. King talk about land costs. What has happened to the cost of the land in the Lubbock area in the last 20, 30 years? What kind of shifts are we looking at? Are we looking at land that was $30 that is now $400 or $500, or is that about the general shift?

Mr. KING. Well, it depends on what year you start at, Mr. Krueger, but I am going to say 20 years ago you were looking at $210 land, and right now you are looking at $500; $400, $500, if it is good heavy water.

Mr. KRUEGER. If it is 220 years ago, say if it had irrigation.

Mr. KING. It has increased considerably, but it has tapered off the last year, farm prices.

Mr. KRUEGER. I think land prices have more or less tapered off everywhere.

Mr. KING. Yes, sir.

Mr. RILEY. Mr. Krueger, Mr. Mullins I recall made reference earlier to the deterioration that might or could occur to the tax bases there for school districts and hospital districts, and this certainly is a major concern. It is something you really dread to talk about. It is worrisome, because you would rather not talk about it. It is one of those things you rather not talk about, because you have got bonded indebtedness out there strung out ahead, and you may not be able to, you know, you worry about how you are going to pay it all.

Mr. KRUEGER. It may even be that although the Congress is willing to come to the aid of New York, it might not come to Lubbock's aid on something.

Mr. RILEY. Well, we hope to rather not ask you. We hope we could work it out this way.

Mr. KRUEGER. So you say price is now $500 an acre for good irrigated land, but it has not dropped much but it has not risen either; is that about where it stands?

Mr. KING. Good irrigated land, depending on the slope of the land, and so forth, $400 to $600.

Mr. MULLINS. Mr. Krueger, land prices, A. & M. did a study, realized facts not only in Texas, but across the farm belt in the past 3 years of pretty well——

Mr. KING. Tapered off.

Mr. MULLINS. I don't think they have dropped much, but they have stopped this continual spiraling they have gone through for 10 years.

Mr. KRUEGER. The continued upward spiral has ended.

Mr. MULLINS. Yes, continued upward spiral has ended, and it has leveled now.

Mr. KRUEGER. Would you expect it to start dropping if things continue as they are, because you feel people can't make any money in agriculture?

Mr. KING. I don't think there is any question about it, unless you have some big corporations moving in as speculators, and thought they could get some cheaper gas later on, and pump that water out of there, but it would be a terrific gamble, I think it would be.

Mr. KRUEGER. Do you have any reason, for example, the study done by West Texas State University, the Economic Center for Business and Economic Research, that was referred to in this morning's testimony, is not a valid survey? I imagine that is one that they gave to you and I am wondering if you feel it is valid or not valid?

Mr. KING. Is this yours? Go ahead.

Mr. MULLINS. May I address that question just a moment?

Mr. KRUEGER. Yes.

Mr. MULLINS. First of all, I challenge the validity of the study. I would like to, just from my work, in the Texas Legislature, with consumer groups and as I understand this was taken amongst consumers in the west Texas area, I just really challenge the validity and the finding of this, that the consumers are not interested. I think we have heard at least two other witnesses say that prices of natural gas, and all utilities in Texas, are paramount in concern.

Mr. KRUEGER. It is a case of how you choose your sample. I think there are a variety of ways of choosing your sample, and this committee has one way and perhaps West Texas State University has another. But you do not think that that is a valid study, but you don't have any sort of scientific reasons specifically, it is just your impression from talking to other people of the State, it is not a valid study.

Mr. MULLINS. My impression working with consumer groups, labor, other farm organizations, working to create a public utilities commission in Texas.

Mr. RILEY. Mr. Krueger?

Mr. KRUEGER. Yes.

Mr. RILEY. I might say that I had seen that report there and I am not saying that anybody, I just can't find anybody that will admit to being sampled. None of our members, I can't find any of our members that were, and maybe Mr. King and his Corn Growers have members, I don't know if they can find it.

Mr. KING. Well, they sent that to me. I got that, incidentally, immediately after meeting with Pioneer officials in an Amarillo natural gas meeting, and I could tell that this was a, I don't want to use the word "whitewash," but it was a type of operation that Pioneer, I am sure, requested West Texas State to make, and with a group of college kids, in my opinion, do a survey, taking it from people. They didn't take it from any of our rural people because I am sure the answer would have been the other way.

Mr. KRUEGER. You suggest then that Dr. Gensler and Mr. Samuel Beck, who signed it for West Texas State University haven't given a valid survey.

Mr. KING. Well, I wouldn't want to say that, I have just got my own personal opinion, Mr. Krueger.

Mr. KRUEGER. I see.

Mr. KING. I would like to say they didn't interview us.

Mr. KRUEGER. I am one of those people who have never been sampled either, by any of those surveys, but that is probably the problem of most of us.

Mr. RILEY. I can't find anybody to admit to being sampled.

Mr. KRUEGER. Anytime you have an election you never find anyone who voted for the loser. But, I know that it indicates they feel according to what would be long-range price effective ceiling on natural gas at the wellhead, their results show 76 percent of the people think there would be fewer wells drilled and there would be a shortage, whereas only 17.5 percent feel consumers would pay less for natural gas and electricity. That would suggest that at any rate the sample at the table here today is not identical to their sample. However, both samples were chosen, and with that, Mr. Chairman, I conclude.

Thank you very much.

Mr. Moss. The gentleman's time has expired.

I want to place in the record at this point a table compiled from articles from the Wall Street Journals of July 22, 26, 28 and 29, 1976, showing oil company profits for 17 companies: Amerada Hess, Ashland Oil, Cities Service, Continental Oil, Exxon, Gulf Oil, Marathon Oil, Mobil Oil, Occidental Petroleum, Phillips Petroleum, Shell Oil, Standard Oil of Indiana, Standard Oil of Ohio, Standard Oil Company of California, Sun Oil, Texaco, and Union Oil Company of California.

Also, a study developed on the basis of the Federal Trade Commission's Quarterly Financial Report from Manufacturing, Mining and Trade, and the data secured from the First National City Bank Economic Department Monthly Economic Letter, April, for the period 1969–76, on the percentage of return on net worth, and a clipping from the Washington Evening Star of Monday, August 23, 1976, Business Briefs column, titled "Oil Firms Net up 22 Percent in First Half."

[The information referred to follows:]

OIL COMPANY PROFITS (NET INCOME) FOR 1976

[In percent]

Companies	1st quarter 1976 change from 1st quarter 1975	2d quarter 1976 change from 2d quarter 1975	1st half 1976 change from 1st half 1976
Amerada Hess	60	−12	20
Ashland Oil	15	12	12
Cities Service	82	113	96
Continental Oil	76	27	50
Exxon	22	−2.6	10
Gulf Oil	2	30	14
Marathon Oil	95	7	37
Mobil Oil	14	9	12
Occidental Petroleum	72	18	−30
Phillips Petroleum	78	−20	(1)
Shell Oil	94	40	64
Standard Oil (Indiana)	49	10	24
Standard Oil (Ohio)	9	−4	(1)
Standard Oil Co. of California	7	9.5	8
Sun Oil	160	70	105
Texaco	15	23	19
Union Oil Co. of California	64	26	45
17-company average	54	42	56

1 Not available.

Source: Wall Street Journals, July 22, 26, 28 and 29, 1976.

Petroleum production and refining

	Percent return on net worth [1]
1967	12. 5
1968	12. 9
1969	12. 1
1970	10. 9
1971	11. 2
1972	10. 8
1973	15. 6
1974	19. 6
1975	14. 1
1976	(2)
20-year average [3]	11. 5

[1] Net worth is equivalent to shareholders' equity of "book net assets" or capital and surplus.
[2] Not available.
[3] Federal Trade Commission, Quarterly Financial Report for Manufacturing, Mining, and Trade Corporations, 1956-75.

Source: First National City Bank Economics Department, monthly economic letter, April 1969-76.

[From the Washington Star, Aug. 23, 1976]

BUSINESS BRIEFS: OIL FIRMS' NET UP 22% IN HALF

The nation's 25 leading oil companies earned 14 percent more in the spring quarter this year than in the period last year and their profits in the first six months were 22 percent higher than in the first half of last year, the American Petroleum institute reports.

Profits of the 25 companies totaled $2.8 billion in April, May and June, compared with $2.4 billion in the period last year. In the first half, the companies kept 5.1 cents in profits from each dollar of total revenue, compared with 4.6 cents last year. The profit on each gallon of petroleum or petroleum product ranged from 1.4 cents to 3 cents, API said.

The earnings growth was due to improving economic conditions that contributed to increased sales and better profit margins, API said. A change in Federal Energy Administration rules allowed the companies to recover more of their costs and the Federal Power Commission authorized higher prices for interstate natural gas.

Mr. Moss. On the matter of the survey in West Texas, which I note was conducted for Pioneer Natural Gas Co. by the Center for Business and Economic Research, I shall have that evaluated by the Library of Congress for methodology.

I think basically the point you gentlemen make in talking of monopoly is that at the point of buying you are faced with a single supplier.

Mr. KING. Yes, sir.

Mr. Moss. There are many elements that go into determination of a monopoly. You do not necessarily monopolize because you are the only person in the market. But, you can monopolize through a pattern of consistently rising profits, earnings which creates monopoly. And certainly as you are in your area, I am faced with a monopoly of the Washington Gas Light Co. and of the Potomac Electric Power Co. and of the Chesapeake and Potomac Telephone Co., and there isn't much I can do about it, I either take their services or I take no services.

Theoretically I might be able to build a fire out in the backyard and burn down the trees in the neighborhood, but it would not be a satisfactory response to a problem. The question really goes to the cost of production.

The economists' figures that were presented here on Friday indicate that the cost of production is roughly 3.5 cents per MCF, in your area. And there has been no spectacular increase in that cost, and there are very serious questions as to the amount of stepped-up investment in exploration for additional supplies.

How much gas is in wells that are capped is difficult to say. I know that in my own district, which does produce a fairly significant quantity of gas, that there are quite a number of capped wells. I would assume that we have that situation in other areas, and another mode for capping maybe there aren't immediate facilities to take delivery of it.

There may be a number of reasons, but clearly there is no single cost factor on this record, nor is there in the records of the Federal Power Commission and the chair would hold the record at this point for any member who wants to insert material.

There is no indication that costs to the industry have anywhere near approached the pace of increase of costs to the consumer, in whatever part of the country that consumer is located.

How much of the Gross National Product can continue to be diverted solely to the meeting of energy needs is a very significant question, one that will have to be addressed. We cannot continue to leave to those persons who dominate the industry the question of what a fair price is. It is this member's opinion that the curve of expectation or the hope for profit is such that if you go to a $2 price you will find the industry will hold out for $2.25 or $2.50. Only the rate of consumption declines markedly. Can we expect an arrest in the pattern which developed as a result of the OPEC action?

I think there is a very serious question as to the vigor with which this country pursued its remedies as a nation in dealing with the OPEC nations. I believe that the Nation could have cracked OPEC. I think we could at almost any point that we were determined to do so.

I think we have had plenty of signals from oil-producing companies that they are willing to breach OPEC prices. In fact, there is a significant body of evidence that the prices have been breached in a number of instances. But, we do remain under the present system effectively regulated not only on gas and oil, but with the pattern of horizontal integration of energy we can look for coal and other fuel sources to continue to climb to keep pace with this artificial, not a free market price, free market is not OPEC market, an artificially imposed price.

I listened to a TV interview with the Shah of Iran, and discussing his desire for the most modern weapons in the world and in quantities sufficient to make him a significant power in the Middle East. If the weapon costs went up, why of course he indicated that the oil costs would go up, too. So, I don't know how we finally regulate it, but I do know that there is a limit how much people can afford to divert to the price of energy.

I am going to recognize Dr. Galloway at this point for your questions.

Mr. KRUEGER. Mr. Chairman, do we have a vote on now?

Mr. Moss. We have a vote on now. I guess we can take 15 minutes to come back and then we will then try to continue until we are completed. We have one more panel.

Is the full committee scheduled each day this week? I think because of the obvious time problems that we have another session scheduled on the 8th of September, and that today is committed but the following day, the 9th, I believe we would be free, we will contact Professor Thompson and we will consult with Dr. Hopper for working out a satisfactory time to return in order that the testimony of the economists may be completed on this hearing record before we close.

With that, we will take a 15-minute break. The plan will be to return and complete this panel and then to adjourn until the 8th, with the economists returning on the 9th, if that can be arranged at that time.

The committee will stand in recess.

[Brief recess.]

Mr. Moss. The committee will resume its proceeding.

Mr. GALLOWAY. Mr. King, the suggestion was made this morning that the problem of runaway natural gas prices in Texas was limited to those areas of the State that were served by Lo-Vaca. Are you served by the Lo-Vaca Distributing Co.?

Mr. KING. No, we are not, Mr. Galloway. We are served by Pioneer.

Mr. GALLOWAY. Mr. Riley, are you served by the Lo-Vaca system?

Mr. RILEY. No, sir, I am not. I am not served by the Lo-Vaca system, to my knowledge. There may be swap-outs and trade-outs, but I am not aware if there are.

Mr. GALLOWAY. A few minutes ago, Mr. King, a suggestion was made that some of the problems relating to high natural gas costs may be somewhat the farmers' fault because they are using rather inefficient pumps on their farms. Could you tell us something about the efficiency of your pumps?

Mr. KING. Yes, sir. I wanted to get into that when Mr. Krueger was touching on that a moment ago, but we got diverted on different questions and answers. But Texas A.&M. has done some studies on this, Mr. Galloway, and I happened to bring along an efficiency sheet with me done on my own wells, and it does get quite complicated when you have to measure your wells in gallons and multiply the gallons by minutes and hours, and measuring gas cubic foot per hour. and using gas meters. But I do have a sheet on it if you would like to have it inserted in the record. I have got two copies here.

Mr. Moss. We will receive it for the record.

Mr. KING. Yes, sir.

[The material referred to may be found in the subcommittee's files.]

Mr. KING. There is, answering your question, Mr. Galloway, there is no question there are some discrepancies in the farmers' efficiency of his pumps. And we went to seminars on this thing, and Mr. Condra, who was mentioned a while ago, a Texas A. & M. econ-

omist, and Mr. Leon New, who works for the Texas Agriculture Department, Texas Agricultural Extension Service, out of Lubbock, Texas, has explained to them and told them what to do and in certain ways to improve our efficiency and Pioneer has held different seminars on this and we appreciate these seminars.

We do question some of their recommendations. For instance, the problems are many and it is kind of hard to explain, but I will try to attempt to. For instance, like I stated earlier, about 75 percent of the land in our area is rented land, and rented land means the landlord owns the pumps and the land, the renter furnishes the motors.

Now, this is customary in our area. So, if a landlord is living especially far away from the area out of State, many of them do, he doesn't understand why he should have to pull that pump and spend $2,000 or $3,000 and repair some bowels, sets at the bottom, suck some water sites up on top, or put on different stages, or anything that has to do with that gear head.

But when there is really nothing wrong with it, the pump is still operating. It is pretty hard to explain. But we have improved, as of late—I am saying the last 2 years—the farmers have been more prone to check these pumps for efficiency.

We do have water testing meters. We just tested quite frequently in the last 2 months. One well, for example, might be pumping 250 gallons a minute, and one might be pumping 700 gallons a minute in the same area. But that isn't all due to the inefficiency. A lot of it is what kind of pocket of water you hit when you drill that well in the first place. But we contend, and I have not argued with any of them, but I have pointed out to them, and these boys sit in the offices don't know all the answers, you know, and us farmers don't either, but we know a little bit more in some areas than they do, and I am sure, vice versa. But I would say, generally speaking, that the farmers in our area are fairly efficient people. They want to get all they can for the dollar.

Mr. GALLOWAY. Mr. Riley, in addition to improving the efficiency of your pumps, what steps, if any, have you taken to cut back on the use of natural gas in your farming operation?

Mr. RILEY. Well, sir, your first part of your question there about efficiency of the pump, we have reworked our pumps and I know that almost all, if not all, of my neighbors have, and they may not be. the pump companies tell us that they are the most efficient that can be done with that type of pump, and that is the most efficient pump that is available, and it may not ever look like its 100 percent when it is brand new. We have renewed these things, Mr. King has said. and still they still won't be 100 percent. So, that could be misleading when people say, "Oh, the pumps are not efficient." Well, they are renewed to the extent that they are as efficient as we make them. I will put it to that, within reasonable practicality.

Now, we are looking at every way we can to answer the second part of your question, ways that we can cut down water. For instance. when we preirrigate before planting, this land is listed, or bedded up in furrows, where we furrow irrigate and the furrows may be loose

from land preparation, we run tractors in there and pack those furrows so that water will run faster and it will take less water.

That is one way that I would think of that would cut down on water. We are trying to save every bit we can. We are using tail water return pits for the water that comes out to the end. And we divert that into a return system, and pump it back to the other end. We are trying to utilize every bit we can to cut down on the loss, on evaporation. We are trying to irrigate at night, when there is an alternative between night and day, for less evaporation. We are just having to do anything we can think of because we need all the answers we can get. We don't think, we don't believe that we have got all the answers, but we are just trying everything we can.

You know, when you get right down to the bar limit, between survival and failure, you have got to think of everything you can.

Mr. GALLOWAY. Mr. Riley, you mentioned in your statement that you were paying 35 cents per thousand cubic feet for gas in the 1960's and early 1970's and that in the past 3 or 4 years, you have been forced to pay a price of about $1.40. Do you have a contract with your gas supplier?

Mr. RILEY. I wouldn't term it a contract. It is kind of an open-end thing that the supplier can go up at any time they want to.

Mr. GALLOWAY. So, your situation is different than the situation Mayor Faust described this morning.

Mr. RILEY. Yes, sir. To me, a contract means that it is an agreement between two parties under a competitive situation. The contract is either take it or leave it.

Mr. GALLOWAY. Mr. Faust was explaining to us this morning that he originally had a long-term contract that was abrogated by his distributing company, Lo-Vaca, and as I understand your contract, your contract doesn't contain any price provision, and that the gas distributing company can raise the price this month, next month, and the month after; is that correct?

Mr. RILEY. That can be the case. They have raised it every month, mine.

Mr. GALLOWAY. The price you are currently paying is about $1.40. Has your supplier given you any indication of what the price might be next month, the following month, and so forth?

Mr. RILEY. About all the statements they have seen or heard, Dr. Galloway, would be that they have continued to plan to increase that price by two to two and a half cents per thousand cubic feet per month.

Mr. GALLOWAY. Now, with prices increasing at the rate of 2 to 3 cents per month, how long can you stay in business, Mr. Riley?

Mr. RILEY. That is hard to say. I believe Mr. King made reference, earlier, to the fact that people probably are living on reserves and depreciation and hope, you know, that maybe you folks can do something and it is just a limit on how long we can try. Of course, the commodity prices, naturally, have an effect.

Mr. GALLOWAY. I noticed in your statement also, that the cost of production in a dry year is already above the expected income in your area.

Mr. RILEY. Yes, sir.

Mr. GALLOWAY. And I would gather, then, that your point is that unless something is done in a few years, you and the rest of the farmers in your area will be out of business, or at least, you won't be farming.

Mr. RILEY. Yes. Irrigated farming business, that is right, yes, sir.

Mr. GALLOWAY. Have you, Mr. Riley, taken land out of production already because of these increased gas costs?

Mr. RILEY. Yes, sir. I am not raising any wheat this year because I just don't have enough faith to plant it. In fact, I had some planted last year, Mr. Chairman, that I had irrigated—irrigated it, and it was a real dry winter and spring, and looking at the alternatives I just elected not to continue to irrigate that wheat because it had some damage by some insects and——

Mr. GALLOWAY. Let me ask you a question that I asked all of the witnesses this morning. What would you have Congress do about your situation? Are you in favor of—are you familiar, first of all, with legislation that the House passed this winter that would extend regulation to the intrastate market for the large natural gas producers?

Mr. RILEY. I couldn't say that I have, that I am totally familiar with it, Dr. Galloway. But I believe that I am somewhat familiar, I believe you call it the Smith substitute, I believe.

Mr. GALLOWAY. Yes.

Mr. RILEY. And correct me if I am wrong, I believe that it contained a provision, as I understand it, that would regulate intrastate gas by the large, by the large producers, but the smaller, independent type producers, that it gave alleviation from regulation; is that about right, Mr. Chairman?

Mr. Moss. That is correct.

Mr. RILEY. And that looked, from my point of view, it looked like you were trying to be fair, to at least give some alleviation there to smaller producers. I am not an expert on that, but at least it appeared to me that you made some provisions there and as I understood it, it would regulate intrastate gas, make everything the same, and I have heard arguments that everything ought to be the same, it looks to me like this would be one way to do it.

Mr. GALLOWAY. Mr. King, are you also in favor of regulating the price of natural gas in Texas?

Mr. KING. Yes, sir, I would have to say that reluctantly we don't like controls, but the circumstances, I don't think we have got any other choice, Mr. Galloway.

Mr. GALLOWAY. And Mr. Mullins, the position of your organization, the Farmers Union, is similar to that of these two gentlemen?

Mr. MULLINS. Yes, sir. As you will recall, in my statement I read the policy that was adopted by our members at our last national convention, and it does call for the Federal Power Commission to assume control over intrastate rates.

Mr. GALLOWAY. You mentioned in your statement also, Mr. Mullins, the situation in Pecos, Tex. Where is Pecos in relationship to where Mr. King and Mr. Riley farm?

Mr. MULLINS. South and——

Mr. KING. A little west.

Mr. MULLINS. West of Lubbock, approximately 250 miles South and Southwest of, in a very arid area.

Mr. GALLOWAY. So, now, we are talking about two distinct areas of the State?

Mr. MULLINS. Oh, definitely, definitely.

Mr. GALLOWAY. Where farmers are suffering from the increases in gas prices.

Mr. MULLINS. Definitely.

Mr. GALLOWAY. As I understand the situation, Mr. Mullins, the situation in Pecos is even more critical than described by Mr. King and Mr. Riley. Why is that?

Mr. MULLINS. Well, the situation in Pecos is such that most of the farmers there were operating on long-term contracts, very cheap gas, and they all happend to expire, virtually the majority of them all expired at the same time, and gas went from this very low 35, 40 cent gas, some of it even—longer term contract—even at less than that, I believe. Overnight, it went to $1.85.

Mr. GALLOWAY. When the distributing company, Delhi Pipeline, which is a subsidiary of Texas Oil & Gas Corp., one of the largest oil and gas corporations in the State of Texas, raised the price of gas, as you said, overnight to the Pecos farmers, the farmers went to court to obtain injunctive relief. Do you know what happened after the farmers went to court?

Mr. MULLINS. Yes, sir. I believe after they filed the suit the supplier simply informed them that they would no longer have any source of natural gas.

Mr. GALLOWAY. Mr. Chairman, we have a copy here of a letter from the Delhi Gas Pipeline Co. that was sent on October 24, 1975, to the Pecos farmers, telling them that because they went to court to obtain injunctive relief that the company was not going to sell them any more gas. And I ask that a copy of this be placed in the record.

Mr. Moss. It will be placed in the record at this point.

[The letter referred to follows:]

DELHI GAS PIPELINE CORP.,
Dallas, Tex., October 24, 1975.

DEAR CUSTOMER: Attached for your convenient reference is a copy of the form letter we have heretofore mailed with monthly statements to each of our customers buying natural gas for fuel to run irrigation pumps under contracts which will expire on December 31, 1975.

Since mailing such form letter our right to charge the proposed $1.85 per MCF for gas which we might sell to you under a contract which might be entered into for the one year term commencing January 1, 1976, has been challenged in a lawsuit in the 143rd Judicial District Court of Reeves County, Texas.

Please be advised, therefore, that we regretfully withdraw and rescind any and all statements of our intent, both express and implied, which might be construed as an offer for the continued sale of gas for fuel for irrigation for any period subsequent to the terms of existing contracts.

Very truly yours,

DELHI GAS PIPELINE CORP.,
By D. R. WADLINGTON.

Mr. GALLOWAY. Thank you.

Mr. Mullins, one of the statements that was introduced into the record this morning by Mr. Coy Nichols, a farmer who couldn't be

here because of a family emergency, contained the statement that in Reeves County, which includes Pecos, that there were 260 farmers in 1975 and at present, only 20 farmers are currently farming. Is that your understanding of the dimensions of the problem that the farmers in Pecos are facing?

Mr. MULLINS. Yes, sir, it certainly is. At last count, 80, 85 percent, I believe, was the percentage figure, and it worked out to just about those figures, have stopped producing.

Mr. MOSS. I am going to have to vote. We have another rollcall intervening.

The subcommittee is going to have to recess again. It would be at least 20 or 25 after before we return, so I am going to adjourn the hearings now until the 8th of September and excuse you gentlemen with thanks of the subcommittee.

The subcommittee will stand adjourned.

Mr. KING. We thank you, Mr. Chairman, for inviting us down.

[Whereupon, at 4:07 p.m., the subcommittee adjourned to reconvene September 8, 1976.]

UNREGULATED NATURAL GAS MARKET IN TEXAS

WEDNESDAY, SEPTEMBER 8, 1976

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS,
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The subcommittee met at 10 a.m., pursuant to notice, in room 2322, Rayburn House Office Building, Hon. John E. Moss, chairman, presiding.

Mr. Moss. The subcommittee will be in order.

Last week, the subcommittee held a public hearing to examine the impact and effect of natural gas prices on consumers, labor, and agriculture in the unregulated Texas market. The witnesses told of the serious economic hardship incurred by many Texans across the State due to spiraling utility rates caused by unregulated natural gas prices. They called for some type of wellhead price regulation as the solution to their problems.

The energy situation in Texas is a paradox. While the unregulated market currently provides adequate supplies of natural gas, it has done so at a price that many Texans state they cannot afford.

This morning, we will continue the hearings concerning the unregulated Texas market. We will conclude these hearings on Friday with a panel of Texas economists.

Our witnesses today are appearing at the specific request of the minority members of the subcommittee.

Our first witness is Mr. Damon L. Engle of Union Carbide Corp. and the Petrochemical Energy Group.

Mr. Engle, will you come forward and be sworn?

Do you solemnly swear the testimony you are about to give the subcommittee will be the truth, the whole truth and nothing but the truth, so help you God?

Mr. ENGLE. I do.

Mr. Moss. Will you identify yourself to the reporter for the hearing?

TESTIMONY OF DAMON L. ENGLE, UNION CARBIDE CORPORATION, ON BEHALF OF PETROCHEMICAL ENERGY GROUP

Mr. ENGLE. Mr. Chairman, members of the committee, my name is Damon L. Engle. I am with Union Carbide Corp., but am appearing today on behalf of 23 independent petrochemical companies who are members of the Petrochemical Energy Group.

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I have been plant manager for Union Carbide's Texas City, Tex., petrochemical complex since March 1974. Before that time, I managed a similar Union Carbide facility in Whiting, Ind., which is just outside of Chicago. Although the Whiting plant stopped operation in 1975, it provides, I believe, a valuable comparison for the use of the subcommittee.

Both plants used natural gas liquids for feedstocks. Both plants produced similar products. And both plants used natural gas for fuel. A major difference, however, between the two was the source of the natural gas. The Whiting plant depended on interstate pipelines for its natural gas supplies while gas used in the Texas City plant is procured predominantly from the unregulated, Texas intrastate market.

Like most of the independent petrochemical industry, we have had experience in both interstate and intrastate markets and I appreciate this opportunity to appear before you today to describe first-hand my day-in and day-out experiences.

On the basis of that experience, I can only conclude that, whereas Federal regulation of the wellhead price of gas has failed to insure us adequate supplies of gas, the free and unregulated natural gas market in Texas has done the job. Not only has the intrastate market price of gas enabled us to secure adequate supplies of gas, it also has signaled to us the need to increase conservation efforts, not only to plan but to invest for the day in the very near future when gas may no longer be available for fuel uses that can and should be converted to alternate fuels. To be sure, curtailments in the interstate market have forced us to conserve and to convert our fuel uses where we could. But where we could not do so in the interstate market, we have been forced to curtail production or shut down operations altogether.

Let me describe what has occurred in greater detail.

INTERSTATE

Carbide's Whiting, Ind., petrochemical plant represented $74 million of capital investment and began operating in 1935. In 1974, it employed 600 men and women and produced basic petrochemicals with a sales value of approximately $40 million. From these petrochemical products were derived a host of consumer and industrial products, such as polyethylene and industrial alcohol, which are used for drugs, in food processing, construction, electronic and transportation industries, for example.

We obtained the natural gas portion of our fuel requirements from the interstate gas system. Disruptions to our plant operations caused by interruptions and curtailments of gas service created recurring and increasingly difficult problems. The jobs of the people I supervised were subject to disruption with little or no notice and the products we offered often went unproduced during those times.

To understand the problems I encountered in trying to operate a plant that was dependent on interstate natural gas supplies, it is important to understand the gas requirements of our operations. A petrochemical plant, to be profitable, safe and efficient, is designed for

continuous operation. Standard procedure is to operate 24 hours per day, 7 days per week, 52 weeks out of the year, subject to regularly scheduled maintenance.

This continuous process can be threatened by gas supply interruptions in two basic ways. I like to think in terms of natural gas used "in the pots and pans"—that is, as a raw material which we call "feedstock"—and gas used "outside the pots and pans" for closely controlled processing heat or for boiler fuel uses.

While equipment can be installed to allow substitute fuels to be used as boiler fuel, if our supplies of feedstock or process gas are interrupted, we have no choice but to curtail operations. It is the specific chemical composition and structure of the hydrocarbons that we require as feedstocks; and for process fuel uses, it is the precise temperature control and flame characteristics of a gaseous fuel that are required for those activities. There are no feasible substitutes in existing operations.

In Whiting, our boilers were designed to use both coal and natural gas. Because of newly imposed environmental standards and because natural gas was not available to us, however, these boilers were converted to fuel oil. Those modifications required expensive and time-consuming hardware changes. Moreover, by 1975, the cost of the fuel oil was about six times the cost of the unavailable gas. We would have preferred to use gas.

While our boilers could be converted to alternate fuels, we had to have a gaseous fuel for our process requirements, including our gas-driven turbines. Where we were deprived of adequate natural gas supplies for these uses, we were forced to split our gaseous feedstock stream and divert raw materials to these fuel uses. We did everything we could to avoid this step, because reduced feedstock supplies meant reduced production. By splitting our feedstock stream, we were able to make the most of an undesirable situation. There were times, however, when neither natural gas nor feedstock were available and we had no choice but to reduce operations or shut down. Even worse, the timing and extent of curtailment was generally unpredictable.

Such plant shutdowns caused by interruption in supply were very expensive. The most obvious cost was the production lost while the plant was shut down. When we did not operate, we still had to pay our fixed costs (which are very high in this capital-intensive industry), even though we were generating no revenue.

The production processes of a petrochemical plant are generally very complex, employ sophisticated engineering and operate at very high temperatures. Our process furnaces at Whiting, for example, operated at 1900 degrees Fahrenheit. To prevent damage to the equipment when we shut down, the furnaces should be cooled gradually. The cool-down ordinarily takes 10 to 12 hours. However, when a gas interruption forced us to close down the plant, we did not have the luxury of a long cool-down period. Fuel was cut off almost at once and expensive furnace tubes often cracked from the sudden temperature change. These tubes had to be replaced before the furnaces could be used again.

To retube one of our eight furnaces cost $50 per foot of tubing, and up to $60,000 per furnace. Replacement of similar furnace tubes in

our larger Texas City facility would cost up to $90,000. It goes without saying that this is a costly and unpleasant task.

Even under the best of circumstances, it takes time to restart a petrochemical plant. If the shutdown is a long one—2 or 3 days—it can take as long as 3 or 4 days to get the operation back to full capacity. If damaged equipment needs to be repaired or replaced, it can take longer. Thus, a 3-day interruption in gas supplies can cause us to lose as much as 7 days of production. If that were to happen four times during a winter—a figure that would not have been uncommon at Whiting in the event of an extended curtailment caused by unseasonably cold weather—it would have meant the loss of 28 days of production—that's about 8 percent of the Whiting plant's annual production. At Whiting, that would have amounted to a revenue loss of more than $3 million.

Moreover, there is another cost that is not immediately apparent. I am referring to the cost involved when people are unemployed or underemployed as a result of interruption-related shutdowns. During periods of production curtailment, it was necessary to divert our employees to other jobs around the plant, including menial labor, where they were unable to utilize the skills and training they possessed. These periods of "underemployment" are bad for the morale of our employees who suffer a loss of job satisfaction as well as for the company as a whole which suffers on its profit and loss statement.

In my opinion, these unpredictable, increasing and often unquantifiable costs of being a customer of an interstate pipeline are not offset by whatever cost advantages may exist for interstate gas when and if it is available. I cannot believe that the public interest is well-served by artificial interstate prices, when the result is to reduce or to jeopardize continued supplies of this valuable fuel for home and industry, including the operations I was responsible for.

INTRASTATE

By contrast, at the Texas City plant, we have had a firm and predictable supply of gas. In the 2 years I have been there, there have been no major interruptions of supply to the Texas City plant. The Texas City facility represents $500 million of capital investment, began operations in 1943, and now employs more than 2,700 men and women. From these facilities, we produce basic petrochemicals with a sales value in excess of $300 million. Reasonable assurances that we will receive natural gas as we need it allows us to plan our present and future operations with greater certainty.

I am not saying that there are not gas supply problems in Texas. There are. Natural gas is a dwindling resource, which, absent increased exploration and development, could become increasingly scarce for all users, both inter- and intrastate. But it is critical to gas consumers like ourselves to be able to obtain a supply of this fuel for our essential needs.

It must be remembered that we have gaseous fuel and feedstock requirements for which we have no foreseeable substitutes. By paying a market price for this resource in Texas, we have been able to encourage its further development, to avoid the shortage problems

affecting the interstate market, and to assess more realistically the fuel choices available to us.

Nor do I mean to imply that the cost of gas is not of concern to our operations. It is. The cost of gas for the Texas City plant has increased almost sixfold in the last 2 years. Our products must compete in the marketplace, both here and abroad, and such cost increases cause us serious concern. But I do not believe that we were better off in Whiting, where our gas supply was cheap, but frequently unavailable, and we were sometimes unable to operate at all.

Moreover, when we know we will be able to get gas for our essential requirements, we can make costly but justifiable adjustments to minimize the impact of higher fuel prices. Higher gas prices have caused us to increase our efforts to conserve and to find new ways to reduce our energy costs without sacrificing our production goals.

Let me illustrate:

No manufacturing process is 100 percent efficient, and substantial quantities of heat are lost. Recovery of this "waste heat," which is a common expression in the petrochemical industry, has been the single most important area of natural gas savings at Texas City during the past 3 years.

In 1972, over 11.5 million gallons of unmarketable byproducts were being incinerated with no heat recovery. By the end of 1975, over 90 percent of this material was being utilized in our boilers, releasing almost 3 million cubic feet per day of natural gas for more critical uses.

Another area where we have concentrated our efforts is steam turbines. The hot exhaust from such gas-driven turbines is utilized in steam production. At Texas City, we have 11 gas turbines which develop over 150,000 horsepower. The exhaust gases which we have been working to recover have resulted in a savings of more than 6 million cubic feet per day of natural gas, when compared to more conventional energy heat cycles.

Our plant in Brownsville, Tex., provides another example. Due to a $6 million investment program, this chemical plant can now cut back on natural gas usage by 10 million cubic feet per day. To put this in perspective, this savings is enough to meet the entire daily natural gas requirements of Brownsville, with its population of 75,000 people. By the end of 1976, the plant's total dependence on natural gas will have been cut to approximately 25 percent of its former requirements. Virtually all of this 25 percent will be used as process gas for which there is no substitute.

This conversion to alternate fuels wherever feasible is a direct consequence of pricing gas to reflect its true value, making extensive conservation gains economic and feasible. The increased cost of gas has provided us as well as all users in Texas with an incentive to conserve and to convert where possible.

In Indiana, I will tell you candidly that until curtailments actually began to occur, there was little or no economic incentive to conserve or convert. With gas selling at prices below alternate fuel costs, it did not make sense economically to spend money to reduce our consumption. It was cheaper just to keep burning as much gas as we could get. The unregulated price we pay in Texas unquestionably has

provided real and meaningful incentives for conservation and conversion that are not present in the regulated interstate market. When you consider how fast our remaining supplies of natural gas are being depleted, I am amazed that the Nation continues to force this resource to be sold at prices below its true relative value, thus encouraging its use where it is wasteful or unnecessary.

Let me talk about necessary growth and expansion for a moment. As with the Whiting plant, old facilities are shut down, new ones are planned and constructed. In Texas, where we believe the unregulated price will help stimulate more gas production and preserve natural gas for essential uses, we still plan for the future.

Moreover, locating a new petrochemical plant in a State offering a reasonably secure supply of natural gas for critical needs makes a lot more sense than placing it where such supplies are in constant jeopardy. Higher gas prices can be offset by other actions, but low prices cannot compensate for an unreliable source of supply.

Whatever else can be said about it, the unregulated intrastate market has worked to preserve jobs, production, and to get gas to consumers. I have seen firsthand that it has been effective in providing my company with the natural gas it needs to carry on its operations. I believe this to be a common experience shared by other PEG companies.

In the attached written comments, PEG has presented facts and figures that describe just how much jobs, trade balances and essential industrial production depend on the vitality of the petrochemical industry which, in turn, depends, in large measure, upon the availability of an assured and adequate supply of feedstocks and fuels.

For that reason, we would strongly oppose any efforts to preempt the intrastate market and to impose on it the same bankrupt regulatory scheme that has bedeviled the Interstate System. No meaningful or lasting benefits would be drived from subjecting consumers, including the petrochemical industry dependent upon intrastate gas produced in Texas, Louisiana, California, Ohio, Michigan, Colorado, or elsewhere, to the difficulties and inconveniences brought about by Federal price controls.

Rather, we would urge immediate action by Congress to deregulate the price of all new natural gas. It makes more sense to us to encourage production from both inter- and intra-state markets, including the Outer Continental Shelf, and to encourage conservation and conversion by all users, rather than to extend counterproductive price controls to intrastate markets.

I appreciate the chance you have given me to testify before you today.

If any member of the subcommittee has any questions, I will try to answer them to the best of my ability. Thank you.

Mr. Moss. Thank you, Mr. Engle.

Do you desire that the statement of the Petrochemical Energy Group be included in the record at this point, together with the tables which are attached?

Mr. ENGLE. I do, sir.

Mr. Moss. Without objection, the statement and tables will be included in the record at this point.

[Testimony resumes on p. 160.]

[PEG's statement and attachments follow:]

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August 30, 1976

COMMENTS OF THE
PETROCHEMICAL ENERGY GROUP

before the
Committee on Interstate and Foreign Commerce
Subcommittee on Oversight and Investigations
United States House of Representatives

on

"The Impact of the Unregulated Intrastate Natural Gas Market on Labor, Consumers and Agriculture in Texas"

Interest of PEG

It is PEG's[1/] understanding that the primary purpose of the current hearings called by the Subcommittee is to investigate how and to what extent consumers, labor and agriculture have been affected by the existence of unregulated intrastate gas markets. PEG believes that the inquiry can be expanded to consider how such markets have affected the entire nation, for it intends to document herein how the intrastate natural gas markets, particularly those in Texas and Louisiana, have benefitted our industry and the nation as a whole.

PEG's member companies are independent petrochemical companies in the sense that none are affiliates or divisions of the major oil companies. Since their principal relationships with the producers and transporters of oil and gas are as customers and competitors, their interests are those of consumers.

1/ Borg-Warner Chemicals; Celanese Corporation; Chemplex Company; Dart Industries, Inc.; The Dow Chemical Company; E. I. du Pont de Nemours and Co., Inc.; Ethyl Corporation; The Firestone Tire & Rubber Company; Foster Grant Company, Inc.; The B. F. Goodrich Company; Goodyear Tire & Rubber Company; Hercules Incorporated; Monsanto Company; National Distillers & Chemical Corporation; Nipro, Inc.; Olin Corporation; Oxirane Corporation; Petro-Tex Chemical Corporation; PPG Industries, Inc.; Publicker Industries, Inc.; Rohm and Haas Company; Texas Eastman Company, a Division of Eastman Kodak Company; Union Carbide Corporation

The petrochemical industry is uniquely dependent on an assured and adequate supply of natural gas, natural gas liquids and petroleum products. Collectively the petrochemical industry accounts for about 7.2 percent of all natural gas consumed throughout the country.2/

Natural gas serves a two-fold purpose for members of the industry. First, it provides an indispensable raw material or "feedstock" for the production of basic petrochemicals, including ammonia for use in fertilizer production. In addition, petrochemical producers are heavily dependent upon the propane, butane and other natural gas liquids extracted from natural gas and used as raw materials to make a multitude of consumer and industrial products. Among these are tires, home furnishings, pharmaceuticals, apparel for men, women and children, appliances, toys, plastic resins, adhesives, materials used in the construction industry and many others.3/ Second, just like many other industries, the petrochemical industry uses natural gas as a source of heat in delicate processing operations and as a source of heat to raise steam in boilers. The members of the industry generally, and PEG companies particularly, are thus doubly impacted by governmental actions affecting the price and supply of gas to our industry.

The Impact of Unregulated Natural Gas Prices

What has been the effect of the presence of an unregulated intrastate market on consumers, on labor, on agriculture and on the nation? In answering this question, it should be recognized that while the largest impact has and will occur in the largest producing states, the impact extends beyond Texas and Louisiana to West Virginia, Oklahoma, Colorado, Kansas, Ohio, Michigan, New York, California and the other states where natural gas is produced and where the wellhead price of natural gas is not regulated. As consumers with 350 facilities operating in 35 states, PEG companies have concluded that the unregulated intrastate market has helped to preserve jobs and create new ones; has promoted exploration and development of new sources of natural gas, thus increasing supplies; has encouraged conservation of this scarce and dwindling resource for high priority uses; has encouraged the conversion of plants using gas as boiler fuel to other fuels; and has minimized the economic and human dislocations caused by shortages. A few illustrations should demonstrate how this has occurred.

2/ See Table I, "1974 Chemical Industry Energy Requirements Compared to National Energy Inputs and Industrial Demand."

3/ See Table II, "Major Petrochemical Product Usage -- 1972."

While significant conservation measures are possible in the use of natural gas as fuel, there is, at present, no significant conservation potential for natural gas used as feedstocks. When a PEG member company reduces consumption of such feedstocks, it must reduce production. Thus it is essential to the competitive survival of the petrochemical industry that reliable sources of natural gas continue to be available. The existence of an unregulated market price has given the industry hope that supplies of gas will continue to be available to meet those essential requirements. At unregulated prices, we are confident that all the gas that is producible at a given price will be produced--and that if higher prices are necessary to encourage more exploration, development and production, then there will be a free market in which prices will be able to rise. Statistics over the past few years confirm this.

Table III shows that drilling activity has increased rapidly in the last few years: the footage of both exploratory and developmental wells roughly doubled between 1970 and 1974. This occurred at the same time intrastate gas prices were increasing and intrastate reserve additions increased from 36 percent of total reserve additions in 1969 to 83 percent in 1973.4/ That is not to say that the price PEG companies pay for the gas that they consume is of little or no concern. On the contrary, to continue to compete with foreign competitors both here and abroad, the price paid for feedstocks and fuels cannot be substantially out of line with the prevailing price in world markets.5/ However, a reliable supply of competitively priced gas is far more essential than an unreliable supply of gas at bargain-basement prices. For each of the past 10 years, the U.S. petrochemical industry has contributed more than a billion dollars to a favorable U.S. balance of trade.6/ In 1974 and 1975, the industry contributed more than $3 billion. These contributions cannot continue without assured and adequate supplies of feedstocks and fuels.

Curtailments in the interstate market threaten drastically to disrupt the industry's operations for many years in the foreseeable future. If FPC projections prove correct, petrochemical companies will have to cope with a curtailment of 3.6 trillion cubic feet of gas during the coming winter, a figure that represents 25 percent of total interstate natural gas requirements. If industry, consumers of almost 50 percent of all natural gas

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4/ See FPC, "A Realistic View of U.S. Natural Gas Supply," a Staff Report, December, 1974.

5/ It is significant to note that of the top 10 chemical companies in the world, only three are headquartered in the U.S. Together, these 10 companies had sales of $62 billion in 1975. Yet, the three U.S. companies together represented only 28% of that total. See Table IV, "The 16 Largest Chemical Companies in the World."

6/ See Table V, "U.S. Balance of Trade in Petrochemicals."

produced, were to bear the entire brunt of such a curtailment, it would lose 40 percent of its interstate supplies of natural gas.7/ Because there is no substitute for natural gas in many petrochemical processes, curtailments can result in immediate plant shut downs. Shut downs have serious effects--production is disrupted, plant and equipment are idled, and man-hours of labor are irretrievably lost. No existing industry can suffer such a situation to persist for any appreciable length of time. Nor can the petrochemical industry plan for the future in the face of uncertain supplies. Uncertainty has rendered the industry's suppliers who are dependent on interstate supplies of natural gas incapable of committing themselves to supply petrochemical producers on a continuing basis at a time when they are most in need of firm commitments.

Where plants use intrastate supplies, the unregulated market has proved to be the best mechanism to ensure the continued availability of reasonably reliable sources of natural gas at prices that reflect the true value of the resource to the consumer.8/ In this connection, conversion merits some discussion.

Making greater use of domestic energy resources, including coal, must be an essential national objective. So long as gas prices are regulated below alternate fuel values, there is no economic incentive for existing gas users, including boiler fuel customers with installed dual-fired capability, to switch to oil or coal. By contrast, the unregulated intrastate price of natural gas is forcing utilities and industries to make energy costs an ever more important part of their management decision-making process. Members of the petrochemical industry are taking every step to conserve. They are making plans to convert their boilers. They are, thereby, hoping to stimulate the production of domestic resources to meet future demands. Only in a market where price is dictated by the interaction of supply and demand, rather than by artificial governmental determinations, can the rapid adjustments be made that are essential to the orderly allocation of resources.

Finally, it should be noted that where the unregulated intrastate market price has brought forth new gas supplies, the

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7/ FPC News Release, No. 22438, June 18, 1976.

8/ Selection of sites for new and expanded natural gas based ammonia fertilizer plants typifies this trend. In 1975, 36 percent of total fertilizer plant capacity was located in Texas, Louisiana and Oklahoma, three states that possess substantial unregulated intrastate gas supplies. Of the new capacity planned through 1978, fully 73 percent will be located in Texas, Louisiana and Oklahoma. (See Table VI.) While numerous other factors may determine the selection of these areas, there is one single factor shared by each of these states: an unregulated market for natural gas.

cost has been much lower than wasteful, inefficient and costly alternatives such as liquid-based synthetic natural gas (SNG). Faced with increasing gas shortages, interstate pipelines and distribution companies experiencing interstate curtailment, have sought to construct SNG plants to convert propane, butane, naphtha and other liquid hydrocarbons into SNG to meet the shortages. Such plants cost tens if not hundreds of millions of dollars; produce SNG at costs ranging from $3.50-5.50 per Mcf; and waste from 10-20 percent of the product used for conversion. Evidence presented in various proceedings at the FEA indicates that the SNG being produced is being used to continue service to low priority boiler fuel customers at rates subsidized by high priority customers. Liquid-based SNG plants make no economic sense--and are perhaps the best example of the adverse impact interstate price controls have had on consumer markets served by interstate pipelines.

As consumers, then, PEG's member companies can find no merit to continued control over the wellhead price of new natural gas sold into interstate commerce; and believe that the intrastate market is a very real example of the benefits of the deregulation of new natural gas.

Labor Impact of the Intrastate Market

When PEG speaks of labor impact, it means jobs. And if anything, the existence of an unregulated intrastate market price for gas has meant the preservation of jobs, while the existence of a controlled price of gas sold into the interstate market has meant curtailments, plant shut downs and unemployment. The Texas and Louisiana markets provide a good example of this. The Texas petrochemical industry, attracted to Texas by a dependable supply of gas, employs 60,000 people directly. Additionally, for every job directly created by the industry, an additional five jobs are created indirectly in related industries. That means that 360,000 people depend on the Texas petrochemical industry for their livelihood--a figure that represents almost one-half of the state's entire industrial work force. Moreover, recent studies by independent consultants indicate that there are at least 7.6 million jobs throughout the Nation and a payroll of $53 billion that are directly dependent upon the production of primary petrochemicals in Texas and Louisiana.9/

Stated another way, without adequate supplies of feedstocks and fuels, petrochemical production could be seriously affected. It has been estimated that a sustained reduction in

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9/ Attached is a copy of "The Texas/Louisiana Petrochemicals Industry: Its Impact on the U.S. Economy" A Report to the Petrochemical Energy Group, Arthur D. Little, Inc.

petrochemical production of only 15% could result in a loss of 1.6 million jobs nationwide.10/ These would be jobs in the textile industry dependent upon synthetic fiber; in the farmbelt and food processing industries dependent upon pesticides and herbicides; in the automobile industry dependent upon tires, paints and plastics; in the construction industry and elsewhere.

Looking to the future, the petrochemical industry's contribution to capital formation is even greater than its current share of the work force. Although petrochemicals account directly for just 8 percent of the industrial work force in Texas, the industry accounts for almost a third of the capital expenditures in the state. That impressive figure translates into even more jobs in the future for Texas.

Finally, the intrastate market has provided a favorable employment climate for petrochemical employees. Owing to the increased availability of natural gas, interruptions of production resulting from curtailments of supply have been virtually non-existent. Fewer plant shut-downs mean fewer lay offs. On the other hand, where plants are located in areas where they must depend on interstate sources of supply, the spectre of curtailments poses a very real threat to job security.11/

These facts are powerful evidence of the degree to which we all depend on the continued viability of the petrochemical industry. Anything that imperils the petrochemical industry's development will redound to the detriment of the nation. One of the worst things that could happen to the industry would be an action that threatens the availability of a dependable source of natural gas.

Conclusion

Proposals have been made to extend federal regulation of natural gas to the presently unregulated intrastate markets. In fact, PEG understands that federal preemption may be under consideration by this subcommittee. That action, if undertaken, would be a serious misjudgment of the needs of the Nation and could have disastrous and irreversible consequences for the petrochemical industry. It would jeopardize investment, jobs and

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11/ See ADL, "United States Petrochemical Industry - Impact Analysis," November, 1973, which has been recently confirmed during the recent economic recession.

12/ For example, it has been estimated that in New Jersey alone, a 30 percent curtailment would put 120,000 workers out of work immediately, ultimately reaching an additional 500,000 workers in related industries. Sawhill, "Natural Gas Supplies - The Case for the Free Market," American Gas Ass'n. Monthly, December, 1974.

the very health of every company in the industry by bringing to the intrastate markets the uncertainty of supply and the spectre of curtailment visited upon the interstate markets. There are no offsetting advantages.

The experience of PEG's member companies indicates that unregulated intrastate markets have proved to be effective in promoting three essential goals: increasing exploration, development and production; decreasing nonessential gas demand through conversion and conservation; and increasing use of domestic resources.

Texas industry's arrival has brought with it greater job opportunities and a higher standard of living for the state's workers. Moreover, the intrastate market has proved to be unusually effective in promoting the twin goals of conservation and conversion. All this has been possible largely because the unregulated intrastate market has stimulated the production and development of gas supplies necessary to meet the needs of intrastate consumers.

New intrastate controls would only impede the flow of gas to both intrastate and interstate markets thereby benefitting no one. Reduced prices would obviate the incentive for conservation of gas and conversion of gas-burning facilities for substitute fuels, where possible. The best solution is total deregulation of the production and sale of new natural gas to allow the forces of supply and demand to do the job for which they are so well suited. PEG hopes this subcommittee will eschew the short range solutions and recommend that that the wellhead price of <u>all</u> new gas production be deregulated.

1974 CHEMICAL INDUSTRY ENERGY REQUIREMENTS COMPARED TO NATIONAL ENERGY INPUTS AND INDUSTRIAL DEMAND

(trillions of BTU)

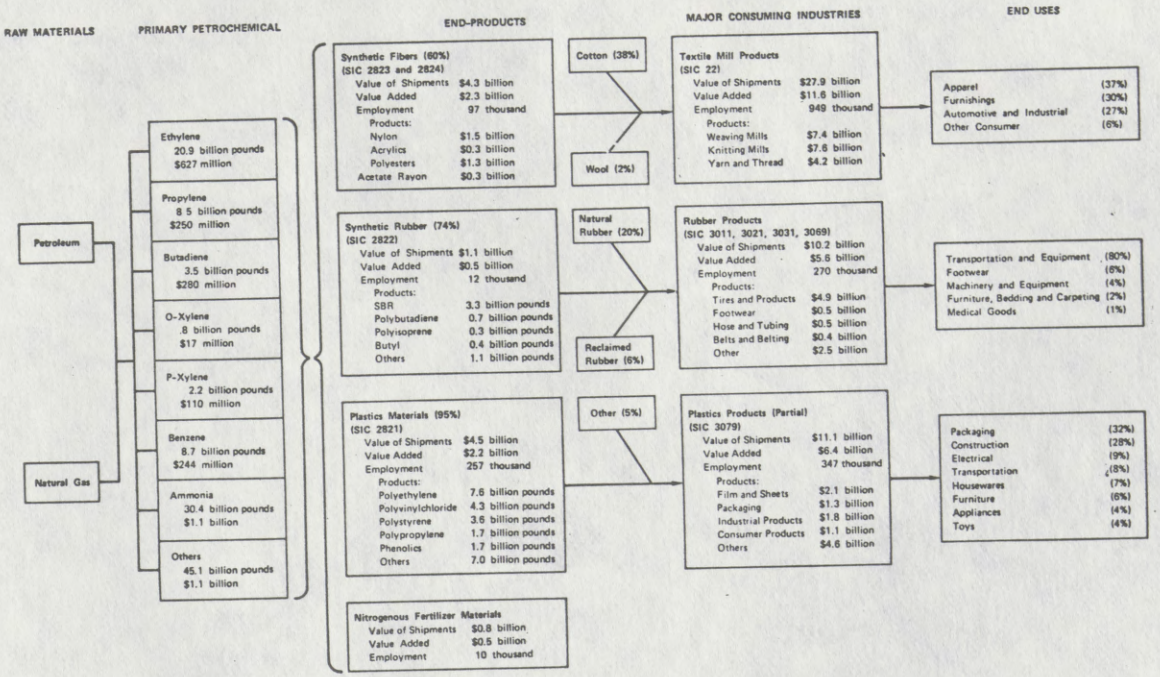
	National Energy Inputs	Industrial Demand	Total Chemical Industry			Petrochemicals		
			Requirements	% of National Inputs	% of Industrial Demand	Requirements	% of National Inputs	% of Industrial Demand
Natural Gas (dry)	22,237	11,129						
Fuel			1598	7.2	14.4	1031	4.6	9.3
Feedstock			567	2.6	5.1	567	2.6	5.1
Subtotal			2165	9.8	19.5	1598	7.2	14.4
Petroleum	33,490	5,826						
Fuel			237	0.7	4.1	152	0.5	2.6
Feedstocks								
Heavy Liquids			811	2.4	13.9	811	2.4	13.9
Gas Liquids			891	2.7	15.3	891	2.7	15.3
Subtotal			1939	5.8	33.3	1854	5.6	31.8
Coal	13,169	4,208	503	3.8	12.0	273	2.1	6.5
Electricity*								
Nuclear and Hydro	4,225	34						
Total Purchased			1195	--	--	487	--	--
Total	73,121	21,197	5802	7.9	27.4	4212	5.8	19.9

* Electric power inputs except for nuclear and hydro are included with requirements for other fossil fuels.

Source: Bureau of Mines, U.S. Department of Interior, and Arthur D. Little, Inc., estimates.

Table I

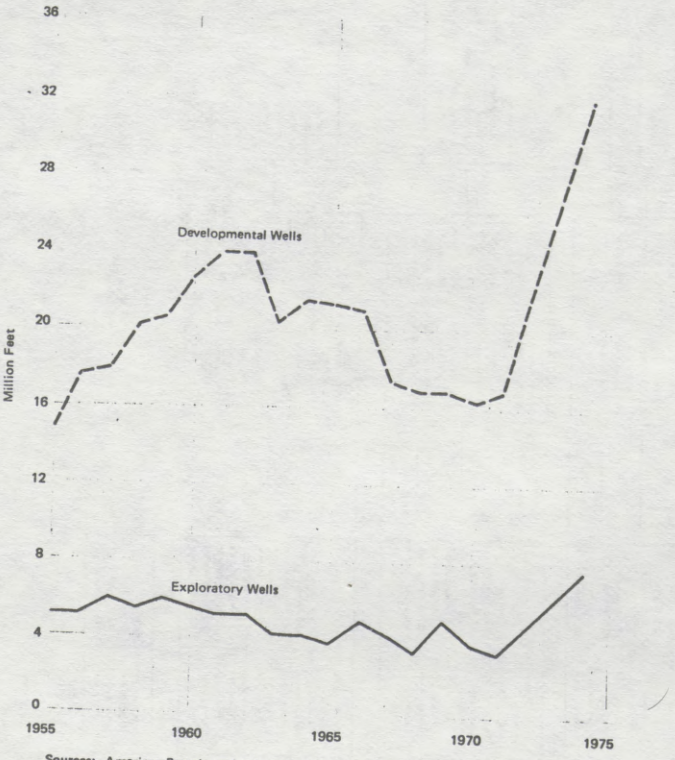
Major Petrochemical Product Usage – 1972



Source: U.S. Department of Commerce.

Table II

Table III



Sources: American Petroleum Institute and American Association of Petroleum Geologists.

Figure 2 Total U.S. Exploratory and Developmental Gas Well Footage Drilled, 1955–1974

Table IV

The 16 Largest Chemical Companies in the World

Ranking Based on Volume of Sales, 1975

Rank	Company	Country	75 Sales (*$ 000)
1	Hoechst	Germany	8,462,322
2	BASF	Germany	8,152,318
3	Bayer	Germany	7,223,302
4	E. I. DuPont de Nemours	United States	7,221,500
5	Imperial Chemical Industries	Britain	6,884,219
6	Union Carbide	United States	5,665,000
7	Montedison Group	Italy	5,417,741
8	Dow Chemical	United States	4,888,114
9	Rhone-Poulenc	France	4,173,798
10	Akzo Group	Netherlands	3,851,070
11	Monsanto	United States	3,624,700
12	W. R. Grace	United States	3,529,163
13	Ciba-Geigy	Switzerland	3,498,263
14	DSM	Netherlands	3,020,163
15	Courtaulds	Britain	2,684,295
16	Allied Chemical	United States	2,333,111

*Sales for U. S. Companies from Fortune, May, 1976; for Foreign Corporations from Fortune, August, 1976.

8/5/76

U.S. BALANCE OF TRADE IN PETROCHEMICALS
(millions of dollars)

Trade Class		1965	1966	1967	1968	1969	1970	1971	1972	1973	Preliminary 1974
1. Dyes, Organic Pigments 531	Exports	31.4	34.7	31.7	35.1	32.7	43.0	44.6	53.2	85.8	117.0
	Imports	26.8	35.4	35.0	49.9	63.4	69.7	97.2	100.8	104.3	106.2
		4.6	-0.7	-3.3	-14.8	-30.7	-26.7	-52.6	-47.6	-18.5	10.8
2. Plastics (except cellulosics) 581	Exports	377.2	422.6	423.0	530.9	533.8	593.0	593.3	628.9	944.2	1483.9
	Imports	36.5	53.6	54.9	87.2	91.5	115.0	126.2	168.7	197.7	312.2
		340.7	369.0	368.1	443.7	442.3	478.0	467.1	460.2	746.5	1171.7
3. Synthetic Rubber 231.2	Exports	163.1	175.1	170.0	180.3	139.6	176.0	172.7	161.0	195.8	289.8
	Imports	19.0	23.6	20.7	29.3	37.6	42.2	56.3	53.6	64.3	79.2
		144.1	151.5	149.3	151.0	102.0	133.8	116.4	107.4	131.5	210.6
4. Detergents & Surface Active Agents 554.2	Exports	47.2	50.9	53.7	64.7	62.9	69.3	71.9	76.8	95.8	141.8
	Imports	2.5	3.5	4.5	5.5	7.0	7.2	8.4	9.2	12.7	22.4
		44.7	47.4	49.2	59.2	55.9	62.1	63.5	67.6	83.1	119.4
5. Carbon Black 513.27	Exports	26.7	28.8	25.1	15.4	12.6	14.0	14.9	10.4	17.2	27.9
	Imports	–	1.2	–	0.2	1.4	1.1	1.4	1.6	3.0	7.1
		26.7	27.6	25.1	15.2	11.2	12.9	13.5	8.8	14.2	20.8
6. Aromatics & Olefins 521	Exports	40.5	26.2	28.3	66.8	62.1	49.2	32.5	30.7	72.5	83.8
	Imports	1.2	–	1.1	–	–	–	–	–	0.5	1.1
		39.3	26.2	27.2	66.8	62.1	49.2	32.5	30.7	72.0	82.7
7. Synthetic Fibers	Exports	129.7	133.3	123.7	136.8	155.0	175.4	186.5	191.6	344.7	507.8
	Imports	46.7	54.7	56.6	98.8	85.5	201.3	340.1	297.9	248.0	178.0
		83.0	78.6	67.1	38.0	69.5	-25.9	-153.6	-106.3	96.7	329.8
8. Organic Chemicals* 512.599	Exports	759.0	802.7	864.8	992.3	1016.4	1183.2	1143.0	1219.5	1683.8	2845.0
	Imports	144.4	189.0	184.6	221.8	263.3	298.7	345.3	432.5	546.5	1098.5
		614.6	613.7	680.2	770.7	753.1	884.5	797.7	787.0	1137.3	1746.5
9. Ammonia	Exports	14.0	16.2	22.6	26.5	33.0	30.2	16.3	21.9	41.2	48.8
	Imports	9.5	15.3	19.1	18.6	20.7	20.7	20.5	17.0	15.5	52.5
		4.5	.9	3.5	7.9	12.3	9.5	-4.2	4.9	25.7	-3.7
Grand Total	Exports	1588.8	1690.5	1742.9	2048.8	2048.1	2333.3	2275.7	2394.0	3481.0	5545.8
	Imports	286.6	376.3	376.5	511.1	570.4	755.9	995.4	1081.3	1192.5	1857.2
		1302.2	1314.2	1366.4	1537.7	1477.7	1577.4	1280.3	1312.7	2288.5	3688.6

*See Appendix E-2 and E-3 for further breakdowns.

Source: U.S. Department of Commerce, Bureau of the Census FT 110, FT 135 U.S. Imports, and FT 410 U.S. Exports

Arthur D Little Inc.

Table V

Table VI

Location of Existing and Expanding Natural Gas Based Ammonia Fertilizer Plants[1]

	New and Expanding Capacity					
	1974	1975	1976	1977	1978	Total
Total New Capacity*	615	915	254	2568	2228	6580
Total New Capacity on Unregulated Supply**	485	506	40	2568	1208	4807
Total New Capacity on Regulated Interstate Supply	130	309	214	0	1020	1673
Percent of New Capacity on Unregulated Supply	78.9	55.3	15.7	100	54.2	73.1
Number of New or Expanding Facilities	4	9	4	7	5	29
Number of New or Expanding Facilities on Unregulated Supply	2	2	1	7	3	15
Number of New or Expanding Facilities on Regulated Interstate Supply	2	7	3	0	2	14
Percent of New Expanding Facilities on Unregulated Supply	50	22.2	25	100	60	51.7

* Thousand Short Tons Material

** "On Unregulated Supply" is defined as facilities in Texas, Oklahoma and Louisiana, states with substantial unregulated intrastate gas supplies.

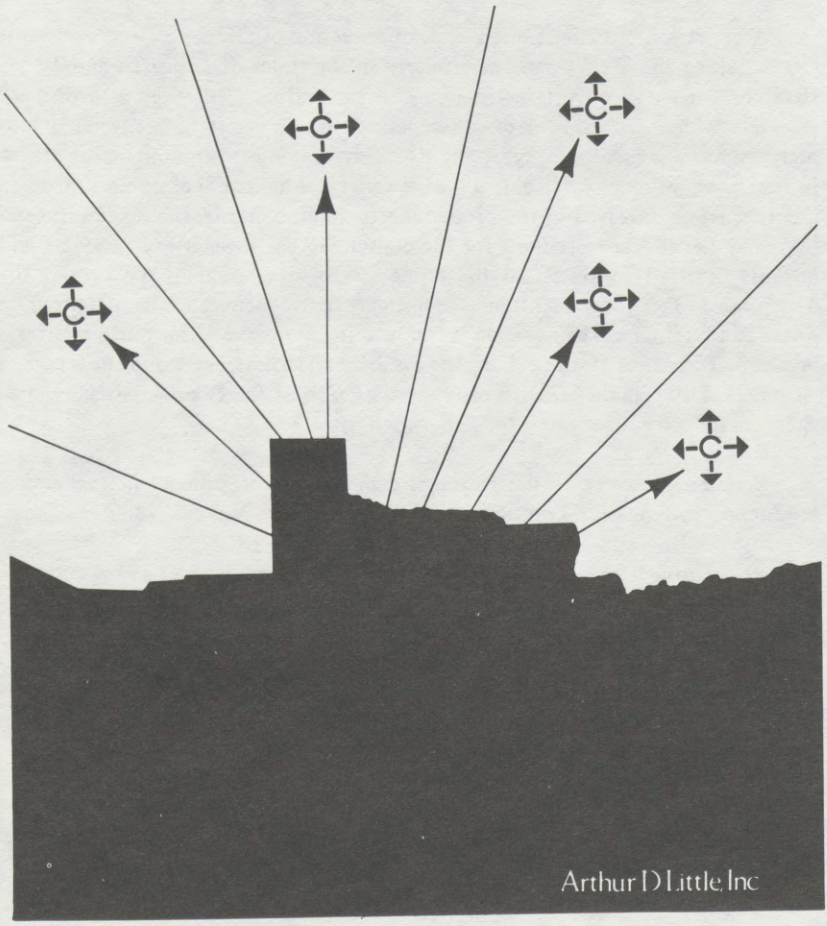
[1] Sources: "Circular Z-57," Supplement to Fertilizer Trends - 1973, National Fertilizer Development Center, Tennessee Valley Authority, Muscle Shoals, Ala. (1975).

"Anticipated Additions to U.S. Ammonia Capacity, FY," The Fertilizer Institute, Washington, D.C. (June 10, 1976).

	Total Capacity				
	1974	1975	1976	1977	1978
1. Number of Operating Facilities	91	92	93	101	106
2. Number of Facilities in Unregulates Supply	28	29	30	34	38
3. Percent of Operating Facilities in Unregulated Supply	30.7	31.5	32.3	33.6	35.8
4. Operating Capacity	17,738	18,371	18,976	21,476	24,476
5. Total Operating Capacity on Unregulated Supply	6816	6620	7130	9230	10,850
6. Percentage of Operating Capacity on Unregulated Supply	38.4	36.0	37.6	43.0	44.3

The Texas/Louisiana Petrochemicals Industry: Its Impact on the U.S. Economy

Report to the Petrochemical Energy Group



THE TEXAS/LOUISIANA PETROCHEMICAL INDUSTRY: ITS IMPACT ON THE UNITED STATES ECONOMY

I. SUMMARY

A major share of the United States production of primary petrochemicals is located along the Gulf Coast, particularly in the states of Louisiana and Texas. Here the industry converts petroleum and natural gas feedstocks into primary products which are shipped to other petrochemical plants for conversion into such products as fertilizers, synthetic fibers, synthetic rubbers, and plastic resins. In turn these products are sold to a wide variety of industrial customers throughout the nation involved in the production of food, clothing, shelter, transportation and health care products for the consumer. The diversity of products and markets involved suggests that the economies of other regions throughout the nation are in fact dependent on the primary petrochemicals manufactured in Texas and Louisiana. The question is just how many jobs and how much payroll is involved. To answer this question, the Petrochemical Energy Group (PEG) asked Arthur D. Little, Inc. (ADL) to examine the reach of the Texas/Louisiana petrochemical industry throughout the U.S. economy.

Economic activity in the nation is dependent upon primary petrochemical production in Texas and Louisiana in four ways:

- Through the production of primary petrochemicals in Texas and Louisiana;
- Through industrial product manufacturing operations which purchase primary petrochemicals;
- Through consumer product manufacturing operations which purchase primary petrochemicals directly or buy industrial products that are based on petrochemicals; and
- Through wholesale, retail, and service operations that involve petrochemical-derived products.

Based upon a detailed analysis of these four levels of dependence, there are 7.6 million jobs throughout the nation with a payroll of 53 billion dollars that are directly dependent upon the production of primary petrochemicals in Texas and Louisiana (see Table I). Of this total, approximately 4.5 million jobs are in manufacturing, construction, and crop production and 3.1 million jobs are in wholesale, retail, and other service sectors.

Of the total employment and payroll dependent on primary petrochemicals from Texas and Louisiana, some 62% is concentrated in the Mid-Atlantic, South Atlantic and East North Central regions of the United States. Almost 70% of the manufacturing, construction, and crop-related employment dependent upon

TABLE I

SUMMARY OF U.S. DEPENDENCE ON PRIMARY PETROCHEMICAL PRODUCTION IN TEXAS/LOUISIANA

I. U.S. Dependence on Primary Petrochemical Production in Texas/Louisiana

	Texas-Related	Louisiana-Related	Total
Manufacturing, Construction, and Crop-Producing Industries			
Employment (million)	3.0	1.5	4.5
Payroll ($ billion)	20.6	10.3	30.9
Production ($ billion)	128.4	64.2	192.6
Wholesale, Retail, and Other Services			
Employment (million)	2.1	1.0	3.1
Payroll ($ billion)	14.7	7.4	22.1

II. Regional Dependence on Primary Petrochemical Production in Texas and Louisiana

	Total[1] Employment (million)	Total[1] Payroll ($ billion)
New England	0.5	3.4
Middle Atlantic	1.5	11.7
South Atlantic	1.6	10.2
East North Central	1.6	11.1
East South Central	0.5	3.2
West North Central	0.4	3.2
West South Central	0.6	3.7
Mountain	0.2	1.2
Pacific	0.7	5.2
Total	7.6	52.9

1. Includes both manufacturing, construction, and crop-producing industries, plus wholesale, retail, and service industry data.

petrochemicals is located in these same three regions. Wholesale, retail, and service sector employment dependent on petrochemicals is less concentrated within specific regions of the country and tends to match population distribution patterns.

The combined national production value of the manufacturing construction and crop producing industries dependent on petrochemicals exceeded $190 billion in 1972.

II. ANALYSIS OF ECONOMIC DEPENDENCE

To determine how the petrochemical industry in Texas and Louisiana impacts on the national economy requires a definition of economic dependence as well as an understanding of the nature of the petrochemical industry, where it is located, and how it interacts with other sectors of the economy.

A. WHAT IS THE PETROCHEMICAL INDUSTRY?

The petrochemical industry takes certain petroleum fractions, natural gas and natural gas liquids and transforms them into a wide variety of primary petrochemicals. These primary products are then transferred to other sectors of the petrochemical industry throughout the nation for conversion to such products as synthetic fibers, plastics, synthetic rubber, detergents, paints, etc. In turn the fibers, plastics, synthetic rubber, and other products are fabricated by other industries into thousands of consumer products.

Few people realize the impact of petrochemicals on our lives. From oil and gas hydrocarbons now flow products that:

- increase our food supply,
- increase our clothing supply,
- provide shelter,
- improve human health, and
- provide transportation

As the supply of man-made materials has expanded, society has been given new options in the allocation of scarce capital, land, and other natural resources. In addition, an abundant supply of petrochemicals has made available hundreds of new products which have both created new jobs and helped us achieve our high standard of living.

B. WHERE IS THE PETROCHEMICAL INDUSTRY LOCATED?

The United States was the early pioneer of the petrochemical industry, with the most rapid growth occurring immediately after World War II. Much of the growth in the first-stage operations of the industry, involving production of primary petrochemicals, was concentrated along the U.S. Gulf Coast due mainly to the ready availability in this area of the necessary petroleum and natural gas, raw materials, or feedstocks. Today, most primary petrochemical production in the United States is still located in the Gulf area. Texas now produces about 46% and Louisiana about 23% of all basic petrochemicals.

The conversion of primary petrochemicals into fibers, synthetic rubbers, plastics, and other products is not as heavily concentrated in the Gulf Coast. For example, a significant share of total fiber production occurs in the southeastern

states, while the production of such petrochemical products as plastics, medicinals, and nitrogen fertilizers is even more widely dispersed. The major sectors of the U.S. petrochemical industry and the regional manufacturing employment patterns of the industry are shown in Table II.

C. DEFINITIONS OF DEPENDENCE

The wide geographic dispersion of petrochemical manufacturing creates a direct dependence of other regions upon primary production in Texas and Louisiana. A region's degree of dependence is increased by the existence of industrial and consumer product manufacturing operations which require a significant input of petrochemical-based products. As a result, the reach of, or dependency on, the Texas/Louisiana petrochemical industry is quite broad. However, prior to measuring this reach, the meaning of dependence needs some definition.

1. Direct versus Indirect Dependence

Direct dependence reflects either the manufacture of petrochemicals in a region or the need of industries in that area for petrochemical raw materials or converted petrochemical products as necessary inputs. For example, the tire industry is directly dependent upon the purchase of synthetic rubber, while the auto industry is dependent upon rubber tires. Thus, both the tire and auto industries are directly dependent upon the petrochemical industry.

Indirect dependence can best be defined by the following example. The steel industry is indirectly dependent upon the petrochemical industry because if the supply of a petrochemical product (e.g., tires) were reduced to the auto industry, forcing a cut in auto production, then steel sales to car manufacturers would be reduced as well. Thus, indirect dependence reflects the fact that an industry which may not be using petrochemical-derived raw materials or converted products is selling to a customer who is directly dependent on the petrochemical industry.

For purposes of identifying the reach of the petrochemical industry in this study, ADL has focused only on the direct economic dependence between the primary petrochemical industry in Texas/Louisiana and each geographical region.

2. Primary and Secondary Dependence

Since almost every industry purchases some petrochemicals, a substantial fraction of the U.S. economy is directly dependent upon petrochemicals. However, in measuring the reach of the petrochemical industry, it was appropriate to be somewhat more discriminating. As a result, we have included in our analysis those industries which typically spend more than 5% of their total dollar purchases on petrochemicals. This cut off may exclude some industries such as aerospace and electronics where petrochemical products are essential for con-

TABLE II

ESTIMATED 1974 REGIONAL MANUFACTURING EMPLOYMENT IN THE PETROCHEMICAL INDUSTRY BY INDUSTRY SECTOR
(thousands of employees)

SIC No.	Industrial Organics (2869)	Cyclic Intermediates (2865)	Plastics and Resins (2821)	Synthetic Rubber (2822)	Synthetic Fibers (2824)	Surface Active Agents (2843)	Nitrogen Fertilizer (2873)	Medicinals (2833)	Carbon Black (2895)	Total Petrochemical Industry
New England	6	1	16	–	–	1	1	1	–	26
Middle Atlantic	21	13	5	1	1	2	–	4	–	47
South Atlantic	14	5	7	–	55	1	1	–	–	83
East North Central	9	5	14	3	–	1	1	1	–	34
East South Central	8	1	5	2	22	–	2	–	–	40
West North Central	6	1	3	–	–	1	2	2	–	15
West South Central	34	2	6	6	2	–	2	1	3	56
Louisiana	6	–	2	2	2		1	–	1	14
Texas	24	2	4	4	–		1	1	2	38
Subtotal	30	2	6	6	2		2	2	3	52
Mountain	1	–	–	–	–	–	–	–	–	1
Pacific	3	–	3	–	–	1	1	–	–	8
Total	102	28	59	12	80	7	10	9	3	310

Sources: 1972 Census of Manufactures, 1972 County Business Patterns, updated to 1974 by Arthur D. Little, Inc.

tinued operation. However, this criteria identifies a group of industries which have a primary dependence upon petrochemicals. The broader range of industries which purchase smaller quantities of petrochemicals have a secondary dependence on petrochemicals, and these industries have been excluded from this study.

3. Interdependence

The production of primary petrochemicals in Texas and Louisiana is sold to industries throughout the nation. A certain fraction of production in petrochemical-dependent industries ultimately finds its way back to Texas and Louisiana for further manufacture or sale to end users. This concept of interdependence recognizes that the economies of the various regions in the nation are linked by the flow of goods and services. For example, synthetic fiber raw materials produced in Texas and Louisiana are converted to fibers and textiles in the Southeast and are used as upholstery in an automobile produced in the East North Central or Middle Atlantic regions of the United States. A number of these autos will be purchased by residents of Texas and Louisiana. This interdependence is important to recognize, though the actual dimensions of such product flows from region to region is difficult to document with the economic data now available.

D. IDENTIFICATION OF PRODUCT FLOWS

The full network of relationships between primary petrochemicals produced in Texas and Louisiana and the consumer is complex, but we have identified some of the more important product flows in establishing the reach of the petrochemical industry throughout the economy. A number of major consumer product sectors have been identified as depending heavily on the input of petrochemical products, including:

- Motor vehicles
- Furniture
- Appliances
- Apparel
- Home furnishings
- Pharmaceuticals

In addition petrochemical products are essential in the production of crops and in the construction industry. There are also a number of other secondary manufacturing industries involved, as noted in Table III, as well as the wholesale, retail, and service industries associated with these products.

TABLE III

MAJOR INDUSTRIES DIRECTLY DEPENDENT ON PRIMARY PETROCHEMICAL PRODUCTION IN TEXAS AND LOUISIANA

I. Manufacturing

Industrial Products

- Plastics and Resins
- Synthetic Rubber
- Synthetic Fibers
- Rugs and Tire Cord
- Electric Lighting and Wire
- Construction*
- Fabricated Plastic Products
- Miscellaneous Rubber Products
- Fabrics and Yarn
- Batteries and Related Equipment
- Paint
- Converted Paper Products
- Surface Active Agents
- Industrial Organics
- Agricultural Chemicals

Consumer Products

- Motor Vehicles
- Appliances
- Furniture*
- Pharmaceuticals and Toilet Preparations
- Sporting Goods, Hobbies and Toys
- Apparel
- Home Furnishings
- Soaps and Detergents
- Tires
- Phonograph Records
- Crops

II. Wholesale and Retail

- Motor Vehicle Dealers & Parts Suppliers
- Furniture & Home Furnishings Stores
- Electrical Goods and Appliances Stores
- Drug Stores
- Wholesale Chemicals
- Paint, Glass, and Wallpaper Stores
- Sporting Goods and Hobby Shops
- Luggage and Leather Stores
- Air Conditioning and Refrigeration Equipment
- Wholesale Crops
- Apparel and Accessory Stores

III. Services

- Automotive Repair Shops
- Electrical and Electronic Repair Shops
- Reupholstery and Furniture Repair Shops
- Dry Cleaning Plants

*Not all sectors of each industry are dependent on petrochemicals. For example, we estimate only 10% of construction and 60% of furniture output is directly dependent on petrochemicals.

E. CONCLUSIONS

Based upon the definitions noted above, ADL has estimated the direct dependence upon Texas and Louisiana primary petrochemical production in two sectors of the economy:

- manufacturing, construction, and crop-producing industries as shown in Table IV, and
- wholesale, retail, and other service activities as noted in Table V.

In the first sector, the dependence is measured in terms of employment, value of payroll, and value of production. There is some double counting in the value of production estimate. It is worth noting, however, that the combined national production value of the manufacturing, construction, and crop producing industries dependent on petrochemicals exceeded $190 billion in 1972. In the wholesale, retail and service sector, employment and payroll are the appropriate measures, since aggregation of sales data in service-type activities results in

TABLE IV

U.S. REGIONAL EMPLOYMENT, PAYROLL AND PRODUCTION VALUE IN MANUFACTURING, CONSTRUCTION AND CROP-PRODUCING INDUSTRIES DIRECTLY DEPENDENT ON THE TEXAS AND LOUISIANA PETROCHEMICAL INDUSTRY

Region	Employment (000 employees)	Payroll ($ billion)	Production Value ($ billion)
New England	297	2.1	11.7
Middle Atlantic	927	7.2	35.4
South Atlantic	1116	6.9	41.7
East North Central	1026	6.9	41.4
East South Central	360	2.1	13.5
West North Central	153	1.5	10.8
West South Central	243	1.8	15.0
Mountain	54	0 3	3.6
Pacific	303	2.1	19.5
Total U.S. Direct Dependence on Texas and Louisiana	4479	30.9	192.6

Note: Texas and Louisiana currently produce 69% of all primary petrochemicals; thus, 69% of the activity in those industries directly dependent on petrochemicals depends upon production in Texas and Louisiana.

Source: 1972 Census of Manufactures, County Business Patterns, and Arthur D. Little, Inc., estimates.

TABLE V

U.S. REGIONAL EMPLOYMENT AND PAYROLL IN WHOLESALE, RETAIL, AND OTHER SERVICE INDUSTRIES DIRECTLY DEPENDENT ON THE TEXAS AND LOUISIANA PETROCHEMICAL INDUSTRY

	Employment (000 employees)				Payroll ($ million)			
Region	Wholesale	Retail	Service	Total	Wholesale	Retail	Service	Total
New England	45	123	12	180	441	762	57	1260
Middle Atlantic	207	330	39	576	2157	2136	237	4530
South Atlantic	120	333	42	495	1071	2058	204	3333
East North Central	165	369	36	570	1602	2418	195	4215
East South Central	48	114	15	177	360	657	54	1071
West North Central	90	153	15	258	750	903	69	1722
West South Central	84	201	21	306	672	1143	99	1914
Mountain	33	93	9	135	279	585	42	906
Pacific	114	270	27	411	1104	1881	162	3147
Total U.S. Direct Dependence on Texas and Louisiana	906	1986	216	3108	8436	12543	1119	22098

Note: Texas and Louisiana currently produce 69% of all primary petrochemicals; thus, 69% of the activity in those industries directly dependent on petrochemicals depends upon production in Texas and Louisiana.

Sources: 1972 Census of Wholesale Trade, Retail Trade, and Selected Services, County Business Patterns, and Arthur D. Little, Inc., estimates.

considerable double-counting. Our analysis indicates that in total there are 7.6 million jobs throughout the nation with a payroll of 53 billion dollars that are directly dependent upon the production of primary petrochemicals in Texas and Louisiana (see Table I). Of this total, approximately 4.5 million jobs are in manufacturing, construction, and crop production and over 3.1 million jobs are in wholesale, retail, and other service sectors.

Of the total employment payroll and manufacturing production value, dependent on primary petrochemicals from Texas and Louisiana, some 62% is concentrated in the Mid-Atlantic, South Atlantic and East North Central regions of the United States. Almost 70% of the manufacturing, construction and crop-related employment dependent upon petrochemicals is located in these same

three regions. Wholesale, retail, and service sector employment dependent on petrochemicals is less concentrated within specific regions of the country and tends to match population distribution patterns.

Tables VI and VII present a breakdown of the direct dependence on Texas petrochemical production by geographic regions, while Tables VIII and IX present similar information for Louisiana.

TABLE VI

U.S. REGIONAL EMPLOYMENT, PAYROLL AND PRODUCTION VALUE IN MANUFACTURING, CONSTRUCTION, AND CROP-PRODUCING INDUSTRIES DIRECTLY DEPENDENT ON THE TEXAS PETROCHEMICAL INDUSTRY

Region	Employment (000 employees)	Payroll ($ billion)	Production Value ($ billion)
New England	198	1.4	7.8
Middle Atlantic	618	4.8	23.6
South Atlantic	742	4.6	27.8
East North Central	684	4.6	27.6
East South Central	240	1.4	9.0
West North Central	102	1.0	7.2
West South Central	162	1.2	10.0
Mountain	36	0.2	2.4
Pacific	202	1.4	13.0
Total U.S. Direct Dependence on Texas	2986	20.6	128.4

Note: Texas currently produces 46% of all primary petrochemicals; thus, 46% of the activity in those industries directly dependent on petrochemicals depends upon production in Texas.

Sources: 1972 Census of Manufactures, County Business Patterns, and Arthur D. Little, Inc., estimates.

TABLE VII

U.S. REGIONAL EMPLOYMENT AND PAYROLL IN WHOLESALE, RETAIL, AND OTHER SERVICE INDUSTRIES DIRECTLY DEPENDENT ON THE TEXAS PETROCHEMICAL INDUSTRY

	Employment (000 employees)				Payroll ($ million)			
Region	Wholesale	Retail	Service	Total	Wholesale	Retail	Service	Total
New England	30	82	8	120	294	508	38	840
Middle Atlantic	138	220	26	384	1438	1424	158	3020
South Atlantic	80	222	28	330	714	1372	136	2222
East North Central	110	246	24	380	1068	1612	130	2810
East South Central	32	76	10	118	240	438	36	714
West North Central	60	102	10	172	500	602	46	1148
West South Central	56	134	14	204	448	762	66	1276
Mountain	22	62	6	90	186	390	28	604
Pacific	76	180	18	274	736	1254	108	2098
Total U.S. Direct Dependence on Texas	604	1324	144	2072	5624	8362	746	14732

Note: Texas currently produces 46% of all primary petrochemicals; thus, 46% of the activity in those industries directly dependent on petrochemicals depends upon production in Texas.

Sources: 1972 Census of Wholesale Trade, Retail Trade, and Selected Services, County Business Patterns, and Arthur D. Little, Inc., estimates.

TABLE VIII

U.S. REGIONAL EMPLOYMENT, PAYROLL AND PRODUCTION VALUE IN MANUFACTURING, CONSTRUCTION, AND CROP-PRODUCING INDUSTRIES DIRECTLY DEPENDENT ON THE LOUISIANA PETROCHEMICAL INDUSTRY

Region	Employment (000 employees)	Payroll ($ billion)	Production Value ($ billion)
New England	99	0.7	3.9
Middle Atlantic	309	2.4	11.8
South Atlantic	372	2.3	13.9
East North Central	342	2.3	13.8
East South Central	120	0.7	4.5
West North Central	51	0.5	3.6
West South Central	81	0.6	5.0
Mountain	18	0.1	1.2
Pacific	101	0.7	6.5
Total U.S. Direct Dependence on Louisiana	1493	10.3	64.2

Note: Louisiana currently produces 23% of all primary petrochemicals; thus, 23% of the activity in those industries directly dependent on petrochemicals depends upon production in Louisiana.

Sources: 1972 Census of Manufactures, County Business Patterns, and Arthur D. Little, Inc., estimates.

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TABLE IX

U.S. REGIONAL EMPLOYMENT AND PAYROLL IN WHOLESALE, RETAIL, AND OTHER SERVICE INDUSTRIES DIRECTLY DEPENDENT ON THE LOUISIANA PETROCHEMICAL INDUSTRY

Region	Employment (000 employees)				Payroll ($ million)			
	Wholesale	Retail	Service	Total	Wholesale	Retail	Service	Total
New England	15	41	4	60	147	254	19	420
Middle Atlantic	69	110	13	192	719	712	79	1510
South Atlantic	40	111	14	165	357	686	68	1111
East North Central	55	123	12	190	534	806	65	1405
East South Central	16	38	5	59	120	219	18	357
West North Central	30	51	5	86	250	301	23	574
West South Central	28	67	7	102	224	381	33	638
Mountain	11	31	3	45	93	195	14	302
Pacific	38	90	9	137	368	627	54	1049
Total U.S. Direct Dependence on Louisiana	302	662	72	1036	2812	4181	373	7366

Note: Louisiana currently produces 23% of all primary petrochemicals; thus, 23% of the activity in those industries directly dependent on petrochemicals depends on production in Louisiana.

Sources: 1972 Census of Wholesale Trade, Retail Trade, and Selected Services, County Business Patterns, and Arthur D. Little, Inc., estimates.

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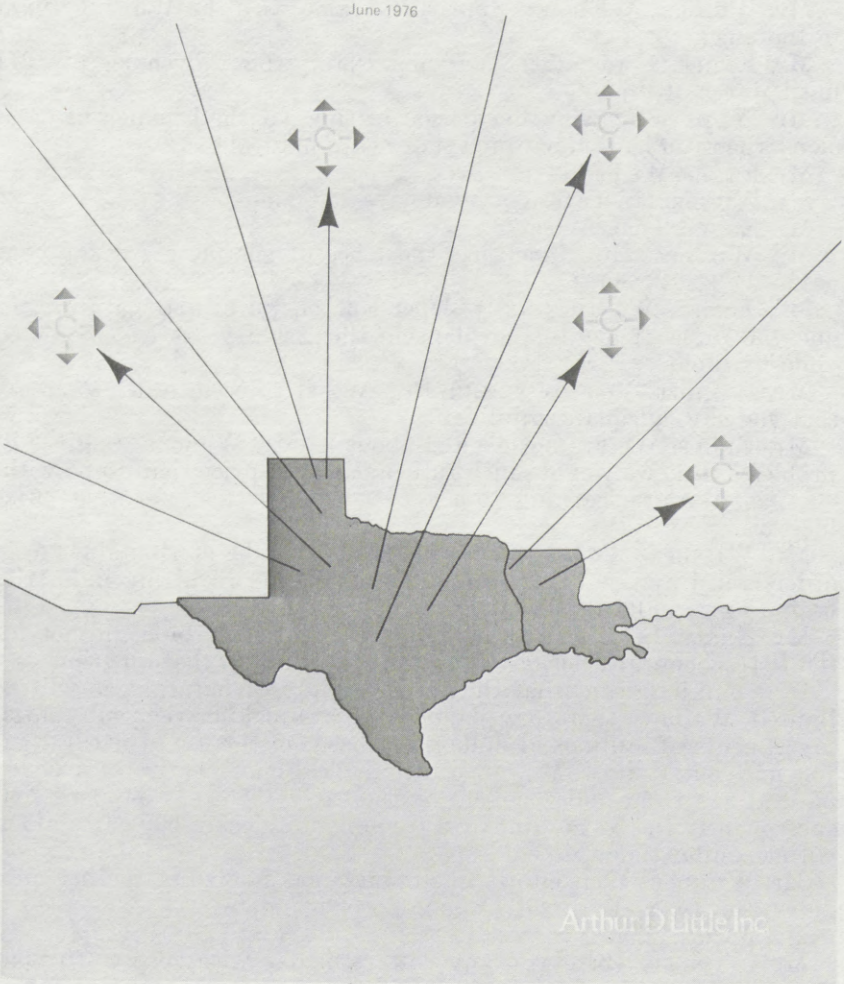
Report to the Petrochemical Energy Group

June 1976



Mr. Moss. The Chair recognizes for 15 minutes the counsel for the minority, Mr. Wunder.

Mr. WUNDER. Thank you, Mr. Chairman.

Mr. Engle, how long have you been in Texas City?

Mr. ENGLE. I have been in Texas City since March 1974.

Mr. WUNDER. What was your time frame with the Whiting Plant in Indiana?

Mr. ENGLE. I was at the Whiting Plant from November of 1971 until March of 1974.

Mr. WUNDER. During that period of time you had numerous occasions when you had interrupted supplies of natural gas?

Mr. ENGLE. We had several, yes.

Mr. WUNDER. In Texas City you have had none?

Mr. ENGLE. That is correct.

Mr. WUNDER. How much has the price of gas increased for your use in the last 2 years?

Mr. ENGLE. We are totally dependent on purchased natural gas, and the price of gas to the plant in the last 2 years has increased almost sixfold.

Mr. WUNDER. You are willing to pay that price in order to assure that you have adequate supplies?

Mr. ENGLE. We are not excited about it, Mr. Wunder. It gives us problems. But we would much rather pay that price than to be without gas. We are learning to make accommodations for that price increase.

Mr. WUNDER. Would those accommodations be attributable to an order issued by the Texas Railroad Commission requiring industrial users to go to alternative fuels for boiler fuel use?

Mr. ENGLE. Let me speak here only for Union Carbide and not for the Petrochemical Energy Group in responding to that question.

It is our judgment that the future supply of natural gas will be limited. We have therefore planned and are making very substantial investments of millions of dollars to phase out the use of natural gas for unessential uses. We expect to have almost entirely removed natural gas from under boilers by the early 1980's. It happens that subsequently the Texas Railroad Commission docket 600 came along with a similar time frame.

Mr. WUNDER. Your efforts to eliminate gas for boiler fuel use predates the Texas Railroad Commission's mandate?

Mr. ENGLE. That is correct.

Mr. WUNDER. Have you any cost estimates with respect to your plant as to what it will cost to convert to the use of alternative fuels?

Mr. ENGLE. Yes. For our plant we have a four-phase program for short-term (5–6 years) conversion to fuel oil. That program has a pricetag of approximately $40 million. Two of those phases have been completed calling for an expenditure of some $12 million to date.

Beyond that interim conversion to fuel oil on the gulf coast, including our plant at Texas City, we are talking about coal; and of course, a coal-fired plant is a whole new ball game. I have no estimates on the cost of converting to coal at this time.

Mr. WUNDER. Would it be the position of the Petrochemical Energy Group and Union Carbide that we should eliminate the two markets and have one free market and deregulate natural gas at the wellhead?

Mr. ENGLE. Both Union Carbide and PEG have taken the position that deregulation at the wellhead and a single, free market pricing structure would encourage additional production and would tend to put natural gas to its highest value and best use.

Mr. WUNDER. Thank you, Mr. Chairman.

Mr. Moss. Mr. Collins.

Mr. COLLINS. Thank you, Mr. Chairman. I wonder if I can ask for unanimous consent at this time to get a report from Reynolds Aluminum Co. for their Corpus Christie Plant? Last week Mr. Harry Hubbard made the statement that they closed the Reynolds Plant because of the high natural gas prices. We have been told the reason they closed it was because of a lack of demand for aluminum, a 33-percent decrease. I wonder if I could make a unanimous request to get a statement from the company?

Mr. Moss. Without objection, the record will be held, and the request for the statement will be made.

Do you want to take care of that, or do you want me to direct the staff to do it?

Mr. COLLINS. I would like to do it, Mr. Chairman.

Mr. Moss. All right. The request may be made.

[The following letter was received for the record:]

REYNOLDS ALUMINUM,
REYNOLDS METALS CO.,
Richmond, Va., September 21, 1976.

The Honorable JAMES M. COLLINS,
Rayburn House Office Building,
Washington, D.C.

DEAR MR. COLLINS: Your letter of September 13, 1976, addressed to Mr. George M. Walters, concerning the closing of our San Patricio Reduction Plant in Corpus Christi, Texas, has been referred to me.

Because of the softening of the demand for aluminum, Reynolds Metals Company found it necessary in late 1974 and early 1975 to reduce its primary aluminum production. First, our Jones Mills, Arkansas Reduction Plant was partially shut down in December, 1974 and secondly in January 1975, we began the closing of our San Patricio Plant. The reason Reynolds elected to cut-back its primary production of aluminum in the 1974–75 period was to avoid creating excessive inventories which would place an undue financial burden on the company.

When management is faced with the decision to close a Reynolds production facility, many cost factors must be considered, including transportation, raw materials and in large measure, energy. The facility representing high cost metal production is the one that must logically be closed to minimize the financial impact on the company. Once the painful decision was made to shut down a portion of our primary aluminum production, the costs related to producing metal were evaluated for each plant. The second plant closing was the San Patricio Reduction Plant and the high cost of energy was a major consideration. Let me emphasize that the main reason for reducing our primary metal production levels was because of a diminished demand for aluminum, not the high cost of natural gas.

We are very pleased to have announced the reopening of operations at our San Patricio Reduction Plant later this year. Because it represents a high cost metal plant, the San Patricio Plant is the last of the curtailed production facilities to be reopened and we now plan to reopen operations in two phases similar to our closing of the plant.

We trust that this will explain satisfactorily the reasons for our having to close our San Patricio Reduction Plant in 1975. We understand that this letter will, along with your letter of September 13, become a part of the hearing record concerning the impact of the "intrastate gas market, on labor, consumers and agriculture".

Sincerely,

RICHARD E. COLE,
Vice President, Primary Metals Division.

Mr. COLLINS. Now you are not a lawyer, are you? What are you?

Mr. ENGLE. I am a chemist by profession. I am a plant manager by assignment.

Mr. COLLINS. You are in this business down in Texas of operating at a low cost. I imagine you are the one responsible for the low cost operation, aren't you? Yet I notice on this group which you are associated with which is made up of a large number of consumer industries, the Petrochemical Energy Group, you all came out unanimously in favor of the open price, the unregulated gas market. Is that pretty consistent for the industry? Do you know people in the industry who have come out and said that we should have a regulated price?

Mr. ENGLE. Mr. Collins, I do not know of any particular manufacturer in the petrochemical industry who has made such proposal.

Mr. COLLINS. Let me go to a specific thing. You said that today the incentive is to maintain gas because of the low price we have. In other words, if you are anywhere outside of an intrastate market as a manager you have an incentive to continue to use gas. That was your experience when you were in Whiting. Now, would you elaborate on that? Why is the incentive there to keep using gas if it is under interstate control?

Mr. ENGLE. The ability to buy gas, Mr. Chairman, at the relatively low interstate price provided absolutely no incentive to invest in conservation measures. In fact, I would have incurred the wrath of our financial people if I had invested money to use a more expensive fuel in lieu of a less expensive fuel. As long as interstate gas was freely available at the plant it obviously made no sense to provide for other fuel usage.

Mr. COLLINS. On a Btu basis gas was selling much lower than any other comparable energy you could use?

Mr. ENGLE. That is correct.

Mr. COLLINS. When it was under control. Let us take the Brownsville situation which impressed me. You did this voluntarily for your company. What is the oil going to cost per barrel? You are taking now 75 percent of what you used to use in the way of gas and you are going to be able to convert that to oil. What will that oil cost per barrel?

Mr. ENGLE. Mr. Collins, we buy our fuel oil, which is No. 2 fuel oil and Bunker C oil on the Gulf Coast at the posted market price. We have no internal sources of supply. We must pay whatever that market price is on the Gulf Coast. Our decision was based on a cost of $12 per barrel.

Mr. COLLINS. What should gas be selling for on a Btu count if oil sells for $12?

Mr. ENGLE. Mr. Collins, my calculations are based on the assumption that $12 per barrel oil is equivalent to $2 a thousand cubic feet of natural gas.

Mr. COLLINS. In other words, if the interstate price, if FPC had really provided an adequate and proper interstate price they would have set it around $2 instead of $1.42? That is based on actual operations?

Mr. ENGLE. That would be the oil equivalent price.

Mr. COLLINS. I have been contending that the $1.42 is too low and it is not realistic. What you said in your actual experience would

indicate that in Brownsville $2 would have been the right price and that is right in Texas where the oil is with the low cost delivery transaction.

On the matter of imports we have grown in this country from a 13 percent quota in 1969 to where today we have a 41 percent import. If we did not have this imported oil and had to rely on the natural energy we had within our own country do you think American industry could live with the situation or do you think they are completely dependent on the OPEC imports?

Mr. ENGLE. Mr. Collins, for me to answer that question would be sheer speculation. It is inconceivable to me as an individual that we could live on internal supplies in the near term.

I think, however, that the equivalent pricing that we have just discussed would bring us a great deal of future relief in that regard.

Mr. COLLINS. Has your company been using coal as an alternative source? We have a 200-year supply of coal. You can't use it as your feedstock but you can use it in other ways. Can you use coal as an alternative source or has it priced itself out of the market?

Mr. ENGLE. We do, Mr. Collins, use coal as the source under our boilers in some of our petrochemical plants around the country. We are working on long-range plans that would enable us to use coal on the gulf coast for the production of steam.

Furthermore, Union Carbide over a number of years has expended something like $60 million in research and development pilot plants attempting to derive both gaseous fuels and gaseous feedstock materials which might one day, decades ahead, be substitutes for natural gas as feedstock material. We have spent these research dollars, on the belief that positive results will come in the future. This work is very closely tied into some Government supported projects such as Coalcon.

Mr. COLLINS. You say that yours is a very heavy capital expenditure. Do you know in your plants what it is in terms of dollars per employee? Would it be $100,000?

Mr. ENGLE. Let me answer that question, if I may, by talking about what it will cost in 1976, 1977, 1978 dollars as we build new facilities at Texas City.

For example, a new basic ethylene plant at Texas City would involve almost $500,000 of investment per new employee.

Mr. COLLINS. A new plant would run $500,000 per employee?

Mr. ENGLE. Yes, per new employee.

Mr. COLLINS. In other words, you can't afford to shut down? The raw material is a very minor part. The big issue is to keep the plant in operation 24 hours a day? Is that the essence of it?

Mr. ENGLE. The continued operation is a mandatory activity for a break-even on our profit situation.

Mr. COLLINS. Thank you, Mr. Chairman.

Mr. MOSS. Mr. Krueger.

Mr. KRUEGER. Thank you, Mr. Chairman.

It is good to have you with us today, Mr. Engle. We appreciate your coming here for this testimony. It is, of course, always an interesting perspective to find a consumer who would like to pay higher prices or when given a choice would choose higher prices over lower ones where the commodity is not available. I am interested in your

decision to close the Indiana plant. Was that based largely on the lack of availability of natural gas partly, or partly on outdated facilities, or how important a factor was that in the decision to close the Indiana plant?

Mr. ENGLE. That decision, Mr. Krueger, was a very complex one. You can imagine that the decision to walk away from that amount of investment and number of employees is a complex situation. It would be unreasonable for me to say this morning that that plant closed down because of shortage of natural gas and that was the compelling reason.

I do not want to leave the impression that the interstate market alone caused that closing. It was a significant contributing factor to negative economics of that plant. Certainly it added to the picture.

Mr. KRUEGER. So it was one part of a complex economic picture. The particular way in which it impinged upon your plant was the fact that you simply could not afford to shut it down, that shutting down of the plant for even a few days was too costly?

Mr. ENGLE. That is right.

Mr. KRUEGER. When you talk about reducing your use of natural gas to one-quarter of its original use in the Brownsville plant, what is it that you were faced with as a boiler fuel? Was it entirely No. 2 and other oils or was it anything else at this time?

Mr. ENGLE. It was almost entirely a conversion to fuel oil supplemented by such energy conservation measures as we could build into the plant.

Mr. KRUEGER. Why did you elect to substitute with fuel oil at this time? Was natural gas coming to be roughly competitive in cost? Was natural gas higher in cost? Was it the sense that sooner or later you would have to do that and natural gas supplies had to be used for more precious purposes than for boiler fuel even if the cost was not yet competitive? Which one of those things was it that made you convert at this time?

Mr. ENGLE. Mr. Krueger, if we were operating that plant only for a year or two we would simply not have converted. We would not have spent that money. It was not the absence of fuel. It was indeed our conviction that in the long-term natural gas supplies are going to decrease in availability and the best business decision, the best economic decision, the best social decision over a long period of time was to get gas out from under Union Carbide boilers. Brownsville happened to be one of the most attractive spots at which to do that, considering the investment, and the gas released in an area where it could be utilized for other purposes. It was the beginning of a long-range plan to reduce our reliance on gas as a boiler fuel.

Mr. KRUEGER. When you spoke of the loss or in effect the waste of natural gas in Indiana could you give an example of what you mean by the waste? You say it did not make sense economically to spend money to reduce consumption when you could burn as much gas as you could let.

I am trying to envision what it was that was happening. You were not presumably flaring gas. How would the gas be used that was being wasted?

Mr. ENGLE. When natural gas is cheap and projected to be cheap during the life of a powerplant such as we have in our petrochemical plants, Mr. Krueger, one simply does not design into that system

heat recovery systems insulation techniques, or engineering standards that result in maximum savings of heat energy.

It is common practice where energy is cheap under a boiler to vent off the steam that is not used in production of electricity, for example, in operating a turbine.

More recently topping turbines will pick up some of that steam and use it a second time for another purpose. If you have an adjacent petrochemical plant you bleed steam from the generating turbines into the pots and pans to heat the columns and stills and so on in that plant. You make use of that steam at two or three different pressure levels rather than throw it into the air.

Those are the kinds of things that with additional investment, additional engineering design, give you better heat utilization. On recovery of heat from natural gas in industry I have seen numbers all the way from thirty percent in some facilities to eighty some percent recovery of available heat in other facilities.

Mr. KRUEGER. You are suggesting then that the recognition of the increased price prompted increased conservation of natural gas. Congress has recently looked at and in some instances passed, at least the House has passed, legislation that would give financial incentives to industry for developing processes that would recapture steam that has now been vented off and things like that.

From the viewpoint of one who is an engineer and plant manager and so forth, would you care to compare the efficacy of using Government grants or tax reductions for specific conservation measures of that sort? Would you care to compare that kind of approach with just the conservation effect of increased price? Which way do you think you are more likely to save the users, the companies and so forth?

Mr. ENGLE. Certainly, Mr. Krueger, the increase in the price of natural gas has already provided us with a tremendous incentive.

Mr. KRUEGER. You are not looking for any more incentive?

Mr. ENGLE. For us that is incentive enough. I really could not speak to what extent we would be excited by other legislation.

Mr. KRUEGER. When you spoke of the conversion to coal that is to come later, what kind of problems of transportation do you anticipate for bringing the coal in Brownsville which, as far as I know, is not known as a particular coal capital? How do you expect to bring it in? What do you expect to be the cost? What is the comparison in Btu cost between coal to be used for boiler fuel and natural gas?

Mr. ENGLE. I think I would have to say, Mr. Krueger, that the planning documents to which I had had access are too preliminary to talk about cost estimates. We are having conservations with regulatory bodies such as the Texas Air Control Board, the Department of Transportation, Environmental Protection Agency, and others regarding those problems which are going to be rather horrendous and which are going to develop in the 1980's. I am not prepared today to give you any financial data on coal conversion.

Mr. KRUEGER. But at some point evidently your company decided it was going to be economically feasible or necessary to convert to coal for boiler fuel. et cetera.

Mr. ENGLE. I think we decided it was going to be technically essential because of the unavailability of a natural gas alternative.

Mr. KRUEGER. Do you know at this point from where you will be

bringing in that coal? Are you anticipating western coal or lignite from Texas or eastern coal or has that decision been made so far as you know?

Mr. ENGLE. To the best of my knowledge, that decision has not been made.

Mr. KRUEGER. In general, as a final question, has the availability of energy supplies been important in the location of your plant not only in the case of Brownsville versus Whiting but in other instances in your company as well?

Mr. ENGLE. Determining the location of a petrochemical plant is a very complex decision. Most of the company executives would testify, if they were sitting here with me, that there are 20 or 30 factors at least that enter into locating a petrochemical plant site. Certainly a major factor is access to energy supply, access to a raw material supply. It is much simpler in the present situation to move finished products than it is to bring the energy, the raw materials, to the plant.

Mr. KRUEGER. Thank you, Mr. Chairman.

Thank you, Mr. Engle.

Mr. Moss. The Chair recognizes the gentleman from New York, Mr. Lent.

Mr. LENT. Thank you, Mr. Chairman.

Mr. Engle, I would like to welcome you before the committee. I have found your testimony very illuminating. Have you found it to be the case that northern industry in general, not just the petrochemical plants, is in fact migrating to Texas and other States where there is an adequate supply of natural gas because of that assured supply?

Mr. ENGLE. Mr. Lent, let me answer that question with respect to Union Carbide, if I may, because that would be the limit of my specific knowledge here.

Within Union Carbide I think you will find that all significant expansions that we have made over the last 20 years that utilize the kind of petrochemical feedstocks that we are discussing here have occurred on the gulf coast or in Puerto Rico.

Might I also add that I think you will find some data in the Arthur D. Little study, attached to my testimony [see p—], which shows the tremendous concentration of petrochemical industry on the gulf coast. I think some 60 percent of the industry's capacity, is located in Texas and Louisiana.

Mr. LENT. I come from the State of New York which, of course, is the headquarters of Union Carbide. We are suffering a rather high unemployment rate in the State of New York, particularly compared to States such as Texas. Was your Texas plant hurt by the downturn in the economy in 1974 and 1975? Did you have to lay off any of your employees, for example?

Mr. ENGLE. Yes, indeed, we were hurt by the downturn in 1974. Mr. Lent. I was within 2 weeks of the point where I was going to have to lay off employees because we had the plant down to 60 percent of capacity which was almost the very minimum at which we could run the plant from a safety standpoint. We were indeed hurt. but we never had to lay off any employees.

Mr. LENT. This is despite the fact that you had an adequate supply of fuel?

Mr. ENGLE. That is correct.

Mr. LENT. There were other factors that caused the dampening of your plant activity. Going back to the plant in Whiting, Ind., which formerly employed 600 employees, I think your statement was that it generated $40 million a year. As I understand it, that plant was closed down, but you did not tell us why. Was it because of the series of interruptions caused by the curtailment of fuel?

Mr. ENGLE. The Whiting plant, Mr. Lent, was constructed in 1934 in accordance with engineering standards that are no longer considered good ones. Obviously in the petrochemical industry with the advance of the art the engineering and construction standards were no longer adequate in terms of today's environmental requirements. There was a shortage of natural gas to which I have testified. The unreliability of the interstate market disrupted our operations. We also had new transportation regulations. So, there were a complexity of factors which in sum made that closing a good business decision on the part of Union Carbide's management.

Mr. LENT. Where is most of the work that formerly was carried on in Whiting now being performed? Were there units of Union Carbide that were spun off, transferred to other part of the country? And, if so, to where?

Mr. ENGLE. Those products that were being made in Whiting were also being produced in Texas. Where necessary, expansions have been made in our Texas facility to supply those products for the marketplace.

Mr. LENT. So that the Whiting plant, just to sum up, was not closed down because of the curtailment of the supply of natural gas but due to other factors?

Mr. ENGLE. The curtailment problem was just one of the factors.

Mr. LENT. I have no further questions, Mr. Chairman.

Mr. MOSS. The Chair recognizes for 15 minutes the majority counsel, Dr. Galloway.

Mr. GALLOWAY. Mr. Engle, on page 5 of your statement in discussing the Union Carbide's Whiting plant, you state that a 3-day interruption in gas supplies can cause the loss of as much as 7 days of actual production and that if that were to happen four times during a winter that would then amount to a loss of 28 days of production or about 8 percent of the Whiting plant's annual production which would have amounted to a revenue loss of more than $3 million.

You are not suggesting, are you, Mr. Engle, that anything like this ever happened at the Whiting facility? Rather, it is something that could have happened; is that correct?

Mr. ENGLE. That is correct. That is what could happen with the weather on the Great Lakes. The enforcement of force majeure in curtailment situations on interruptible contracts at our plants located near the Great Lakes has been occurring with increasing frequency in the winter.

Mr. GALLOWAY. Your testimony is what could have happened as opposed to what happened?

Mr. ENGLE. You are correct.

Mr. GALLOWAY. For how many days in 1975 was the Whiting facility actually closed for lack of natural gas? In the winter of 1974–75 was it closed for any days?

Mr. ENGLE. In the winter of 1974–75?

Mr. GALLOWAY. Just prior to the closing.

Mr. ENGLE. That plant closing began in 1974 and was completed during that winter and spring, 1975. So the time frame in which you asked the question would not be relevant.

Mr. GALLOWAY. So there was no closing in the winter of 1974–75 because of lack of gas?

Mr. ENGLE. Yes, that is correct. The plant was in the process of terminating its operations.

Mr. GALLOWAY. What about the winter of 1974?

Mr. ENGLE. In the winter of 1973–74 I can personally recall at least three occasions on which we had a substantial portion of the plant down.

Mr. GALLOWAY. Was the plant shut down totally on any day?

Mr. ENGLE. I would not call it a total shutdown. We had refinery gases from the refinery next door that allowed us to struggle along. We kept warm.

Mr. GALLOWAY. Mr. Chairman, I have a request that Mr. Engle supply for the record a statement concerning the actual plant closings at the Whiting facility beginning in 1970.

Mr. MOSS. Is there objection to holding the record to receive the material. If not, the record will be held and the material will be requested and supplied to the committee.

[The following information was received for the record:]

UNION CARBIDE CORP.—FUEL AND FEEDSTOCK SHORTAGES, WHITING, IND., PLANT, JANUARY 1972–DECEMBER 1974

Dates/duration	Nature of shortage	Extent or consequence	Excess costs incurred or sales losses
1. Jan. 15, 1972 (1 day)	Total fuel gas curtailment —18° F. weather).	Lost isopropanol and ethylene production.	Sales loss, $105,000.
2. February 1972 (28 days).	Cutback of natural gas and total cutoff of butane supply.	Lost 800,000 lb polyethylene production.	Sales loss, $112,000.
3. Apr. 6–May 23, 1972	Feedstock reduced to 70 percent by supplier.	Loss of 10,000,000 lb isopropanol.	Sales loss, $700,000.
4. July 23, 1972 (23 hours)	40 percent curtailment of purchased energy.	Loss of 863,000 lb polyethylene	Sales loss, $120,000.
5. Sept. 15, 1972–Mar. 30, 1973.	Suppliers suspended all interruptible fuel gas supplies.	Higher cost alternate fuels, plus losses in production:	
		Isopropanol, 10,000,000 lb	Sales loss, $700,000.
		Polyethylene, 2,115,000 lb	Sales loss, $296,000.
6. Dec. 17–31, 1972	Feedstock curtailed by supplier's fuel shortage.	Lost 250,000 lb polyethylene	Sales loss, $35,000.
7. 2d quarter 1973 (entire quarter) June 18–30, 1973.	Loss of 20,000 lb per day feedstock; feedstock supply limited to 50 percent.	Lost 2,100,000 lb isopropanol	Sales loss, $147,000.
8. 3d quarter 1973	Supplier limited feedstock to 75 percent of plan for entire quarter.	Lost 16,000,000 lb isopropanol	Sales loss, $1,120,000.
		Lost 4,200,000 lb polyethylene	Sales loss, $588,000.
9. Nov 28–29, 1973	100 percent feedstock supply interruption for 2 days.	No ethylene or isopropanol produced.	Sales loss, $54,000; excess costs, $32,000.
10. 4th quarter 1973	Major supplier limited feedstock to 89 percent plan for quarter.	Lost 1,200,000 isopropanol production.	Sales loss, $84,000.
		Purchased premium cost alternates.	Excess costs not available.
11. 1st quarter 1974	Fuel gas interrupted totally for 7 days.	Substituted high-cost feedstock as fuel.	Excess costs, $68,000.
12. Feb. 1–8, 1974	24-percent reduction in feedstock for 8 days.	Lost 1,800,000 lb isopropanol production.	Sales loss, $126,000.
13. Mar. 3, 1974	13-percent reduction in feedstock for 6 days.	Lost 1,000,000 lb isopropanol production.	Sales loss, $70,000.
14. June 23–30, 1974	Feedstock reduced by supplier	do	Do.
15. June 1–30, 1974	Fuel gas curtailed by 500 M ft³/d	Premium feedstock diverted to fuel.	Excess costs, $15,000.
16. Oct. 16–26, 1974	Fuel gas curtailed by 1,500 M ft³/d.	do	Excess costs, $22,000.
17. Dec. 15–31, 1974	do	do	Excess costs, $24,000.

Mr. GALLOWAY. On page 4 of your statement, sir, you mentioned that the boilers at the Whiting plant were converted to oil and that these modifications required expensive and time-consuming hardware changes. When was this expensive conversion program carried out?

Mr. ENGLE. The program was planned in 1969 and 1970 and carried out in 1970 and early 1971.

Mr. GALLOWAY. So by 1971 you had converted your boilers to using oil?

Mr. ENGLE. That is correct.

Mr. GALLOWAY. Now, the purpose of the conversion was to enable you to use oil as a boiler fuel so as to limit your need for natural gas; is that correct?

Mr. ENGLE. The first reason for doing anything to the boiler was our inability to meet the environmental standards for a 1934 boiler operating on coal. So it was necessary to make some conversion.

Mr. GALLOWAY. Were these boilers originally gas?

Mr. ENGLE. They were originally coal fired. From the 1930's they were operating on coal. But the boilers would burn either coal or gas. It was necessity, first of all, to get away from coal in order to meet environmental standards. To do so on a piece of equipment that was then more than 30 years old required that we use a second fuel. Natural gas was not available in the assured contract quantities that we needed. Therefore, the conversion from coal to oil was made.

Mr. GALLOWAY. Prior to the conversion you were not using gas as a boiler fuel? You were using coal? Or were you using coal and gas?

Mr. ENGLE. We were using primarily coal, primarily on the order of 80 percent, with gas as a supplemental fuel.

Mr. GALLOWAY. After you had the conversion didn't that free up an additional quantity of gas that you could use as a feedstock in your operation in Whiting?

Mr. ENGLE. Not as feedstock, sir, but as fuel for our gas turbines which require natural gas for fuel.

Mr. GALLOWAY. Certainly the conversion reduced your previous requirements for natural gas.

Mr. ENGLE. Within the contractual limits of the contracts with our suppliers, yes.

Mr. GALLOWAY. Mr. Engle, I want to be a little more precise concerning the reasons for the closing of this facility. I only got your statement yesterday afternoon but I did call the Hammond Times newspaper and they read to me the story that they printed on March 20, 1975, concerning the announced closing of your Whiting plant and the reporter I spoke to told me that the story was based on a Union Carbide press release although he did not have the press release at hand.

The story included the following paragraph:

> The company cited the plant's aging facilities and the inability of the plant to meet strategic product mix requirements as the reason for the close-out.

When you announced the closing of this facility, issued your press release, wasn't lack of natural gas mentioned as one of the factors that led to your closing of this facility?

Mr. ENGLE. Dr. Galloway, I will have to say in all honesty I was gone from the plant at the time and I do not have at hand or in fact

did not participate in the preparation of that press release. So, I can't testify to the specific content of the material we did release to the press at that time. I am referring in my testimony primarily to my experience in trying to operate that plant on a continuing basis when the disruptions of fuel and feedstock supplies occurred.

Mr. GALLOWAY. Mr. Chairman, may I request that we obtain a copy of the article that appeared in the Hammond Times newspaper concerning the closing to be included in the record and also a copy of the Union Carbide press release announcing the closing of this facility in the spring of 1975?

Mr. Moss. Is there objection?

If not, the material will be requested and supplied for the record at this point.

[The article and press release referred to follow:]

[From the Times, Hammond-East Chicago, Indiana; Calumet City-Lansing, Ill., Mar. 20, 1975]

UNION CARBIDE CLOSING

WHITING.—Union Carbide Corp. is closing its chemicals and plastics plant, the company announced Wednesday.

The facility, which until last month employed 575 workers, will be phased out within the next year, according to company sources. February layoffs trimmed its roster by 75.

The company cited the plant's aging facilities and inability of the plant to meet strategic product mix requirements as reasons for the close-out.

The Whiting plant produces polyethylene resins used by plastic firms, in power cable insulation, automobile construction and consumer goods industries.

The Whiting plant's isopropanol facility is rated at 300 million pounds per year. Union Carbide operates a 600 million-pound isopropanol facility at Texas City, Texas. The company estimates the Texas plant will be able to meet current forecasted customer requirements beyond the phase-out period.

The Whiting plant on Standard Avenue began operating in 1934. A company official said it will offer job placement assistance to all its employees.

The company said last month it was considering the permanent close of its East Chicago plant by May 31. The East Chicago operation employs 41 workers producing synthetic gemstones.

UNION CARBIDE CORP.,
New York, N.Y.

UNION CARBIDE PLANS TO CLOSE WHITING, INDIANA, CHEMICALS PLANT

NEW YORK.—Union Carbide Corporation said today that it intends to phase out operations at its Whiting, Indiana, chemicals and plastics plant within one year. Major products made at the Whiting plant are low-density polyethylene and isopropanol.

The company said the phase-out is necessitated by the inability of the plant's polyethylene facilities to meet strategic product mix requirements, the age of the plant's olefins facilities, and the lack of demand for certain plastic products. The LDPE unit has been producing approximately 125 million pounds per year, about 10 per cent of the company's domestic LDPE capacity.

The Whiting plant's isopropanol facility is rated at approximately 300 million pounds per year. The company's newer and more efficient 600 million pound isopropanol facility at Texas City has capacity to meet current forecasted customer requirements beyond the phase-out period.

The effect of the phase-out on Union Carbide's earnings will be negligible.

The Whiting plant, which presently employs about 475 employees, began operating in 1934 and has been in continuous operation since that time. Union Carbide will offer job placement assistance to all employees.

Mr. GALLOWAY. As a matter of fact, Mr. Engle, it was not the age of the plant that led to the closing. After all, I would like to submit

that Union Carbide would not have spent millions of dollars converting its boilers to oil in an obsolete plant. But rather it was due primarily to the plant's inability, and I quote your press release: "To meet strategic product mix requirements." As I understand the "strategic product mix requirements" is a fancy marketing phrase meaning you are selling something that no one wants to buy. Is that what a "strategic product mix" means?

Mr. ENGLE. Dr. Galloway, we are moving here into an area where I cannot from my direct knowledge testify to all the factors in that decisionmaking process. If I may, I feel that I should confine my remarks here before you today to the problems associated with the loss of gas.

Mr. Moss. If you do not feel qualified to respond to that question you do not have to.

Mr. ENGLE. I think I would like to leave it with the problems associated with the shortage of gas which I experienced during my presence in Whiting.

Mr. GALLOWAY. I ran across another article in the Hammond Times, Mr. Engle. This was one published July 29, 1975. This article suggested that much of the work that was formerly done at the Whiting plant was going to be transferred to Union Carbide's Linde facilities. Is Linde in Texas or in Indiana?

Mr. ENGLE. Our Linde Division operates air separation facilities, oxygen and nitrogen separation facilities around the country. There are literally dozens of Linde plants in the Chicago area, to supply the steel industry, as well as in Texas to supply other industries.

Mr. GALLOWAY. The article suggested it was the Linde operation in East Chicago where the work from the Whiting Plant was transferred, at least some of it was. Is that true?

Mr. ENGLE. Perhaps I could clarify that. The Linde Division had a small plant, some few acres, immediately adjacent to our fence line. I think it was that activity and the people associated with it who moved to another Linde site in East Chicago, Ind., which would be some 15 minutes away.

Mr. GALLOWAY. Could we spend a few minutes concerning the Petrochemical Energy Group? I notice that you emphasize the fact you are appearing not as a representative of Union Carbide but as a representative of the Petrochemical Energy Group, that your testimony is prepared on the Petrochemical Energy Group letterhead. Unlike most letterheads, yours does not list officers or operating heads of the Petrochemical Energy Group. Who is in charge of the day-to-day operation of the Petrochemical Group?

Mr. ENGLE. The members of the Petrochemical Energy Group, of course, are listed in the attachment. The association is a loose one without a strong executive. If I may refer here to my associates, I think I can clarify the issue.

Mr. GALLOWAY. I do not know who runs the Petrochemical Energy Group.

Mr. ENGLE. The cochairmen are Dr. Bruce Melaas of Celanese Corp., who is present today, and Mr. John Present of Hercules, Inc.

Mr. GALLOWAY. Where is the group headquartered?

Mr. ENGLE. The group is headquartered at 1701 Pennsylvania Avenue here in Washington.

Mr. GALLOWAY. Is this a lobby organization or research group or what?

Mr. ENGLE. I think, Mr. Chairman, the Petrochemical Energy Group has been primarily a loose affiliation of the companies indicated in the attachment for the purpose of developing research data on the economics of our industry (examples of which are included in my statement) and making those data available to others in support of its positions on nation energy policy. It is not a lobby group and has never been registered as such.

Mr. GALLOWAY. What I am getting at, Mr. Engle, is that I called the Petrochemical Energy Group yesterday on a routine matter. I used the number that is on your letterhead. The person who answered the phone identified the firm as being the Baker & Botts firm. Does your energy group operate out of Baker & Botts?

Mr. ENGLE. That is correct.

Mr. GALLOWAY. Baker & Botts is a well-known Texas law firm that represents Pennzoil and other major oil and gas producers; is that correct?

Mr. ENGLE. Dr. Galloway, I am not familiar with the makeup of Baker & Botts business.

Mr. GALLOWAY. I only mention this because in your statement you go to some pains to point out that the interests of the members of your group are those of consumers since the principal relationship with the producers and transporters of oil and gas is as customer and competitor. Yet you go to their law firm; is that correct?

Mr. ENGLE. Dr. Galloway, the administrative office is located in the Baker & Botts offices. Baker & Botts is general counsel to PEG. It has also represented Union Carbide in various matters concerning my plant.

Mr. Moss. The time of the gentleman has expired.

Would you like to provide for the record a more detailed delineation of the nature of the Petrochemical Energy Group?

Mr. ENGLE. Yes; we will be very happy to.

Mr. Moss. Without objection, that material will be received for the record at this point.

[The following letter was received for the record:]

THE PETROCHEMICAL ENERGY GROUP,
Washington, D.C., September 10, 1976.

Hon. JOHN E. MOSS,
Chairman, Subcommittee on Oversight and Investigations, House Interstate and Foreign Commerce Committee, Rayburn House Office Building, Washington, D.C.

DEAR MR. CHAIRMAN: During an appearance before your Subcommittee by Damon L. Engle on September 8, 1976, Mr. Engle was asked to submit for inclusion in the record information concerning the structure and purpose of the Petrochemical Energy Group. Mr. Engle has in turn asked us, as co-chairmen of PEG, to provide you with that information since Mr. Engle has not been directly involved with PEG's day-to-day operations.

PEG is an *ad hoc* group of basic petrochemical manufacturers which are not controlled by or under common control of companies whose predominant line of business is the production, refining, transportation, distribution or marketing of energy products, and which have become associated in PEG in order to develop and advocate on behalf of independent petrochemical companies, on an *ad hoc* basis, public positions on issues of national and regional energy policy.

Further, the purpose of PEG is to promote in the public interest the development of sound U.S. national and regional energy policies so as to assure that the feedstock and energy needs of the petrochemical industry will be met on a competitive and equitable basis. Because we are vitally dependent upon natural gas for both our feedstock and fuel requirements, the natural gas issues which your Subcommittee is investigating are of vital concern to us.

PEG is not a lobbying organization nor is it a trade association. Its leadership consists of two co-chairmen, Dr. Bruce A. Melaas of Celanese Corporation and Mr. John L. Present of Hercules, Incorporated, and, as would be expected, each individual company reviews and determines whether to support each position presented by PEG as a group.

During the presentation, Dr. John Galloway of the Subcommittee staff inquired as to the relationship of PEG with Baker & Botts. Baker & Botts are retained by PEG as general legal counsel. An employee of Baker & Botts serves also as an administrator for PEG's logistical requirements.

We again thank the Committee for the opportunity it afforded PEG to present its views.

Sincerely,

JOHN L. PRESENT,
Co-Chairman.
BRUCE A. MELAAS,
Co-Chairman.

Mr. Moss. Are there further questions?

If not, the Chair thanks you, Mr. Engle, and at this time we will hear from Mr. D. K. Davis, Natural Gas Finders, Inc., and Pitts Energy Group, Dallas, Tex.

Mr. ENGLE. Thank you.

Mr. Moss. Mr. Davis, will you be sworn. Do you solemnly swear the testimony you are about to give this subcommittee will be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. DAVIS. I do.

Mr. Moss. Will you identify yourself to the hearing clerk.

TESTIMONY OF D. K. DAVIS, NATURAL GAS FINDERS, INC., AND ALSO IN BEHALF OF PITTS ENERGY GROUP

Mr. DAVIS. My name is D. K. Davis.

Mr. Moss. Would you like to have the material that is included in the appendix as exhibits included in the record at the end of your statement?

Mr. DAVIS. Yes; I would, Mr. Chairman. In fact, I am going to attenuate the written testimony considerably.

Mr. Moss. Without objection, the entirety of the statement with all attachments will be included in the record immediately following your summation [see p. 180].

You may proceed to summarize it.

Mr. DAVIS. Mr. Chairman, my name is D. K. Davis. I am an independent oil and gas producer and a partner in Natural Gas Finders, Inc., of Dallas, Tex. Our company is one of three independent organizations which cooperate at the Pitts Energy Group. Our principal operations are in the Fort Worth Basin of North Texas where we have drilled some 350 wells and sell natural gas in the unregulated Texas intrastate market.

I have personally been in the business of exploring for oil, gas, and minerals for more than 30 years. As a professional geophysicist I have been chief geophysicist for a large independent oil company, managing director of an international geophysical company, and

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president of a computer company specializing in geological and geophysical research. I have explored every oil and gas province in the United States, Alaska, and Canada.

As an independent gas producer my company made its first discovery of natural gas in 1972 in a Texas area which was pleading for new natural gas to replace the supply that had simply dwindled away. That discovery was extended into a gas field. That gas was contracted for delivery to those who needed it the most. We were heros then by furnishing gas at far less cost than the fuel oil that was being substituted for gas that simply was not there.

I never dreamed it was going to be necessary to explain to a congressional committee why the kind of benefits we helped create for Texas consumers should not be extended to the entire Nation.

The increased cost of utilities has been a shock to consumers everywhere, including Texas, because the price of fuel has adjusted in a few months to a level that is approaching that which other price increases have crept up to over a period of years. But in Texas those consumers have gas, and they have the jobs to go with it.

The Nation's first serious shortages of natural gas occurred in 1972 in Texas, the very same State that produces 38 percent of all the gas used in this country. Natural gas deliveries to the East and Northern States had already been falling since 1968, simply because it is the nature of any gas well to produce less gas every day of its life, and as those old wells were drained, insufficient new wells were being drilled as replacements. Practically no new gas was flowing out of Texas or other producing States because Federal controls held those prices below the cost of new production. But Texas paid 75 cents, and they paid $1.50, and even up to $2.20 last year for new gas—which is about the equivalent price of oil and some coal.

With the new prices as incentives, drilling rigs came from Oklahoma, Louisiana, New Mexico, even from Canada, to move into Texas because of that price incentive and drilled new wells.

In 1971, for example, we drilled and completed only 1,056 new gas wells. But in 1975, 2,275 new Texas gas wells were completed. In the Fort Worth Basin where we operate, a 285 percent increase in new wells resulted in a 1,500 percent increase in gas deliveries in some areas. That could be repeated 30 or 40 times in this country where supplies of gas are already known or can be reasonable expected, but it can't be extracted at regulated prices.

The recession that was mentioned earlier was hardly felt in Texas. The price of natural gas has done more than just raise utility rates in Texas. It has kept Texans employed. We have one of the lowest unemployment rates in the nation.

The economics of utilities are pretty complex. The home owner in Corsicana, Tex., who pays $49 a month for electricity is sore because his bill may be twice as high as he paid a few months ago. He gets even sorer when he learns that Texas gas, used to generate his electricity, costs perhaps $1.25 a thousand cubic feet while his counterpart in New York is being shipped Texas gas at an average price of only 30 to 32 cents. But the New Yorker is infuriated, because the same amount of electricity that sells for $49 in Texas costs him $132. For some reason his fuel cost is $3 a thousand cubic feet, not 30 cents, and

he is begging for the opportunity to pay the same prices the Texans pay.

I know it sounds like a paradox that the wellhead price of new natural gas could rise from 52 cents to $2 a thousand cubic feet, an increase of nearly four hundred percent at the wellhead, and the consumer in New Jersey still pay substantially less for fuel than he will under the existing system. But it is true and it is the principle that is apparently least understood by some Members of Congress.

In the Northeast, 81 percent of the residential bill is for pipeline and distribution cost. Only 19 cents of every dollar he spends is for the actual gas. But that higher transportation cost is only part of the problem. When a pipeline is not full the entire cost of that pipeline is passed on to the consumer.

Thirty-two eastern gas distributors filed a report with the FPC 15 months ago which showed how the consumers were paying an unnecessary $1.4 billion last year just to cover 15 percent of unused pipeline capacity.

By law pipelines and utilities are guaranteed a standard rate of return on their invested capital. When facilities are not fully utilized the consumer still pays, by law, the entire cost to amoritize those facilities.

If the utilities' revenues are down because of lack of product to sell then the price of what is sold is, by law, artificially increased to compensate for lost income.

But the real consumer rip-off that came last year was when consumers had to pay for alternate fuels to replace that small shortage of gas. That cost was as much as all the other 85 percent of the gas that was delivered. The consumers have had fuel bills doubled, but they are not getting the natural gas that a lot of them think they are paying for.

They are paying for fuel oil, liquefied gas from Algeria, and synthetic gas at up to $5.35 per 1,000 cubic feet, and for empty pipes. But if the pipelines can be filled again, even if that gas should all cost $2 a thousand cubic feet at the wellhead, consumers will actually save $6.4 billion a year by 1980, because the pipeline full of $2 gas more than compensates for the cost of unused pipeline capacity and alternate fuels.

There is no alternate fuel that is cheaper than today's most expensive natural gas. If the price controls are removed nationally, American producers can provide new natural gas at half the cost of imported gas.

Gas prices are up. Nobody enjoys paying higher utility bills.

There is a great deal of interest in using other forms of energy. But where are they right now? They are going to come, surely. But are they going to cost less? Which one of them is going to be cheaper?

More conservation is said to be a partial solution, and I agree. But low prices don't encourage conservation. That is apparent even in utility billings in Texas. In 1974 Texans statewide used an average of 9,500 kilowatt hours per year at an average rate of 2.5 cents a kilowatt. In San Antonio, where they had a 3-cent rate, the average use was below that: it was 8,200 kilowatts a year. But in Garland, where the cost per kilowatt hour was a little bit less than 2 cents (one of the lowest rates in the State), the average consumer used nearly

1,600 kilowatts or nearly twice as much electricity as the average San Antonian.

The cost of electric generation has increased because the cost of new natural gas is passed through to the consumer. It seems if we reduce the price of gas electric bills are going to drop.

Mr. Chairman, the chart exhibited over there, and I will be very brief with that chart, shows a comparison of a number of different plant configurations and fuels that can be used in a plant to generate electricity in Texas. That chart does not show the average monthly bill for an average Texas consumer.

Most of the complaints about high utility bills come from those consumers who use more than ordinary amounts of electricity. What we are looking at here is the possible monthly electric bills out of different plants for somebody that uses twice as much electricity as the average.

As a scale to use as a reference, the first bar shows that in 1974 a customer using twice as much electricity, as the average Texan would have had an average monthly bill of $39.

Most of the plants that are in Texas right now use natural gas plants to generate electricity. To be completely fair, we have constructed the chart to show that if we build a brand new gas burning plant (and this would not be necessary in Texas), then the second bar, with the entire cost of a new plant at today's construction costs and using only $2 gas in that plant, indicates the bill would be $53.

The truth of the matter is that there is only about 1½ percent of the gas that is being sold in Texas now that is over $2. Gas will be somewhere much below that price for a long time. But we want to be completely fair in our comparisons here. In general, I would say that the true case, on that particular bar, would produce a bill of somewhere around $43.

Now, if new natural gas is not available to burn in an existing gas plant, one of the things we can do is to use imported liquefied natural gas, and I don't think it is going to be any cheaper than what it is going to be delivered up in Maryland, which is $3.65. So in that case we would have a bill of $78.

We can use synthetic gas from coal. There are no plants right now in operation and certainly nobody I know will say that synthetic coal gas will be less than $4. It probably is going to be more than that. If it is $4 then the bill will be $83. Or we can use synthetic gas from naptha the way Algonquin Gas Co. is doing in New York State. That price would be $5.35, in which case we would have a monthly bill of $103.

One of the things that can be done with a natural gas fired plant is to use fuel oil and that is done frequently. That is being done in Texas at $2.32 per million Btu for the fuel oil. We have a little increase in the cost of that plant because of the conversion. In that case the bill would be $57.

The Texas Railroad Commission has mandated that gas is to be phased out under boilers in Texas and consequently people are beginning to build lignite plants. Lignite is a very inexpensive fuel in comparison with natural gas. Right now it is selling for $8 a ton. That means 52 cents per million Btu but the cost of that lignite plant is considerably more than a natural gas fired plant.

So the consumer has to pay for the increased plant cost and even though the fuel cost is less, his bill would be sowewhere around $50.

Or we can use western coal. The City of San Antonio has already contracted for coal to come from Montana at $22. We are only using $20 a ton to construct this chart. That bill would be $62.

Or we could use nuclear energy. While our plant cost is the principal price that the consumer has to pay for, the fuel itself is down to 17 or 18 cents per million Btu. The total bill for somebody using this much electricity a month would be about $63.

What this chart is really showing is that there is nothing available, at least in Texas, right now that is any cheaper than even the most expensive natural gas.

The total gas used by residential customers is only about 6 percent of all the gas we consume in Texas. Electric generation uses another 25 percent. That remaining 69 percent of the supply that is used in Texas is what keeps the Texas economy going; in fertilizer manufacturing, food production, food processing, petrochemical plants, the manufacture of paper, glass, construction materials, and all the other things that make our economy run.

But it is in food production where our Nation is the most vulnerable if we don't have natural gas supplies available. Herbicides and pesticides made from natural gas and petroleum are said to save consumers $20 billion a year. Nitrogen in fertilizer comes from natural gas which is estimated to increase food production by 30 percent; some crops more than that. Two-hundred thousand Texas farmers used 880,000 tons of nitrogen fertilizer last year.

If gas producers are stopped again, then industrial production, such as the petrochemicals that Mr. Engle spoke of, and Texas as agricultural output, are going to fall next. The number of jobs in Texas will be drastically reduced.

Louisiana produces 12,000 tons of fertilizer a day. That is 50 percent of the entire fertilizer production of the world. Ninty-seven percent of that fertilizer is shipped to the rest of this country. If those that would reach into even Texas and Louisiana to roll back prices and dry up that intrastate supply, with the same efficiency that they have already dried up the supply for non-producing States, where are we going to go for fertilizer to keep farm production up?

Certainly I acknowledge that many farmers may want cheaper fuel prices; they may also want cheaper fertilizer prices. But it's not going to be any cheaper if they buy it from OPEC. Certainly some union members may have testified here that they wish to have the same utility rates they had a few years ago, and I would like to have the same thing.

But today's rates are undoubtedly less distasteful than being unemployed tomorrow if less gas is produced. Why aren't these people proposing some alternate solution? If these kind of critics really believe that producers are making so much money, why aren't they in the business themselves?

The largest electric utility in Texas decided they might save their customers some money by drilling their own gas wells in the Fort Worth Basin where we operate. Their chairman testified in Austin that they drilled 27 wells in that area, and they had 21 dry holes.

The actual raw cost of the gas they found before taxes, before operating cost, before interest charges, before discounted rate of return, before any other expense, came to $3 per thousand cubic feet.

We can't depend on foreign sources of energy, certainly not OPEC. Even Canada is raising its price to nearly $2 and it is cutting back on deliveries. Algerian gas will be delivered to customers from the new $550 million port facility in Maryland for an initial price of $3.65. We can depend on its being higher later on.

Together with hundreds of others that have spent many years exploring for oil and gas, my experience has convinced me there are trillions of cubic feet of natural gas that can be brought to market by drilling deeper wells, more offshore wells, developing low reserve areas and drilling frontier areas. All that activity is going to be more expensive.

A 30,000 foot well, for example, does not cost just six times as much as a 5,000 foot well, it costs 120 times as much. Any producer can document that his cost to drill a well to a particular depth has increased from 200 to 300 percent in the past 5 years, but that is only part of the story.

Most new natural gas is believed to reside in deeper geological horizons, often below the depth where oil is found. There are comparatively few really deep holes that have been drilled because those costs increase exponentially with depth, and they cannot be drilled without the incentive of knowing that any new gas can be sold profitably.

Next Tuesday our group, in conjunction with the Energy Research and Development Administration will experimentally conduct a $300,000 massive hydraulic fracturing operation in a well in the Gas Finders Field in north Texas. If this cooperative Government-industry project is successful, we hope to increase the productivity of that test well by 400 percent. If the production is substantially increased then there are hundreds of wells in that surrounding area that can be similarly treated and perhaps add 1¾ billion cubic feet a year to the Nation's gas supply. But it is not going to be cheaper gas. The original well being used in this experiment cost only $150,000 to drill and complete.

There is a lot of natural gas that can be recovered in this country. There is not any immediate shortage of availability of the resource itself, and there is no lack of willingness on the part of the producers to drill the wells or nurse the old ones. But there is a shortage of new natural gas at congressionally regulated prices.

Laws and regulations that reduce the incentive to take risk, and which impinge on the ability of independents to produce energy are actually anti-consumer actions. Consumers that are deprived of domestic energy are forced to buy higher priced foreign products. They also have to make up in higher taxes what normally would have been paid out of oil producers' revenues.

As that supply of gas is reduced further, allocation will become the law of the land. That means that any area that has more gas than another is going to have a share of that gas taken away, just as happened last winter in some areas. This means that a bureaucrat in Washington is going to decide if a cold fact in Virginia are more important than jobs in Sacramento. This means it does not matter

how provident and farsighted some utilities have been; those contractual arrangements will mean nothing. Those who have gas are going to lose gas.

And if you think gas and electric bills in Texas are high now, just let that incentive to drill and produce more wells be killed in Texas. When even Texans have to pay the Arab ransom instead of using our own fuel, today's cost of utilities will look very small indeed.

In Texas today there is a temporary surplus of producing ability over demand. It amounts to about 313 billion cubic feet for 1976. All the projections that people I know have made show that that producibility will continue to plunge and that the present finding rate in Texas of 1.1 trillion cubic feet a year must be increased to 3.9 trillion cubic feet a year just to meet the current stabilized demand in Texas.

But if drilling only stays at its present level, and even if the interstate sales continue to drop, Texas will still be 31.6 percent short of its anticipated intrastate needs by 1980 unless drilling activity is tripled.

Those who say that the unregulated intrastate market of natural gas should drop to the level of interstate pricing structure are therefore courting an unprecedented economic calamity. Price rollbacks in Texas will not release gas to the interstate market. Such tampering will dry the supply in both markets by causing drilling rigs to be put in moth balls. New natural gas must be released from Federal controls and producers given the incentive to drill more and more wells for the benefit of the country.

Our national security is in jeopardy. In case of war with 50 percent of our fuel needs riding the high seas as huge volatile targets for the world's largest fleet of atomic submarines, every one of those ships could be at the bottom of the ocean within 60 days.

There are two aspects of the commendable Texas example of solving the natural gas supply problem that should be made crystal clear to every gas user in the country. I have already repeated the first one several times: that higher prices do create the supply needed to provide jobs, and at a cost below any alternate fuel.

But the second is to take a cold, hard look at the few isolated cases in Texas where consumers were asleep at the valves too long. They let their supply of older, cheaper gas run completely dry. They refused to reform their rate schedules. Today, the consequences of their previous inaction has them bearing the full, uncushioned, naked impact of using disproportionately high volumes of more expensive new gas, without the advantage of mixing it with less expensive gas as do most Texans. (And, Mr. Chairman, this is a Texas problem which can be solved in Texas.)

There is no reason for most interstate customers to face this problem. The flowing gas in interstate markets today is 90 percent old gas. But tomorrow there will be less and next month there will be still less. Every day that the Congress delays deregulation of new natural gas to mix with that old gas is a crime against consumers, because the longer that delay is drawn out the more abrupt the eventual price increase may be.

I have some more rhetoric here, Mr. Chairman, but I believe I will stop.

[Testimony resumes on p. 207.]

[Mr. Davis' prepared statement and attachments follow:]

STATEMENT OF D. K. DAVIS, NATURAL GAS FINDERS, INC., AND ALSO IN BEHALF OF PITTS ENERGY GROUP

MR. CHAIRMAN:

MY NAME IS D. K. DAVIS. I AM AN INDEPENDENT OIL AND GAS PRODUCER AND A PARTNER IN NATURAL GAS FINDERS, INC. OF DALLAS, TEXAS. OUR COMPANY IS ONE OF THREE INDEPENDENT ORGANIZATIONS WHICH COOPERATE AS THE PITTS ENERGY GROUP. OUR PRINCIPAL OPERATIONS ARE IN THE FORT WORTH BASIN OF NORTH TEXAS WHERE WE HAVE DRILLED SOME 350 WELLS AND SELL NATURAL GAS IN THE UNREGULATED TEXAS INTRA-STATE MARKET.

I HAVE PERSONALLY BEEN IN THE BUSINESS OF EXPLORING FOR OIL, GAS AND MINERALS FOR MORE THAN 30 YEARS. AS A PROFESSIONAL GEOPHYSICIST I HAVE BEEN CHIEF GEOPHYSICIST FOR A LARGE INDEPENDENT OIL COMPANY, MANAGING DIRECTOR OF AN INTERNATIONAL GEOPHYSICAL COMPANY, AND PRESIDENT OF A COMPUTER COMPANY SPECIALIZING IN GEOLOGICAL AND GEOPHYSICAL RESEARCH. I HAVE EXPLORED IN EVERY OIL AND GAS PROVINCE IN THE UNITED STATES, ALASKA AND CANADA, PLUS SEVERAL AREAS IN AUSTRALIA AND AFRICA. I WAS PERSONALLY IN CHARGE OF ONE OF THE LARGEST SINGLE GEOPHYSICAL SURVEYS EVER RUN OFF THE EAST COAST OF THE UNITED STATES, GATHERING OVER 20,000 LINE MILES OF EXPLORATION DATA FROM NORFOLK, VIRGINIA TO 200 MILES FROM THE SHORES OF CAPE COD. IN 1968 AND 1969, WHEN WE MAPPED THE OFFSHORE BALTIMORE CANYON AND GEORGES BANK BASINS, WE AND OTHERS RECOGNIZED THE HIGHLY PROSPECTIVE OIL AND GAS AREAS AS

BEING TWICE THE SIZE OF THE OFFSHORE AREAS OF TEXAS AND LOUISIANA COMBINED. THE STORM WARNINGS OF FUEL SHORTAGES WERE OUT THEN, AND IT SEEMS INCREDIBLE THAT BUREAUCRATIC DELAYS HAVE STALLED EVEN HAVING THE FIRST LEASE SALE UNTIL 1976, WHILE OUR COUNTRY HAS UNNECESSARILY APPROACHED 50% DEPENDENCY ON INSECURE OIL IMPORTS.

BUT OTHER WONDERS HAVE OCCURRED SINCE THEN. NATURAL GAS FINDERS, INC. MADE ITS FIRST DISCOVERY OF NATURAL GAS IN 1972, IN A TEXAS AREA WHICH WAS PLEADING FOR NEW NATURAL GAS TO REPLACE A SUPPLY THAT HAD SIMPLY DWINDLED AWAY. WE EXTENDED THE DISCOVERY INTO A GAS FIELD, AND MADE ARRANGEMENTS TO SELL TO THOSE WHO NEEDED IT MOST. WE WERE HEROES THEN, BY FURNISHING GAS AT FAR LESS COST THAN THE FUEL OIL WHICH WAS BEING SUBSTITUTED. I NEVER DREAMED IT WOULD BE NECESSARY TO EXPLAIN TO A CONGRESSIONAL COMMITTEE WHY THE KIND OF BENEFITS WE HELPED CREATE FOR TEXAS CONSUMERS SHOULDN'T BE EXTENDED TO THE NATION AS A WHOLE.

THE ABUNDANT USE OF ENERGY HAS BROUGHT THIS COUNTRY TO THE STATE THAT WE DESCRIBE OUR POVERTY LEVEL AT A POINT FAR ABOVE THE AVERAGE INCOME OF THE WORLD'S SECOND MOST POWERFUL NATION. ENERGY IS THE ONE RESOURCE WITHOUT WHICH ALL OTHER RESOURCES ARE OF NO AVAIL. THIS ENTIRE NATION (AND ESPECIALLY THE STATE OF TEXAS), ITS EMPLOYMENT IN ITS FACTORIES, ITS TRANSPORTATION SYSTEM, ITS STANDARD OF LIVING, ITS ENTIRE ECONOMY, ALL MOVE IN RELATION TO THE <u>SUPPLY</u> OF ENERGY FROM FOSSIL FUELS, AND MUST CONTINUE TO DO SO BEFORE THE NEW AND MORE EXOTIC ENERGY SOURCES SUCH AS SOLAR POWER AND SYNTHETIC FUELS, BEGIN TO MAKE AN IMPACT AFTER THE YEAR 2000.

OF ALL ENERGY USE, NATURAL GAS IS THE MOST CRITICAL. IT PROVIDES 30% OF ALL OUR TOTAL ENERGY NEEDS. IT FURNISHES <u>50%</u> OF ALL INDUSTRIAL ENERGY AND IS THEREFORE

DIRECTLY TIED TO THE AVAILABILITY OF INDUSTRIAL JOBS. OF ALL THE NATION'S PROBLEMS REGARDING ENERGY SHORTAGES (WHICH ARE LARGELY POLITICAL RATHER THAN TECHNICAL), NATURAL GAS SEEMS TO HOLD THE CENTER STAGE AROUND WHICH A SYMBOLIC BATTLE RAGES IN THE CONGRESS, THE PURPOSE OF WHICH REMAINS UNEXPLAINED TO THE PUBLIC. SOME SAY THEY WISH TO PROTECT CONSUMERS FROM HIGHER PRICES. BUT BY DISCOURAGING AND HOLDING BACK THE DRILLING OF NEW WELLS WHICH COULD INCREASE DOMESTIC GAS PRODUCTION, CONGRESS HAS FORCED THOSE SAME CONSUMERS INTO PAYING UNCONSCIONABLE HIGHER PRICES FOR FOREIGN FUELS AS REPLACEMENTS. CONSUMERS HAVE THUS BEEN PUSHED INTO SUBSIDIZING THEIR OWN SUBJECTION TO ECONOMIC AND FOREIGN POLICY BLACKMAIL THAT ENDANGERS OUR NATIONAL SECURITY.

THESE HEARINGS HAVE HEARD SUGGESTIONS THAT TEXAS CONSUMERS SHOULD BE SADDLED WITH THE SAME KIND OF NATURAL GAS CONTROLS THAT HAVE CREATED AND PERPETUATED THE ECONOMIC DISTRESS FACED BY JOB HOLDERS AND HOMEOWNERS IN SOME OTHER PARTS OF THE COUNTRY --- THOSE WHO HAVE A CHEAP PRICE BUT NO GAS. THE INCREASED COST OF UTILITIES HAS BEEN A SHOCK TO CONSUMERS EVERYWHERE, INCLUDING TEXAS, BECAUSE THE PRICE OF FUEL HAS ADJUSTED IN A FEW MONTHS TO A LEVEL APPROACHING THAT WHICH OTHER PRICE INCREASES HAVE CREPT UP TO OVER A PERIOD OF YEARS. BUT IN TEXAS CONSUMERS HAVE GAS AND THE JOBS THAT GO WITH IT.

THE PRICE OF NATURAL GAS HAS NEVER BEEN REGULATED IN TEXAS, BUT AS LONG AS WE HAD THE SUPPLY OF GAS IN TEXAS TO MEET THE NEEDS OF TEXANS, THE LOW WELLHEAD PRICES SET BY FEDERAL REGULATIONS IN 1954 ALSO, IN EFFECT, SET THE PRICE IN TEXAS. THAT PRICE WAS SO LOW THAT DRILLING NEW WELLS FOR NATURAL GAS HAD COME TO A VIRTUAL STANDSTILL. IN 1956 WE WERE DRILLING 58,000 WELLS A YEAR BUT BY 1971 THAT EFFORT HAD DROPPED TO LESS THAN 27,000. ACCORDING TO FPC RECORDS,

IN 1956 THERE WERE OVER 18,000 NATURAL GAS PRODUCERS, BUT BY 1971 THERE WERE ONLY 4,000. OVER 10,000 INDEPENDENT OPERATORS WENT COMPLETELY OUT OF BUSINESS IN THAT 15 YEAR PERIOD. IN 1969 THE NATION BEGAN TO USE MORE GAS THAN THE EXISTING WELLS COULD PRODUCE. WITH SCARCELY NO NEW WELLS BEING DRILLED, FOR THE PAST SIX YEARS, WE'VE BEEN USING GAS 2 TO 3 TIMES AS FAST AS NEW GAS HAS BEEN FOUND TO REPLACE ITS USAGE.

TEXANS ARE NOT UNFAMILIAR WITH GAS SHORTAGES. THE NATION'S FIRST SERIOUS SHORTAGE OF NATURAL GAS OCCURRED RIGHT IN TEXAS, THE VERY SAME STATE THAT PRODUCES 38% OF ALL THE GAS USED IN THIS COUNTRY. IN 1972 AND 1973, AUSTIN AND SAN ANTONIO, WERE FACED WITH SEVERE GAS SHORTAGES WHICH RESULTED IN DRASTIC CUTBACKS ON ELECTRICAL USAGE AND EVEN SHUT DOWN THE UNIVERSITY OF TEXAS FOR A SHORT TIME. TO REPLACE THE NATURAL GAS THAT SIMPLY WAS NOT TO BE HAD, FUEL OIL WAS USED FOR ELECTRICAL GENERATION AT A COST THAT WAS SEVERAL TIMES GREATER THAN THE COST OF NATURAL GAS.

NATURAL GAS DELIVERIES TO THE EAST AND NORTHEASTERN STATES WERE ALREADY FALLING AT THAT TIME. IT IS THE NATURE OF ANY GAS WELL TO PRODUCE LESS GAS EACH DAY OF ITS LIFE. AS OLD WELLS WERE BEING DRAINED, INSUFFICIENT NEW WELLS WERE BEING DRILLED AS REPLACEMENTS. FEDERAL CONTROLS HELD AVERAGE PRICES TO ABOUT 30¢/1000 CUBIC FEET, AND PREVENTED CONSUMERS OUTSIDE TEXAS FROM PAYING MORE THAN 52¢. CONSEQUENTLY PRACTICALLY NO NEW GAS WAS FLOWING OUT OF TEXAS OR OTHER PRODUCING STATES. BUT TEXANS PAID 75¢, AND THEN UP TO $1.50, AND EVEN UP TO $2.17 LAST YEAR FOR NEW GAS; ABOUT THE EQUIVALENT PRICE FOR OIL AND SOME COAL.

WITH THE NEW PRICES AS INCENTIVES, DRILLING RIGS CAME FROM MANY STATES TO DRILL NEW WELLS IN TEXAS. IN 1971 ONLY 1,056 NEW GAS WELLS WERE DRILLED, BUT IN 1975,

2,275 NEW TEXAS WELLS WERE COMPLETED. IN THE FORT WORTH BASIN, WHERE WE OPERATE, A 285% INCREASE IN NEW WELLS RESULTED IN A 1500% INCREASE IN GAS DELIVERIES IN SOME AREAS. THE EXAMPLE OF THE FORT WORTH BASIN, AS WELL AS TEXAS AS A WHOLE, COULD BE REPEATED 30 OR 40 TIMES IN MANY AREAS OF THIS COUNTRY WHERE SUPPLIES OF GAS ARE ALREADY KNOWN OR CAN BE REASONABLY EXPECTED, BUT THEY CANNOT BE EXTRACTED AT REGULATED PRICES.

DURING THE PAST TWO WINTERS, WHILE FUEL SHORTAGES IN THE INDUSTRIAL NORTHEAST CONTRIBUTED ADDITIONAL UNEMPLOYMENT TO AN ALREADY SERIOUS RECESSION, THE RECESSION WAS HARDLY FELT BY TEXANS. NOTWITHSTANDING SOME OF THE TESTIMONY RECEIVED BY THIS COMMITTEE, MOST TEXANS HAVE "BIT THE BULLET" AND ARE AWARE THAT THE PRICE OF NATURAL GAS HAS DONE MORE THAN JUST RAISE UTILITY RATES IN TEXAS. IT HAS KEPT TEXANS EMPLOYED, AND BROUGHT NEW INDUSTRY TO TEXAS SIMPLY BECAUSE FUEL WAS THERE. IN NEW YORK AND BOSTON THE UNEMPLOYMENT RATE IS STILL ABOUT 12%, AND OVER 17% IN DETROIT. BUT IN DALLAS AND HOUSTON IT'S ONLY 5% --- ONE OF THE LOWEST RATES IN THE NATION.

THE ECONOMICS OF UTILITIES ARE COMPLEX. THE HOMEOWNER IN CORSICANA, TEXAS WHO PAYS $49.00 A MONTH FOR ELECTRICITY IS ANGRY BECAUSE HIS BILL MAY BE TWICE AS HIGH AS HE PAID A FEW MONTHS AGO. AND IT'S DIFFICULT FOR HIM TO UNDERSTAND WHY THE GAS USED TO GENERATE HIS ELECTRICITY COSTS PERHAPS AN AVERAGE OF $1.25 WHILE HIS COUNTERPART IN NEW YORK IS BEING SHIPPED TEXAS GAS AT AN AVERAGE PRICE OF ONLY 30¢. BUT THE NEW YORKER IS INFURIATED BECAUSE THE SAME AMOUNT OF ELECTRICITY THAT SELLS FOR $49.00 IN TEXAS COSTS HIM $132.00. FOR SOME REASON HIS FUEL COST IS $3.00 PER 1000 CUBIC FEET, NOT 30¢, AND HE IS PLEADING FOR THE OPPORTUNITY TO PAY THE SAME PRICES THAT TEXANS PAY.

NOW I KNOW IT SOUNDS LIKE A PARADOX THAT THE WELLHEAD PRICE OF NEW NATURAL GAS COULD RAISE FROM 52¢/MCF TO PERHAPS $2.00/MCF, AN INCREASE OF NEARLY 400% AT THE WELLHEAD, AND A CONSUMER IN NEW JERSEY STILL PAY SUBSTANTIALLY LESS FOR FUEL THAN HE WILL UNDER THE EXISTING SYSTEM. BUT IT'S TRUE, AND IT IS THE PRINCIPLE THAT IS APPARENTLY THE LEAST UNDERSTOOD BY SOME MEMBERS OF THE CONGRESS.

IN THE NORTHEAST, 81% OF A RESIDENTIAL GAS BILL IS FOR PIPELINE AND DISTRIBUTION COSTS. ONLY 19¢ OF EACH DOLLAR IS FOR THE ACTUAL GAS. BUT WHEN A PIPELINE IS NOT FULL, ITS ENTIRE COST IS STILL PASSED ON TO THE CONSUMER THIRTY TWO EASTERN GAS DISTRIBUTORS FILED A REPORT WITH THE FPC 15 MONTHS AGO THAT SHOWED HOW CONSUMERS WERE PAYING AN UNNECESSARY $1.4 BILLION LAST YEAR JUST FOR 15% OF UNUSED PIPELINE CAPACITY. PIPELINES AND UTILITIES ARE GUARANTEED A STANDARD RATE OF RETURN ON THEIR INVESTED CAPITAL. WHEN FACILITIES ARE NOT FULLY UTILIZED, THE CONSUMER STILL PAYS THE ENTIRE COST TO AMORTIZE THOSE FACILITIES. IF A UTILITY'S REVENUES ARE DOWN BECAUSE OF LACK OF PRODUCT TO SELL, THEN THE PRICE OF WHAT IS SOLD IS ARTIFICIALLY INCREASED TO COMPENSATE FOR LOST INCOME. BUT THE REAL CONSUMER RIP-OFF CAME LAST YEAR WHEN THEY HAD TO PAY FOR ALTERNATE FUELS TO REPLACE THE 15% SHORTAGE OF GAS. THAT COST WAS AS MUCH AS ALL THE OTHER 85% OF THE GAS THAT WAS DELIVERED! CONSUMERS HAVE HAD FUEL BILLS DOUBLED, BUT THEY'RE NOT GETTING THE NATURAL GAS MANY OF THEM BELIEVE THEY'RE PAYING FOR. THEY'RE PAYING FOR FUEL OIL, LIQUEFIED GAS FROM ALGERIA, AND SYNTHETIC GAS AT UP TO $5.35/1000 CUBIC FEET!

LAST YEAR'S 15% SHORTFALL OF 2.8 TRILLION CUBIC FEET OF INTERSTATE GAS ADVERSELY IMPACTED HUNDREDS OF THOUSANDS OF JOB-HOLDERS AND HOUSEHOLDERS. THIS YEAR'S

PROJECTION OF A 6.3 TRILLION CUBIC FEET SHORTFALL, A 30% SHORTAGE, IS A "TICKING BOMB" THAT THREATENS EVERY JOB-HOLDER AND EVERY GAS USER IN THE COUNTRY. YET THE CALCULATIONS AND METHODOLOGY OF THE REPORT FILED WITH THE FPC SHOWS THAT IF THE PIPELINES CAN BE FILLED AGAIN, EVEN WITH GAS COSTING $2.00 AT THE WELLHEAD, CONSUMERS WILL ACTUALLY SAVE $6.4 BILLION A YEAR BY 1980 OVER THE COST OF ALTERNATES. (SEE EXHIBITS 1, 1-A, 1-B.) NO ALTERNATE FUEL IS CHEAPER THAN TODAY'S MOST EXPENSIVE NATURAL GAS. IF PRICE CONTROLS ARE REMOVED NATIONALLY, AMERICAN PRODUCERS CAN PROVIDE NEW NATURAL GAS AT HALF THE COST OF IMPORTED GAS.

THE PUBLIC IS INCREASINGLY AWARE THAT CONGRESSIONAL FAILURE TO FACE FACTS HAS INTENSIFIED ENERGY PRICE INCREASES AND SHORTAGES. THAT WAS CLEARLY EVIDENCED DURING THE PRIMARIES BY VOTER RESPONSE TO CANDIDATES WHO ATTEMPTED TO RUN ON ANTI-OIL AND GAS ISSUES. BUT IN SPITE OF ALL THE PUBLIC OPINION POLLS, AND THE EVIDENCE THAT CONSUMERS HAVE BEEN IMPALED BY THE CONSEQUENCES OF MORE THAN 20 YEARS OF NATURAL GAS PRICE CONTROLS, WE NOW HEAR VOICES ATTEMPTING TO INCITE THIS COMMITTEE INTO RECOMMENDING FEDERAL INTRUSION INTO STATE POLICIES BY IMPOSING THE SAME DISASTROUS REGULATIONS ON TEXAS GAS AS HAVE PENALIZED NON-PRODUCING STATES.

GAS PRICES ARE UP IN TEXAS AND NOBODY ENJOYS HIGH UTILITY BILLS. BUT PRODUCERS CAN NO MORE DRILL FOR MOST GAS AT 52¢, THAN FARMERS CAN GROW AND SELL WHEAT AT $1.00 PER BUSHEL. THERE IS A GREAT DEAL OF INTEREST IN USING OTHER FORMS OF ENERGY --- AND I HOPE THAT THE USE OF LIGNITE AND COAL AND NUCLEAR ENERGY WILL BE DEVELOPED AS RAPIDLY AS POSSIBLE. WILL THEY COST LESS? SOLAR ENERGY, POWER FROM THE WIND AND GEOTHERMAL POWER ARE GREAT TOPICS FOR THE SUNDAY SUPPLEMENTS, BUT MOST EXPERTS WARN US THAT IF THESE ARE SUCCESSFUL AT ALL, WE'RE LOOKING AT

A 30-YEAR DEVELOPMENT TIME.

MORE CONSERVATION OF ENERGY IS URGED AS A PARTIAL SOLUTION TO OUR SHORTAGE. I AGREE. BUT LOW PRICES DON'T ENCOURAGE CONSERVATION --- AND THAT'S EVEN APPARENT IN ELECTRIC UTILITY BILLINGS IN TEXAS. IN 1974, FOR EXAMPLE, TEXANS STATEWIDE USED AN AVERAGE OF 9,542 KILOWATT HOURS PER YEAR AT AN AVERAGE RATE OF 2.48¢ PER KILOWATT. IN SAN ANTONIO UNDER THEIR 3.00¢ RATE, THE AVERAGE USE WAS A LOW 8,236 KWH. BUT IN GARLAND, WHERE THE COST WAS ONLY 1.99¢, ONE OF THE LOWEST IN THE STATE, THE AVERAGE CUSTOMER USED 15,912 KWH, OR NEARLY TWICE AS MUCH ELECTRICITY AS THE AVERAGE SAN ANTONIAN.

THE COST OF ELECTRIC GENERATION HAS INCREASED BECAUSE THE COST OF NEW NATURAL GAS IS PASSED THROUGH TO THE CONSUMER. IT SEEMS THAT IF WE REDUCE THE PRICE OF GAS, ELECTRIC BILLS WILL DROP. BUT WILL THEY? PRODUCERS ARE STRAINING TO MAKE A PROFIT BY DRILLING FOR NEW, DEEPER, AND HARDER-TO-FIND NATURAL GAS. TO REDUCE THE WELLHEAD PRICE MEANS PRODUCERS CAN'T BRING NEW GAS TO MARKET, AND WE'RE BACK TO 1971 AGAIN WITH NO NEW GAS BEING PRODUCED. GAS FOR USE AS BOILER FUEL IS BEING PHASED OUT IN TEXAS, BY ORDER OF THE RAILROAD COMMISSION. THE USE OF NEW NATURAL GAS IN TEXAS IS BEING MANDATED FOR MORE SUPERIOR PURPOSES. BUT IN THE MEANTIME, WITHOUT NEW GAS, WHERE DOES A UTILITY TURN?

CHART

(EXHIBIT 2)

THIS CHART SHOWS A COMPARISON OF A MONTHLY ELECTRIC BILL UNDER DIFFERENT PLANT AND FUEL CONDITIONS. THIS CHART DOES NOT REPRESENT MONTHLY BILLS FOR AN "AVERAGE" TEXAN. THE AVERAGE TEXAN USES LESS THAN 800 KWH PER MONTH. BUT COMPLAINTS ABOUT HIGH ELECTRIC BILLS COME PRINCIPALLY FROM THOSE WHO USE UNUSUAL AMOUNTS OF ELECTRICITY. AND THESE CALCULATIONS ARE MOST PERTINENT FOR THOSE CUSTOMERS WHO USE TWICE AS MUCH ELECTRICITY AS THE AVERAGE TEXAS HOMEOWNER.

EACH BAR REPRESENTS AN ELECTRIC BILL WHICH SHOWS THE COST OF PLANTS AND OPERATIONS, THE COST OF THE DISTRIBUTION SYSTEM, AND THE COST OF FUEL, ALL INCLUDED IN THE COST OF THE TOTAL BILL.

(1) THE COST OF THE DISTRIBUTION SYSTEM AND OPERATIONS, WHICH ARE THE WIRES, POLES, TRANSFORMERS, METERS, ETC., WILL VARY GREATLY FROM SYSTEM TO SYSTEM. WE HAVE USED AN AVERAGE COST OF A SYSTEM IN WHICH EACH CONSUMER WOULD BE PAYING $16.55 PER MONTH WHEN HE USES 1,576.5 KWH. WE USE THIS SAME COST THROUGHOUT AS THOUGH IT WERE A SYSTEM IN WHICH VARIOUS TYPE PLANTS COULD BE PLUGGED INTO AT NO INCREASE IN COST.

(2) THE COST OF BUILDING A NEW NATURAL GAS-FIRED PLANT IS ABOUT $120 PER KILOWATT HOUR CAPACITY: $132.00 FOR A PLANT THAT WILL BURN FUEL OIL OR NATURAL GAS (AND THIS IS THE COST OF THE PLANT THAT THE CITY OF AUSTIN NOW HAS UNDER CONSTRUCTION FOR BEGINNING OPERATIONS IN JUNE OF 1977): $460.00/KWH FOR A LIGNITE OR COAL-BURNING PLANT; AND $800/KWH FOR A NUCLEAR PLANT. MOST OF THESE CONSTRUCTION COSTS ARE INCREASING EVERY DAY.

(3) THE FUEL COSTS ARE BASED ON COMMON KNOWLEDGE OF COSTS, BUT ARE SUBJECT TO DISCUSSION AS WE COMPARE EACH OF THESE POSSIBILITIES.

(A) THE FIRST BAR HAS BEEN PUT ON THE CHART FOR PURPOSES OF COMPARISON. IT SHOWS THE MONTHLY ELECTRIC BILL OF $39.09 FOR A RESIDENTIAL CONSUMER IN TEXAS FOR 1974 IF HE HAD USED 1,576.5 KWH AT THE 1974 AVERAGE RATE OF 2.48¢/KWH. WE WERE UNABLE TO OBTAIN SEPARATE COST-BREAKDOWNS FOR PLANT AND FUEL, BUT THE AVERAGE TOTAL OF $22.54 FOR BOTH COVERS THE USE OF SOME LIGNITE, SOME FUEL OIL, A LARGE PROPORTION OF NATURAL GAS, AND THE AVERAGE COST OF THE PRESENTLY INSTALLED GENERATING FACILITIES, WHICH IS LESS THAN THE COST OF NEW FACILITIES.

(B) THE NEXT FOUR BARS ARE FOR NEW GAS-FIRED PLANTS. WE HAVE USED THE COST OF NEW PLANTS IN ORDER TO GIVE A FAIR COMPARISON WITH OTHER FACILITIES, BUT IN ACTUAL FACT MANY PRESENT PLANTS COULD BE USED AT SOMEWHAT LESS TOTAL PLANT COST THAN IS SHOWN HERE.

B1. THIS BAR SHOWS THE COST OF FUEL IN A GAS-FIRED PLANT IF ALL NATURAL GAS WERE TO RISE TO $2.00. THE $2.00 PRICE IS BANDIED ABOUT AS A LIKELY STABILIZED PRICE, BUT MOST EXPERTS DO NOT BELIEVE IT WILL REACH THIS AVERAGE FOR MANY YEARS. UNREGULATED GAS PRICES IN TEXAS TODAY PROBABLY AVERAGE LESS THAN $1.10/MMBTU.

DURING 1975, THE HIGHEST PRICE FOR NEW NATURAL GAS PAID IN THE STATE OF TEXAS WAS $2.20. BUT AT THE SAME TIME, FOR NEW GAS, NOT UNDER REGULATION AND TO BE SOLD WITHIN THE STATE, THERE WAS

ALSO A 1975 CONTRACT FOR ONLY 30¢/MCF AND ANOTHER FOR 41.3¢. THE AVERAGE OF ALL NEW GAS CONTRACTED FOR IN 1975 WAS $1.71, AND WHEN MIXED WITH OLD GAS, WHICH WILL BE UNDER CONTRACT FOR MANY MORE YEARS, BRINGS THE OVERALL AVERAGE TO FAR BELOW THE 1975 AVERAGE PRICE FOR NEW GAS, WHICH IS ONLY ABOUT 5% OF THE GAS IN THE INTRASTATE SYSTEM. THEREFORE, THIS BAR IS VASTLY OVERSTATED FROM ANY FACTUAL CASE, AND THE MONTHLY BILL SHOULD PROBABLY BE SHOWN AS AT LEAST $10.00 LESS THAN THE $53.75 TOTAL.

BUT IF PRICES ARE ROLLED BACK, PRODUCERS STOP DRILLING WELLS AGAIN, AND NO NEW GAS COMES INTO THE MARKET, WHAT ARE THE ALTERNATIVES?

B2. TO UTILIZE TODAY'S EXISTING GAS POWERED GENERATING PLANTS, THEN CONSUMERS COULD BE FACED WITH IMPORTING LIQUEFIED NATURAL GAS, AND IT CERTAINLY WILL NOT BE CHEAPER THAN THE $3.65/MMBTU THAT IS NOW BEING USED IN THE NORTHEAST, AND THE MINIMUM AVERAGE BILL WOULD BECOME $78.50/MONTH.

B3. THE MANUFACTURING OF SYNTHETIC GAS FROM COAL HAS RECEIVED MUCH PUBLICITY, BUT NO PLANTS FOR SUCH MANUFACTURING ARE YET COMPLETE. THE MINIMUM PRICE FOR SUCH GAS IS ESTIMATED TO BE $4.00/MMBTU, AND THE AVERAGE BILLS WOULD GO TO $83.71/MONTH.

B4. IN NEW YORK STATE, ALGONQUIN GAS COMPANY IS MANUFACTURING GAS FROM NAPTHA TO USE IN THEIR SYSTEM. THE PRESENT COST IS $5.35 PER MMBTU, AND WILL BE HIGHER EACH TIME THE ARABS RAISE THE PRICE OF OIL. IF TEXAS CONSUMERS SHOULD BE FORCED TO GO THIS

ROUTE (AND IT IS THE QUICKEST WAY TO GET GAS WHEN NATURAL GAS IS UNAVAILABLE) THEN THE AVERAGE BILL WHICH WAS UNDER $40.00 WILL GO TO OVER $100.00/MONTH.

(C) GAS FIRED PLANTS CAN BE MODIFIED TO USE OIL AND MOST PLANTS HAVE SUCH EMERGENCY FACILITIES INSTALLED. THE CURRENT PRICES FOR FUEL OIL BY TEXAS UTILITIES FOR EXAMPLE IS $2.23/MMBTU. AT THIS PRICE, AN AVERAGE ELECTRIC BILL WOULD AMOUNT TO $57.72 PER MONTH.

(D) ON DECEMBER 17, 1976 THE TEXAS RAILROAD COMMISSION ISSUED AN ORDER TO BEGIN AN ORDERLY PHASE-OUT OF THE USE OF NATURAL GAS AS BOILER FUEL. UNDER THE ORDER, ALL USERS WHO CONSUMED MORE THAN 3,000,000 CUBIC FEET PER DAY IN 1974 AND 1975 (WHICH INCLUDES MOST ELECTRIC GENERATION) WILL HAVE THAT LEVEL OF SUPPLY CUT BY 10% BY 1981, AND BY 25% BY 1985. IN ADDITION, NO NEW NATURAL GAS CAN BE CONTRACTED AND SOLD AS BOILER FUEL IF THE QUANTITY EXCEEDS 100,000 CUBIC FEET PER DAY.

D1. UTILITY COMPANIES ARE THEREFORE CONVERTING TO LIGNITE PLANTS IN WHICH THE COST OF FUEL IS ONLY 1/4TH OR LESS THE COST OF NEW NATURAL GAS. IN MOST CASES, ELECTRICITY MAY BE GENERATED MORE CHEAPLY THAN TODAY'S RATES USING NATURAL GAS, BUT ELECTRIC USERS SHOULD NOT EXPECT THEIR RATES TO DROP SIGNIFICANTLY BECAUSE SUCH PLANTS REQUIRE 3-1/2 TIMES THE AMOUNT OF INVESTMENT, THE COST OF WHICH WILL BE INCLUDED IN THE RATE BASE. IN ANY CASE, WHILE A FEW LIGNITE PLANTS ARE ALREADY IN OPERATION, MOST SUCH PLANTS LIE IN THE FUTURE, AND NATURAL GAS MUST STILL BE THE FUEL MOST

USED UNTIL MORE SUCH PLANTS ARE BUILT. BUT WHEN THEY ARE PUT INTO USE THE AVERAGE MONTHLY RESIDENTIAL ELECTRIC BILL WILL BE ABOUT $50.45/MONTH.

D2. PLANS ARE ALSO UNDERWAY TO USE WESTERN COAL FROM MONTANA AND WYOMING. HOWEVER, A GREAT MANY PROBLEMS MUST BE OVERCOME BEFORE THIS FUEL CAN BE USED IN GREAT QUANTITY. ENVIRONMENTAL DELAYS MAY PREVENT IMMEDIATE PRODUCTION, AND WESTERN RAILWAYS DO NOT HAVE EVEN A FRACTION OF THE CARS REQUIRED TO DELIVER THE GREAT QUANTITIES OF COAL NEEDED FOR FUEL. THE POSSIBILITY OF GRINDING WESTERN COAL AND SHIPPING IT TO TEXAS BY MEANS OF PIPELINES, AS A WATER-BASED SLURRY, ALSO FACES MANY FINANCIAL AND OPERATIONAL PROBLEMS.

WE HAVE USED ONLY $20.00 PER TON AS THE BASIC COAL COST, BUT MOST OBSERVERS BELIEVE THIS TO BE TOO CONSERVATIVE AND THAT ANY ELECTRICITY GENERATED IN TEXAS FROM WESTERN COAL WILL CAUSE AVERAGE MONTHLY BILLS TO BE HIGHER THAN THE $62.74 CALCULATED HERE.

E. NUCLEAR PLANTS HAVE THE POTENTIAL TO PROVIDE A GREAT DEAL OF ENERGY TO TEXAS AT REASONABLY STABLE COSTS ONCE THE PLANTS ARE BUILT. THE PRINCIPAL COST TO BE PAID FOR BY THE CONSUMER WILL BE THE PLANT ITSELF, THE MONTHLY COST OF WHICH WILL BE MORE THAN THE ENTIRE THEORETICAL ELECTRIC BILL OF 1974. THE PRESENT FUEL COST IS EXCEPTIONALLY LOW, AMOUNTING TO ABOUT 17.6¢ PER MMBTU, OR ABOUT 1/10TH OF THE CURRENT AVERAGE PRICE OF NEW

NATURAL GAS IN TEXAS, BUT URANIUM IS EXPECTED TO COST AS MUCH AS $300.00/LB. BY 1985. RESIDENTIAL CONSUMERS CAN PROBABLY EXPECT MONTHLY BILLS OF AT LEAST $63.69 TO $80.00 FROM NUCLEAR PLANTS FOR 1,576.5 KWH.

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THESE CALCULATIONS SHOW THAT EVEN IF NATURAL GAS PRICES RISE EVEN HIGHER, THE AVERAGE RESIDENTIAL ELECTRIC BILL WILL STILL BE THE LEAST EXPENSIVE WITH ITS USE. AND WHAT ALTERNATIVE IS THERE? ACTION THAT ATTEMPTS TO REDUCE THE WELLHEAD PRICE OF GAS WILL REDUCE DRILLING ACTIVITY --- THAT WILL REDUCE THE SUPPLY --- LESS SUPPLY MEANS EITHER PARTIAL SHUT-DOWN OF GENERATING FACILITIES, OR MASSIVE PRICE INCREASES FOR ALTERNATE FUELS, OR BOTH. EASTERNERS AND CALIFORNIANS WHO HAVE FOUGHT TO KEEP PRICES LOW HAVE TAUGHT US THAT AVAILABILITY OF FUEL IS INFINITELY MORE IMPORTANT THAN HAVING A LOW PRICE AND NO FUEL.

THE TOTAL CONSUMPTION OF GAS BY RESIDENTIAL CONSUMERS IN TEXAS IS ONLY ABOUT 6% OF ALL THE GAS WE CONSUME. ELECTRIC GENERATION USES ANOTHER 25%. THE REMAINING 69% IS WHAT KEEPS THE TEXAS ECONOMY RUNNING - IN FERTILIZER MANUFACTURING, FOOD PRODUCTION, IN FOOD PROCESSING, IN PETROCHEMICAL PLANTS, THE MANUFACTURE OF PAPER, GLASS, CONSTRUCTION MATERIALS, AND ALL THE OTHER ITEMS THAT CREATE JOBS FOR TEXANS AND KEEP OUR ECONOMY OPERATING.

FOR EXAMPLE, THE PETROCHEMICAL INDUSTRY, WHICH IS TEXAS' SECOND LARGEST INDUSTRY, WOULD BE THE FIRST TO SUFFER UNDER A REDUCED SUPPLY OF NATURAL GAS. HERE IS A TEXAS INDUSTRY WHICH SUPPLIES 60% OF ALL THE BASIC MATERIALS USED BY THE CHEMICAL, TEXTILE, AND PLASTIC INDUSTRY OF THE ENTIRE NATION. IT PROVIDES JOBS FOR 70,000 TEXAS MEN AND WOMEN DIRECTLY, AND ANOTHER 300,000 TEXAS JOBS IN RELATED TRADES AND SERVICES.

WHEN DISTRIBUTED THROUGH THE NATION, TEXAS PETROCHEMICALS RESULT IN 128.4 BILLION DOLLARS IN FINAL PRODUCTS AND PROVIDE EMPLOYMENT FOR 2,986,000 PEOPLE. THE TEXTILE INDUSTRY ALONE PROVIDES 1 OUT OF 8 JOBS IN THIS COUNTRY AND IS HEAVILY DEPENDENT ON SYNTHETIC FIBERS. ECONOMIC RIPPLE EFFECTS FROM PETRO-CHEMICALS REACH FROM THE LARGEST PLANT IN DETROIT TO THE MOST FRIVOLOUS CRACKER-JACK TOY. BUSINESS ENTERPRISES OF EVERY SIZE ARE AT STAKE. JOBS ARE AT STAKE.

THIS NATION HAS A POWERFUL ECONOMIC WEAPON IN FOOD PRODUCTION. WE ARE THE WORLD'S LARGEST SUPPLIER OF FOOD TO THE WORLD. WHERE DID THE MONEY COME FROM TO PAY FOR ALL THAT FOREIGN OIL WE'RE IMPORTING? THE FARMERS PAID FOR IT! $22 BILLION A YEAR IN FOOD EXPORTS SAVED OUR NECKS. BECAUSE WE CAN PRODUCE FOOD, A LARGE PART OF THE WORLD WANTS TO MAINTAIN GOOD RELATIONS WITH US, BECAUSE WHILE ARMS PURCHASES CAN BE DELAYED, AND AUTOMOBILES CAN BE PARKED, FOOD IS ALWAYS A MUST.

BUT IT IS IN FOOD PRODUCTION THAT WE ARE MOST VULNERABLE IF WE DO NOT HAVE NATURAL GAS SUPPLIES. HERBICIDES AND PESTICIDES MADE FROM NATURAL GAS AND PETROLEUM ARE SAID TO SAVE CONSUMERS $20 BILLION A YEAR. NITROGEN IN FERTILIZER COMES FROM NATURAL GAS, WHICH IS ESTIMATED TO INCREASE FOOD PRO-DUCTION BY 30%. AGRICULTURE IS TEXAS' THIRD LARGEST INDUSTRY, AND 200 THOUSAND TEXAS FARMERS USED 880 THOUSAND TONS OF NITROGEN FERTILIZER LAST YEAR. IF GAS PRODUCERS ARE AGAIN STOPPED, THEN INDUSTRIAL AND AGRICULTURAL OUTPUT WILL FALL NEXT. THE NUMBER OF JOBS IN TEXAS WILL BE DRASTICALLY REDUCED.

LOUISIANA PRODUCES 12,000 TONS OF FERTILIZER A DAY, AND 97% OF IT IS SHIPPED TO THE REST OF THE COUNTRY. FEDERAL CONTROLS HAVE BEEN PROVEN TO BE THE

WORLD'S MOST EFFICIENT METHOD OF DRYING UP THE INTERSTATE SUPPLY OF GAS. IF THOSE WHO WOULD REACH INTO EVEN TEXAS AND LOUISIANA TO ROLL BACK PRICES AND DRY UP THE INTRA-STATE SUPPLY THE WAY THEY'VE ALREADY DRIED UP THE SUPPLY FOR NON-PRODUCING STATES, WHERE DOES THE NATION GO FOR FERTILIZER TO KEEP FARM PRODUCTION UP? DO WE BUY THAT FROM OPEC TOO? THAT'S WHAT 23 MAJOR FARM AND FOOD PROCESSING ORGANIZATIONS WANT TO KNOW. THEY REPRESENT MILLIONS OF FARMERS WHO HAVE BEEN PLEADING TO TAKE CONTROLS OFF OF NATURAL GAS BECAUSE THEY KNOW SUPPLY IS MORE IMPORTANT THAN PRICE. CERTAINLY I ACKNOWLEDGE THAT MANY FARMERS MAY BE UNHAPPY WITH FUEL PRICES, AND FERTILIZER PRICES. CERTAINLY SOME UNION MEMBERS WHO HAVE TESTIFIED HERE MAY WISH TO HAVE THE SAME UTILITY RATES THEY HAD A FEW YEARS AGO (SO WOULD I), BUT TODAY'S RATES ARE UNDOUBTEDLY LESS DISTASTEFUL THAN BEING UNEMPLOYED TOMORROW IF LESS GAS IS PRODUCED. BUT WHY AREN'T THEY PROPOSING SOME ALTERNATE SOLUTIONS? IF THESE CRITICS BELIEVE PRODUCERS ARE MAKING SO MUCH MONEY, WHY DON'T THEY GET IN THE BUSINESS THEMSELVES?

THE LARGEST ELECTRIC UTILITY IN TEXAS DECIDED THEY MIGHT SAVE THEIR CUSTOMERS MONEY BY DRILLING THEIR OWN GAS WELLS IN THE FORT WORTH BASIN. THEIR CHAIRMAN TESTIFIED IN AUSTIN LAST APRIL THAT THEY DRILLED 27 WELLS AND HAD 21 DRY HOLES. THE ACTUAL RAW COST OF THE GAS THEY FOUND BEFORE TAXES, BEFORE OPERATING COSTS, BEFORE INTEREST CHARGES, BEFORE DISCOUNTED RATE OF RETURN, OR ANY OTHER EXPENSE, CAME TO $3.00 PER MCF.

AS A NATION WE MUST FACE UP TO PAYING MORE FOR NATURAL GAS, BEGINNING NOW, AND TRYING TO DELAY FACING REALITY WILL ONLY WORSEN THE SHORTAGE AND THE EVENTUAL IMPACT. SOLAR ENERGY, NUCLEAR ENERGY, WINDPOWER, GEOTHERMAL SOURCES, SYNTHETIC

FUELS, MORE AND BETTER USE OF COAL ARE ALL COMING, BUT THEY'RE ALL IN THE FUTURE - 10 TO 50 YEARS AWAY. IN THE MEANTIME, MORE NATURAL GAS PRODUCTION IN THIS COUNTRY, WILL KEEP THE ECONOMY MOVING WHILE THESE NEW SOURCES ARE BEING DEVELOPED.

FOREIGN SOURCES OF ENERGY CANNOT BE DEPENDED UPON, CERTAINLY NOT OPEC, AND EVEN OUR CANADIAN NEIGHBORS HAVE CURTAILED SOME DELIVERIES OF GAS. THEY HAVE RAISED THE PRICE FROM $1.00/MCF IN JANUARY, 1975 TO THE PRESENT PRICE OF NEARLY $2.00, AND MORE INCREASES ARE PLANNED BEFORE WINTER. ALGERIAN GAS WILL BE DELIVERED TO CUSTOMERS FROM THE NEW $550,000,000 PORT FACILITY IN MARYLAND FOR AN INITIAL PRICE OF $3.65/MCF - BUT WE CAN DEPEND ON IT BEING MUCH HIGHER LATER.

WE'RE CURRENTLY PAYING $4,000,000 AN HOUR FOR OIL IMPORTS, 24 HOURS A DAY. LAWS AND REGULATIONS THAT MAKE IT IMPOSSIBLE TO PRODUCE FUEL IN THIS COUNTRY ARE NOTHING BUT SUBSIDIES TO OPEC, BECAUSE IF WE DON'T PRODUCE FUEL HERE BY DRILLING MORE WELLS, AND OUR DEPENDENCE ON OPEC CONTINUES TO ESCULATE, DON'T THINK FOR A MINUTE THAT THEY WON'T BE TEMPTED TO RAISE THE PRICE AGAIN BY 100%, 200% OR 300%. AND THE PEOPLE WHO WILL FEEL THAT BLACKMAIL FIRST AND THE HARDEST ARE 40,000,000 HOMEOWNERS; THE VERY PEOPLE THIS COMMITTEE SAYS IT WANTS TO PROTECT. THE WAY TO PREVENT HIGHER COSTS OF OPEC IMPORTS IS FOR THIS NATION TO SHOW ITS POSITIVE DETERMINATION TO PRODUCE MORE OF OUR OWN AMPLE SUPPLIES OF ENERGY.

TOGETHER WITH HUNDREDS OF OTHERS WHO HAVE SPENT MANY YEARS EXPLORING FOR OIL AND GAS, MY EXPERIENCE HAS CONVINCED ME THAT TRILLIONS OF CUBIC FEET OF

NATURAL GAS CAN BE BROUGHT TO MARKET BY DRILLING DEEPER WELLS, MORE OFFSHORE WELLS, DEVELOPING LOW-RESERVE AREAS, AND DRILLING FRONTIER AREAS. EVEN THE FEA ESTIMATES THAT THOSE PORTIONS OF OUR CONTINENTAL SHELVES OFF THE COASTS OF THE NORTHEASTERN STATES, CALIFORNIA AND ALASKA PROBABLY CONTAIN A 20 TO 40 YEAR ADDITIONAL SUPPLY OF NATURAL GAS AT TODAY'S RATE OF CONSUMPTION. ALL THAT ACTIVITY WILL BE MORE EXPENSIVE. A 30,000 FOOT WELL, FOR EXAMPLE, DOESN'T COST JUST 6 TIMES AS MUCH AS A 5,000 FOOT WELL --- IT COSTS 120 TIMES AS MUCH. A 10,000 FOOT WELL CAN BE DRILLED ONSHORE FOR $150,000, BUT IN 300 FEET OF WATER THE COST SOARS TO $685,000.

ANY PRODUCER CAN DOCUMENT THAT HIS COSTS TO DRILL A WELL TO A PARTICULAR DEPTH HAS INCREASED 200% TO 300% IN THE PAST FIVE YEARS. FROM 1971 TO 1974, THE LEASE COSTS ALONE INCREASED FROM 13% OF EACH WELL TO 42%. BUT THAT'S ONLY PART OF THE STORY OF WHY NEW GAS WILL COST MORE.

MOST NEW NATURAL GAS IS BELIEVED TO RESIDE IN DEEPER GEOLOGICAL FORMATIONS, OFTEN BELOW THOSE DEPTHS WHERE OIL IS FOUND, AND COMPARATIVELY FEW TRULY DEEP WELLS HAVE BEEN DRILLED. THOSE WELL COSTS INCREASE EXPONENTIALLY WITH DEPTH AND THEY WILL NOT BE DRILLED WITHOUT THE INCENTIVE OF KNOWING THAT ANY NEW GAS FOUND CAN BE SOLD PROFITABLY.

SOME ADDITIONAL NEW GAS MAY BE RECOVERED FROM EXISTING LOW-RESERVE AREAS, SUCH AS THE DEVONIAN SHALES OF OHIO AND KENTUCKY OR THE FORT WORTH BASIN OF TEXAS. FOR EXAMPLE, NEXT TUESDAY THE PITTS ENERGY GROUP, IN CONJUNCTION WITH THE ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION WILL EXPERIMENTALLY CONDUCT A $300,000 MASSIVE HYDRAULIC FRACTURING OPERATION OF A WELL IN THE GAS FINDERS FIELD OF NORTH TEXAS. IF THIS COOPERATIVE GOVERNMENT AND INDUSTRY PROJECT IS

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SUCCESSFUL, WE HOPE TO INCREASE THE PRODUCTIVITY OF THE TEST WELL BY 400%. IF THE PRODUCTION IS SUBSTANTIALLY INCREASED, THERE ARE HUNDREDS OF WELLS IN THE SURROUNDING AREA THAT CAN BE SIMILARLY TREATED, AND ADD PERHAPS 1.75 BILLION CUBIC FEET A YEAR TO THE NATION'S GAS SUPPLY. BUT IT WON'T BE CHEAPER GAS --- THE ORIGINAL WELL BEING USED IN THIS EXPERIMENT COST ONLY $150,000 TO DRILL AND COMPLETE.

A GREAT DEAL OF NATURAL GAS CAN BE RECOVERED IN THIS COUNTRY. THERE IS NO IMMEDIATE SHORTAGE OF THE RESOURCE ITSELF, AND NO LACK OF WILLINGNESS ON THE PART OF PRODUCERS TO DRILL NEW WELLS OR NURSE OLD ONES. BUT THERE IS A SHORTAGE OF NEW NATURAL GAS AT CONGRESSIONALLY REGULATED PRICES. INTERSTATE NATURAL GAS PRICES AT THE WELLHEAD ARE TOO LOW TO ENCOURAGE NEW DRILLING OR PROVIDE SPECIAL TREATMENTS TO INCREASE PRODUCTION, AND THEY'RE TOO LOW TO BE COMPETITIVE WITH OTHER FUELS. THIS WORKS AGAINST NEEDED CONSERVATION BY PROMOTING WASTE OF NATURAL GAS, AND IT RETARDS ORDERLY DEVELOPMENT OF ALTERNATE FUELS.

LAWS AND REGULATIONS WHICH REDUCE THE INCENTIVE TO TAKE RISKS, AND IMPINGE THE ABILITY OF INDEPENDENTS TO PRODUCE ENERGY, ARE ACTUALLY ANTI-CONSUMER ACTIONS. CONSUMERS WHO ARE DEPRIVED OF DOMESTIC ENERGY ARE FORCED TO BUY HIGHER PRICED FOREIGN PRODUCTS, AND THEY MUST ALSO MAKE UP IN OTHER TAXES WHAT WOULD HAVE NORMALLY BEEN PAID OUT OF OIL PRODUCER REVENUES.

GOVERNMENT CONTROLS CAUSED THE GAS SHORTAGE, AND THE THREAT OF EVEN MORE CONTROLS ARE PERPETUATING THE SHORTAGES. FEW EARNEST ATTEMPTS ARE BEING MADE BY CONGRESS TO ELIMINATE THE SHORTAGE, BUT RATHER TO ASSURE THAT EVERY AMERICAN

GETS HIS NOSE RUBBED INTO IT. FOR EXAMPLE, THERE ARE AREAS, OTHER THAN TEXAS AND OKLAHOMA, IN WHICH THE GAS SHORTAGE HAS SCARCELY BEEN FELT, SUCH AS ST. LOUIS AND CHICAGO, BECAUSE OF THE UNUSUAL IMAGINATION AND INNOVATION THAT LOCAL SUPPLIERS HAVE APPLIED. BUT IF FEDERAL PRICE CONTROLS ARE EXTENDED, THIS COUNTRY WILL BE SOLD DOWN THE RIVER INTO ARAB BONDAGE, INCLUDING THOSE WHO THINK THEIR LOCAL SUPPLY IS SECURE. AS THE SUPPLY DWINDLES FURTHER UNDER PRICE REGULATIONS, ALLOCATION WILL ALSO BECOME THE LAW OF THE LAND. THIS MEANS THAT ANY AREA WITH MORE GAS THAN ANOTHER, WILL HAVE A SHARE OF THAT GAS TAKEN AWAY --- JUST AS HAPPENED IN SOME AREAS THIS PAST WINTER. THIS MEANS THAT A BUREAUCRAT IN WASHINGTON WILL DECIDE IF COLD FEET IN VIRGINIA ARE MORE IMPORTANT THAN JOBS IN SACRAMENTO, AND THIS MEANS THAT IT DOESN'T MATTER HOW PROVIDENT AND FARSIGHTED SOME UTILITY COMPANIES HAVE BEEN, THEIR CONTRACTUAL ARRANGEMENTS WILL MEAN NOTHING; THOSE WHO HAVE GAS, WILL LOSE GAS, AND IF YOU THINK GAS AND ELECTRIC BILLS IN TEXAS ARE HIGH NOW, JUST LET THE INCENTIVE TO DRILL AND PRODUCE MORE WELLS BE KILLED IN TEXAS. WHEN EVEN TEXANS HAVE TO PAY THE ARAB RANSOM INSTEAD OF USING OUR OWN FUEL, THE COST OF TODAY'S UTILITIES WILL SEEM VERY SMALL INDEED.

THERE IS IN TEXAS TODAY A TEMPORARY SURPLUS IN PRODUCING ABILITY OVER DEMAND, AMOUNTING TO ABOUT 313 BILLION CUBIC FEET FOR 1976. BUT ALL PROJECTIONS SHOW THAT PRODUCIBILITY WILL CONTINUE TO PLUNGE AND THAT THE PRESENT FINDING RATE IN TEXAS OF 1.1 TRILLION CUBIC FEET PER YEAR MUST BE INCREASED TO 3.9 TRILLION CUBIC FEET A YEAR JUST TO MEET THE CURRENT STABILIZED DEMAND. THAT WILL REQUIRE DRILLING ACTIVITY TO TRIPLE. BUT IF DRILLING ONLY STAYS AT ITS PRESENT LEVEL --- AND EVEN IF INTERSTATE SALES CONTINUE TO DROP --- TEXAS WILL STILL BE 31.6 PERCENT SHORT OF ITS ANTICIPATED INTRASTATE NEEDS BY 1980.

THOSE WHO SAY THE UNREGULATED INTRASTATE PRICE OF NATURAL GAS SHOULD DROP TO THE LEVEL OF THE INTERSTATE PRICING STRUCTURE ARE THEREFORE COURTING AN UNPRECEDENTED ECONOMIC CALAMITY. PRICE ROLLBACKS IN TEXAS WILL NOT RELEASE GAS TO THE INTERSTATE MARKET. SUCH TAMPERING WILL ONLY DRY UP THE SUPPLY IN BOTH MARKETS BY CAUSING DRILLING RIGS TO BE PUT IN MOTHBALLS. NEW NATURAL GAS MUST BE RELEASED FROM FEDERAL CONTROLS AND PRODUCERS GIVEN THE INCENTIVE TO DRILL MORE AND MORE WELLS FOR THE BENEFIT OF THE NATION.

DEREGULATION OF NEW NATURAL GAS COSTS THE CONSUMER NOTHING. IF NO NEW GAS IS FOUND, THE CONSUMER IS IN THE SAME POSITION AS HE IS NOW. BUT IF PRODUCERS ARE RIGHT, AND REMOVAL OF PRICE CONTROLS DOES ELICIT NEW SUPPLIES, EVEN THE HIGHEST PRICES PROJECTED FOR NEW NATURAL GAS WILL BE LESS EXPENSIVE THAN ANY OF THE CURRENT ALTERNATES.

ANOTHER EMBARGO OF FUEL COULD THROW AMERICA INTO ECONOMIC CHAOS, AND I BELIEVE MOST PEOPLE KNOW IT. EVEN IF THE ARABS WANT TO SELL US ALL THE OIL WE NEED, OUR NATIONAL SECURITY IS IN JEOPARDY. IN CASE OF WAR, WITH 50% OF OUR FUEL NEEDS RIDING THE HIGH SEAS AS HUGE VOLATILE TARGETS FOR THE WORLD'S LARGEST FLEET OF ATOMIC SUBMARINES, EVERY ONE OF THOSE SHIPS COULD BE AT THE BOTTOM OF THE OCEAN WITHIN 60 DAYS.

THERE ARE TWO ASPECTS OF THE COMMENDABLE TEXAS EXAMPLE OF SOLVING THE NATURAL GAS SUPPLY PROBLEM THAT SHOULD BE MADE CRYSTAL CLEAR TO EVERY GAS USER IN THE NATION. I HAVE ALREADY REPEATED THE FIRST ONE SEVERAL TIMES: THAT HIGHER PRICES DO CREATE THE SUPPLY NEEDED TO PROVIDE JOBS, AND AT A COST BELOW ANY ALTERNATE FUEL. THE SECOND IS TO TAKE A COLD HARD LOOK AT THE FEW ISOLATED CASES IN TEXAS WHERE CONSUMERS WERE ASLEEP AT THE VALVES TOO LONG. THEY LET

THEIR SUPPLY OF OLDER, CHEAPER GAS RUN COMPLETELY DRY. TODAY, THE CONSEQUENCES OF THEIR PREVIOUS INACTION HAS THEM BEARING THE FULL UNCUSHIONED NAKED IMPACT OF USING DISPROPORTIONATELY HIGH VOLUMES OF MORE EXPENSIVE NEW GAS, WITHOUT THE ADVANTAGE OF MIXING IT WITH LESS EXPENSIVE GAS, AS DO MOST TEXANS.

THERE IS NO REASON FOR MOST INTERSTATE CUSTOMERS TO FACE THIS PROBLEM. THE FLOWING GAS IN THE INTERSTATE MARKET TODAY IS 90% OLD GAS. BUT TOMORROW THERE WILL BE LESS, AND NEXT MONTH STILL LESS. EVERY DAY THAT THE CONGRESS DELAYS DEREGULATION OF NEW GAS TO MIX WITH THAT OLD GAS IS A CRIME AGAINST CONSUMERS, BECAUSE THE LONGER THE DELAY IS DRAWN OUT THE MORE ABRUPT THE EVENTUAL PRICE INCREASE MAY BE.

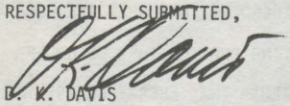
I DON'T THINK THAT A MAJORITY OF AMERICANS ARE IN FAVOR OF PRICE CONTROLS, ALTHOUGH I'M SURE IT'S NOT ALWAYS APPARENT TO THIS COMMITTEE AFTER A FEW MILITANTS BEGIN TO WORK OVER THE UTILITIES AND THE PRODUCERS. I SPENT A GREAT DEAL OF TIME LAST FALL AND WINTER TALKING TO THE GENERAL PUBLIC IN THE NORTHEASTERN STATES, AND ON THE WEST COAST. THAT EXPERIENCE CONVINCED ME THAT WHEN THE COLD FACTS ABOUT ENERGY AND COSTS ARE EXPLAINED TO THE VOTING PUBLIC, THEY DO UNDERSTAND AND DO ACCEPT THE UNPLEASANT BUT INDISPUTABLE TRUTH THAT ENERGY COSTS ARE NOT GOING TO DROP, BUT THAT THEY WILL PROBABLY INCREASE. ANY PROMISES TO THE CONTRARY SEEM TO BE ALMOST INSTINCTIVELY REJECTED. PEOPLE ARE GENERALLY MORE AWARE OF OUR ENERGY SITUATION THAN EITHER MY INDUSTRY OR GOVERNMENT GIVE THEM CREDIT FOR.

I'VE ASKED MANY PEOPLE OUTSIDE MY OWN INDUSTRY TO SUPPORT REMOVAL OF PRICE CONTROLS ON NATURAL GAS BECAUSE I BELIEVE THE CONCEPT OF ADDING TO OUR OWN AMERICAN SUPPLY OF FUEL IS RELATED TO THEIR OWN SURVIVAL. I HOPE THAT THIS

COMMITTEE ALSO RECOGNIZES THE INEXORABLE CONSEQUENCES OF CONTINUED REGULATION. I BELIEVE THAT YOU AND YOUR COLLEAGUES IN WASHINGTON MUST, IN ALL GOOD CONSCIENCE, EXPLAIN TO THE AMERICAN PEOPLE THAT PRICE INCREASES ARE GOING TO BE UNBEARABLY GREATER WITH UNRELIABLE FUEL SOURCES THAN WITH HIGHER PRICED, BUT PLENTIFUL, AMERICAN SUPPLIES. I BELIEVE YOU MUST MAKE IT CLEAR TO AMERICAN VOTERS THAT WE ARE EXPORTING MORE AMERICAN JOBS WITH EVERY DOLLAR WE SEND OUT OF THIS COUNTRY FOR FOREIGN FUEL, AND THAT GREATER DEPENDENCE ON FOREIGN FUEL IS THREATENING TO PUT ANOTHER GENERATION OF AMERICAN YOUTH IN UNIFORM AS OUR NATIONAL SECURITY BECOMES MORE PRECARIOUS.

THESE ARE ALL CONCEPTS THAT THE AMERICAN PUBLIC IS ALREADY BEGINNING TO REALIZE. AND WHEN THE WHITE LIGHT OF FULL REALIZATION COMES --- BARING THE FACT THAT POLITICAL POSTURING AND DELAYS IN MAKING HARD ENERGY DECISIONS HAVE DAMAGED EVERY AMERICAN CITIZEN, I BELIEVE THERE WILL BE SOME POLITICAL FUTURES IN JEOPARDY AS WELL.

RESPECTFULLY SUBMITTED,



D. K. DAVIS
DALLAS, TEXAS
SEPTEMBER 8, 1976

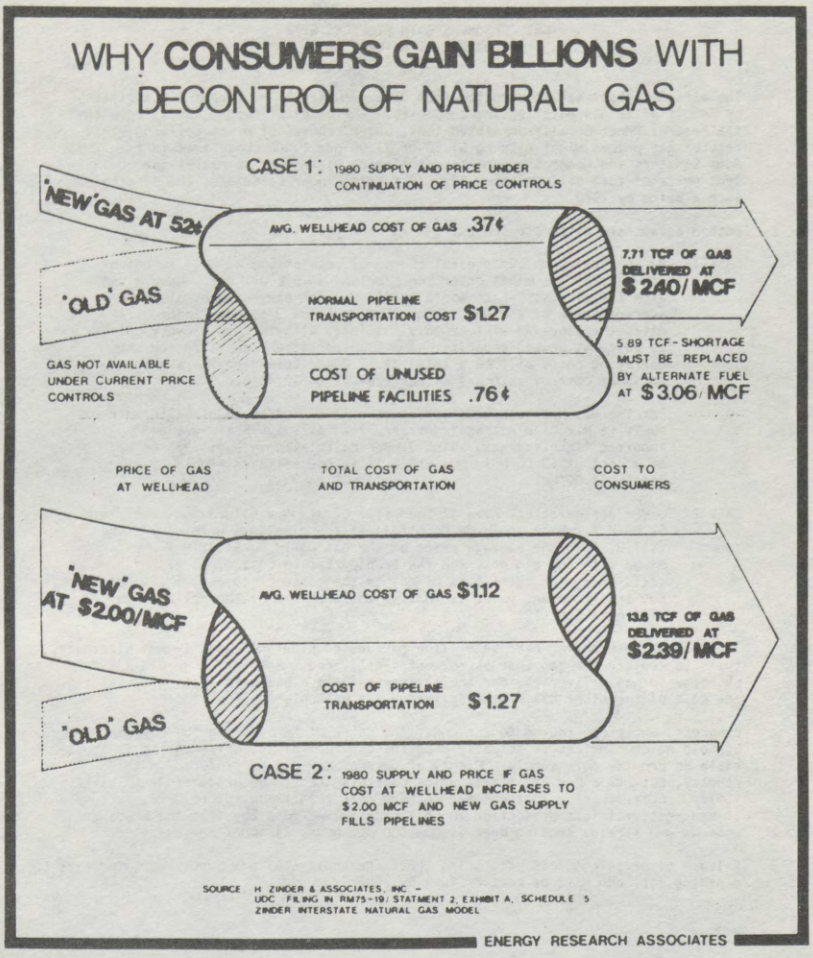

WHY CONSUMERS GAIN BILLIONS WITH DECONTROL OF NATURAL GAS
CASE 1: 1980 SUPPLY AND PRICE UNDER CONTINUATION OF PRICE CONTROLS
'NEW' GAS AT 52¢
'OLD' GAS
GAS NOT AVAILABLE UNDER CURRENT PRICE CONTROLS
AVG. WELLHEAD COST OF GAS .37¢
NORMAL PIPELINE TRANSPORTATION COST $1.27
COST OF UNUSED PIPELINE FACILITIES .76¢
7.71 TCF OF GAS DELIVERED AT $2.40/MCF
5.89 TCF - SHORTAGE MUST BE REPLACED BY ALTERNATE FUEL AT $3.06/MCF
PRICE OF GAS AT WELLHEAD
TOTAL COST OF GAS AND TRANSPORTATION
COST TO CONSUMERS
'NEW' GAS AT $2.00/MCF
'OLD' GAS
AVG. WELLHEAD COST OF GAS $1.12
COST OF PIPELINE TRANSPORTATION $1.27
13.6 TCF OF GAS DELIVERED AT $2.39/MCF
CASE 2: 1980 SUPPLY AND PRICE IF GAS COST AT WELLHEAD INCREASES TO $2.00 MCF AND NEW GAS SUPPLY FILLS PIPELINES
SOURCE H. ZINDER & ASSOCIATES, INC. - UDC FILING IN RM75-19; STATMENT 2, EXHIBIT A, SCHEDULE 5 ZINDER INTERSTATE NATURAL GAS MODEL
ENERGY RESEARCH ASSOCIATES

EXHIBIT 1

EXPLANATION OF CHART
WHY CONSUMERS GAIN BILLIONS WITH
DECONTROL OF NATURAL GAS

The attached chart was constructed from data compiled by H. Zinder & Associates on behalf of 32 gas distributing companies. The original report, as filed with the Federal Power Commission stated that, under removal of price ceilings, that natural gas prices might rise to $1.50 or $1.60 per 1,000 cubic feet (Mcf). Some Senators and Congressmen believe the price might rise to nearer the equivalent price of fuel oil, or about $2.00/Mcf, and Zinder calculated the effects of such a price by 1980.

Both diagrams are alternate projections for the year 1980.

CASE 1: By continuing on our present course of regulation, a small amount of new natural gas might enter the pipeline at 52¢ per Mcf. When mixed with the old gas, which would continue under present controls, the average price of the gas in the line would be 37¢, but Zinder estimates the pipeline will be only 55% full, with the 45% vacancy going to waste as unused capacity. The transportation, amortization and operating costs will be a total of $2.03/Mcf bringing the average consumer cost of such gas as he receives to $2.40/Mcf.

For the gas not received, consumers will be forced to use alternate fuels (a mix of electrical nuclear, fuel oil, synthetic gas and imported liquefied gas) which Zinder calculated in May, 1975 to be at a cost of $3.06/Mcf, but which it is now believed should be more nearly $4.00/Mcf.

CASE 2: Under deregulation, even if the price of all new natural gas went to $2.00/Mcf (which would be doubtful) if the pipelines were completely filled, then the average price of the gas would be $1.12/Mcf when mixed with the old gas, and the transportation cost of $1.27/Mcf would bring the total cost of gas to the consumer to only $2.39/Mcf. But the important point is that we would be rid of the reliance on alternate fuels!

In 1975, we were paying over $4 Billion for unused pipeline capacity and alternate fuels to replace the gas that is not being delivered. Nationwide we had a 15% shortage in gas deliveries, and the alternate fuels alone were costing $3 Billion. The cost of the other 85% of the delivered gas was only $3.1 Billion!

Congress, while continuing to act under the guise of "protecting the consumer" by holding down prices is actually doubling our fuel bills, while making it impossible to provide more supply! Plenty of natural gas can be produced in this country, but not under artificial price controls that throw producers into bankruptcy. Current price controls are nothing more than a subsidy to OPEC, because if Congress restricts production in this country, we must buy from the Arabs to whom we are already sending over $4,000,000 per hour, 24 hours per day.

Release of price controls will bring about the additional gas supply consumers are pleading for, and give us cheaper fuel by 1980.

EXHIBIT 1-A

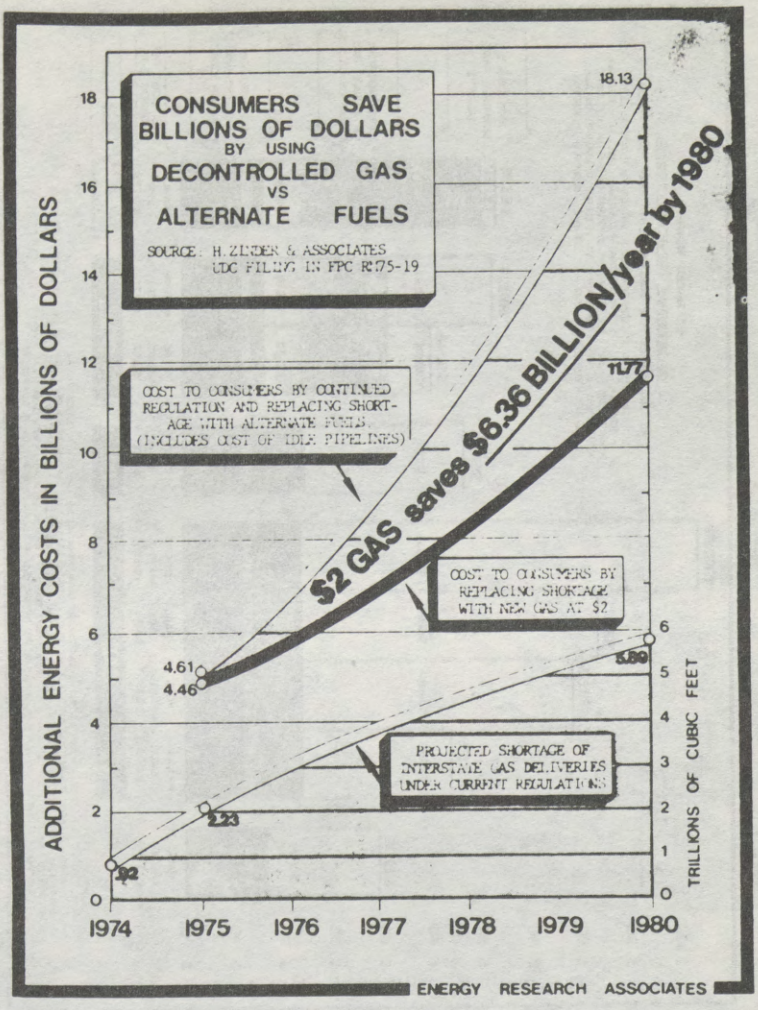
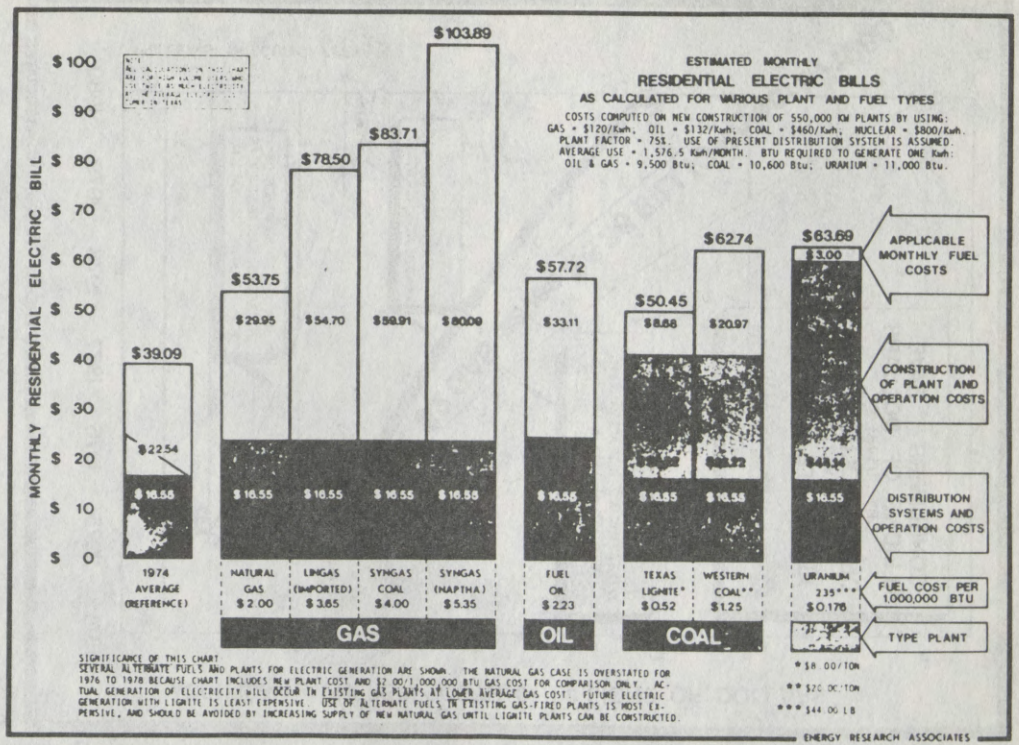

CONSUMERS SAVE BILLIONS OF DOLLARS BY USING DECONTROLLED GAS VS ALTERNATE FUELS
SOURCE: H. ZINDER & ASSOCIATES UDC FILING IN FPC R-175-19
COST TO CONSUMERS BY CONTINUED REGULATION AND REPLACING SHORTAGE WITH ALTERNATE FUELS. (INCLUDES COST OF IDLE PIPELINES)
COST TO CONSUMERS BY REPLACING SHORTAGE WITH NEW GAS AT $2
PROJECTED SHORTAGE OF INTERSTATE GAS DELIVERIES UNDER CURRENT REGULATIONS
$2 GAS saves $6.36 BILLION/year by 1980
18.13
11.77
4.61
4.46
3.89
2.23
.92
ADDITIONAL ENERGY COSTS IN BILLIONS OF DOLLARS
TRILLIONS OF CUBIC FEET
0
2
4
6
8
10
12
14
16
18
1
3
5
1974
1975
1976
1977
1978
1979
1980
ENERGY RESEARCH ASSOCIATES

EXHIBIT 1-B

EXHIBIT 2


ESTIMATED MONTHLY
RESIDENTIAL ELECTRIC BILLS
AS CALCULATED FOR VARIOUS PLANT AND FUEL TYPES
COSTS COMPUTED ON NEW CONSTRUCTION OF 550,000 KW PLANTS BY USING:
GAS = $120/Kwh; OIL = $132/Kwh; COAL = $460/Kwh; NUCLEAR = $800/Kwh.
PLANT FACTOR = 75%. USE OF PRESENT DISTRIBUTION SYSTEM IS ASSUMED.
AVERAGE USE = 1,576.5 Kwh/MONTH. BTU REQUIRED TO GENERATE ONE Kwh:
OIL & GAS = 9,500 Btu; COAL = 10,600 Btu; URANIUM = 11,000 Btu.
MONTHLY RESIDENTIAL ELECTRIC BILL
$ 100
$ 90
$ 80
$ 70
$ 60
$ 50
$ 40
$ 30
$ 20
$ 10
$ 0
$39.09
$22.54
$16.55
$53.75
$29.95
$16.55
$78.50
$54.70
$16.55
$83.71
$58.91
$16.55
$103.89
$80.09
$16.55
$57.72
$33.11
$16.55
$50.45
$8.68
$16.55
$62.74
$20.97
$16.55
$63.69
$3.00
$44.14
$16.55
APPLICABLE MONTHLY FUEL COSTS
CONSTRUCTION OF PLANT AND OPERATION COSTS
DISTRIBUTION SYSTEMS AND OPERATION COSTS
FUEL COST PER 1,000,000 BTU
TYPE PLANT
1974 AVERAGE (REFERENCE)
NATURAL GAS $2.00
LNGAS (IMPORTED) $3.65
SYNGAS COAL $4.00
SYNGAS (NAPTHA) $5.35
GAS
FUEL OIL $2.23
OIL
TEXAS LIGNITE* $0.52
WESTERN COAL** $1.25
COAL
URANIUM 235*** $0.176
SIGNIFICANCE OF THIS CHART
SEVERAL ALTERNATE FUELS AND PLANTS FOR ELECTRIC GENERATION ARE SHOWN. THE NATURAL GAS CASE IS OVERSTATED FOR 1976 TO 1978 BECAUSE CHART INCLUDES NEW PLANT COST AND $2.00/1,000,000 BTU GAS COST FOR COMPARISON ONLY. ACTUAL GENERATION OF ELECTRICITY WILL OCCUR IN EXISTING GAS PLANTS AT LOWER AVERAGE GAS COST. FUTURE ELECTRIC GENERATION WITH LIGNITE IS LEAST EXPENSIVE. USE OF ALTERNATE FUELS IN EXISTING GAS-FIRED PLANTS IS MOST EXPENSIVE, AND SHOULD BE AVOIDED BY INCREASING SUPPLY OF NEW NATURAL GAS UNTIL LIGNITE PLANTS CAN BE CONSTRUCTED.
* $8.00/TON
** $2.00/TON
*** $44.00/LB
ENERGY RESEARCH ASSOCIATES

Mr. Moss. Thank you, Mr. Davis.

Mr. Wunder, I yield you 15 minutes.

Mr. WUNDER. Thank you, Mr. Chairman.

Mr. Davis, in your statement you make reference to some average kilowatthour usage in San Antonio.

Mr. DAVIS. Yes.

Mr. WUNDER. I believe that was around 9,500 kilowatts.

Mr. DAVIS. 9,500 is the approximate average in the State as a whole; 8,200 was the average in San Antonio.

Mr. WUNDER. Mr. Hubbard and Mayor Faust of Grey Forest, Tex., testified before the subcommittee at an earlier hearing and Mayor Faust particularly made reference to an example of a residential consumer's electric bill. For the period April 1972 to March 1973 it indicates that this "typical user," according to Mayor Faust, used 27,124 kilowatthours of electricity.

Mr. DAVIS. In one year?

Mr. WUNDER. In one year. That is about triple what you say is the average use.

Mr. DAVIS. As I mentioned when I was talking about this chart, Mr. Wunder, most of the complaints that come from people in Texas about how high the utilitiy bills are, come from those that use abnormally high amounts of electricity.

Mr. WUNDER. For this 27,124 kilowatthours, three times the average Texas use, this resident paid $407 which is less than $40 a month. In July of 1975 to July 1976 the same residential consumer used 17,917 kilowatthours, which is almost double the typical user, for which he paid $723, $60 a month.

Mr. DAVIS. Of course, Grey Forest is in one of these isolated areas I mentioned. They have felt the full impact of that gas price because it has not been mixed with other, cheaper gas. Their rate in that general area—I don't know what it is exactly in Grey Forest—is nearly 4 cents a kilowatt. Granted, that is a pretty high rate.

Mr. WUNDER. Still at that, using twice the average, this person paid $60 a month.

Skipping over to your discussion of the fertilizer industry, we had some testimony from Joe Riley, Carl King, and Robert Mullins from Texas, who are interested in the agricultural situation. Their testimony related primarily to the High Plains area. I obtained some figures from the National Farmer Cooperative Council which indicated that there are about 375 million acres of cropland in the United States. Under irrigation in Texas according to Mr. Mullins there were 8 million 700 thousand acres of cropland. Would it not be a fair statement to say that most of these 375 million acres use fertilizer?

Mr. DAVIS. Absolutely. Fertilizer is used almost everywhere. I don't think there are very many farmers that try to farm without fertilizer. But I can't answer that with certainty. I am not a farmer.

Mr. WUNDER. Let me ask you this: Do you have any thought about what would happen to the fertilizer industry in Louisiana and Texas if the intrastate market were brought within the purview of the FPC, and they had regulated rates?

Mr. DAVIS. Wells are providing them with gas right now. They will be short of gas as soon as those wells begin to run dry. If we try to

roll the gas prices back, the producers are not going to drill new wells. Consequently, we would not be able to furnish gas to those kinds of plants. The economics get very involved. There is another aspect of that situation. A tremendous amount of fertilizer production centered right there in Louisiana. So it is not only the cost of the unregulated gas that is causing the price of fertilizer to be higher. That does contribute to higher prices all right, but those fertilizer plants are in Louisiana because the gas is right there. How much cheaper would it be for a farmer in Iowa to buy fertilizer that was produced in Iowa, from a plant in Iowa, using the Louisiana gas or Texas gas at Louisiana and Texas prices, transported in pipelines to Iowa and not have to pay the high freight on bulk fertilizer that is currently transported from Louisiana to Iowa?

Mr. WUNDER. Let me ask you a question about profits. You are a natural gas producer in the industry; is that right?

Mr. DAVIS. That is right.

Mr. WUNDER. Will you tell me what your rate of return has been in the last 10 or 12 years on your investment?

Mr. DAVIS. Can I just give you some figures on the field where we produce in north Texas? In that field there have been 158 wells drilled. There are 11 operators involved. Fifty-nine of those wells have been dry and 99 of them have been producers.

When we first signed a contract for that gas, we were selling at 65.7 cents per thousand cubic feet. That price has now escalated to $1.52.4. That field is not like some of the larger fields in the country. The whole field is producing only about 12,400,000 cubic feet a day. That is 125,000 cubic feet a day per well on the average. That is a very, very low deliverability.

We sell that gas to a pipeline which then sells the gas to the North Texas Municipal Power Pool, where it is used to generate electricity. The first well we drilled in that field cost $63,266 to drill it and complete it. That was in January 1972. In 1974 and 1975 there was, (A) a well that was drilled a half mile west of this discovery well and it cost $129,911. (B) Two wells that are about a mile and a half away, one of them cost $169.025 and another cost $177,121. (C) A well that we are drilling right now, 2 miles southeast of that $60,000 discovery well will cost at least $160,000 to drill and complete.

Now, using the reserve calculations that we have made for that field, and calculating the rate of return, using the current estimated cost, and the current gas price of $1.52, show that the estimated return before Federal income taxes for a field like this would be 10.5 percent just on the development cost. By the time we take into consideration the exploratory cost, (approximately one out of every three holes being dry), then our return is 8.1 percent. That compares with returns on capital for domestic oil companies, for example, of 11.2 percent, 20.6 percent for the coal industry, 12.4 percent for the food distributors, 13.1 percent for agricultural commodities. So we are not making a whole lot out of that operation. Of course, we always hope that we are going to get the "big one" the next well we drill.

Mr. WUNDER. There was a comment made at an earlier hearing that the cost of producing gas was 4 cents a thousand cubic feet. Do you know of any gas that can be produced in Texas for 4 cents?

Mr. DAVIS. If there is anybody that can produce gas at 4 cents—gee, if they are selling at 52 cents in the interstate market, I think they ought to be turned over to the Justice Department or something because that is going to be a tremendous profit. I can't imagine anybody making such a remark except out of jest or complete ignorance of the facts. There is no way you can produce gas for 4 cents.

Mr. WUNDER. Do you have any gas that you can produce at anywhere close to that price?

Mr. DAVIS. No. Out of the $1.52, which we have been selling gas for, it is costing us somewhere close to $1.40 to produce that.

Mr. WUNDER. That is your actual cost?

Mr. DAVIS. That is our actual cost, that is what I am talking about, based on our 8.1 percent return at current costs and current prices.

Mr. WUNDER. If your price is 52 cents, you could not produce that gas?

Mr. DAVIS. We would no more drill a well for the interstate market at 52 cents than we could fly. There is no way to do it. We just can't do it.

Mr. WUNDER. When the intrastate market broke away from the interstate market in terms of price around 1972, were you involved in any increased drilling activity as a result of higher prices? Did you go back into areas that were formerly considered noncommercial and drill those fields?

Mr. DAVIS. No, sir, we have not. The field that we discovered in Denton County, Tex., is called Gas Finders Field. Gas Finders Field is adjacent to an older producing area.

Frank Pitts of Pitts Oil Co., which is one of the Pitts Energy Group companies, had two wells that sat about 4 or 5 miles to the west of our discovery well. His company had drilled those wells in 1967. They had never been hooked up. They were a part of the Boonsville field, the gas from which goes into the Natural Gas Pipeline of America, owned by Peoples Gas. That gas goes to Chicago. The producibility of those wells was so low that the pipeline company would not pick them up, would not build a pipeline to them. Consequently, they sat there for many, many years; in fact, until 1973 when we signed a contract with Delhi Pipeline Co., and eventually, those two wells were hooked up. In 1967, Mr. Pitts had stopped drilling. The price of gas was 17 cents. His bankers told him to quit and he did. He would have liked to have had those wells hooked up, but the purchaser to which he was contracted would not put a pipeline into them.

[The following letter was received for the record:]

NATURAL GAS FINDERS, INC.,
Dallas, Tex., September 15, 1976.

Re Impact of unregulated natural gas No. 2, testimony dated September 8, 1976.

Hon. JOHN MOSS,
Chairman, Subcommittee on Oversight and Investigations, Committee on Interstate and Foreign Commerce, U.S. House of Representatives, Rayburn House Office Building, Washington, D.C.

DEAR CONGRESSMAN MOSS: I hereby request that this supplemental statement be inserted after Line 16, Page 2-64 of the captioned Subcommittee Record. The purpose of this information is to clarify and correct certain comments made by me with respect to two natural gas wells which were not connected to a pipeline, as contained in the record of September 8, 1976 in Line 2 through Line 16, Page

2–64, and in the colloquy between Mr. Krueger and me, beginning at Line 22, Page 2–68 and ending at Line 13, Page 2–72.

The existing statements in the record were made by me on the basis of my memory of incomplete information. My subsequent checking of the records has brought to light the following facts which provide significant clarification of my original testimony:

The two natural gas wells referred to are:

(1) Longhorn Production Company, Adams No. 1, F. Garcia Survey, A–263, Wise County, Texas. Completed: September 5, 1966.

(2) Longhorn Production Company, McCallum No. 1, Wm. Roebuck Survey, A–1082, Denton County, Texas. Completed: March 22, 1967.

As the two wells were completed, requests were made to have then connected to the Natural Gas Pipeline Company of America (NGPA) system. These wells were adjacent to but outside the area commonly called the Boonsville Field, and NGPA did not deem it to be economical to extend the gathering system to the wells. Neither the wells nor the acreage on which they were drilled were ever accepted by NGPA to be dedicated to their pipeline system.

However, during the ensuing six years, in which time Longhorn Production Company became a dormant non-operating company, it was apparently assumed by some of the staff that the wells had been dedicated to NGPA, and on November 3, 1972 Longhorn requested NGPA to "release the wells from dedication." After record searches and an exchange of additional correspondence, NGPA advised Longhorn by letter on March 21, 1973 that the leases on which the wells were located were never dedicated to a gas purchase contract and that no release was necessary. A copy of that letter is attached hereto as Exhibit "A".

In retrospect, it appears that the NGPA decision not to accept the wells was a wise one. The No. 1 McCallum well produced 307 Mcf of gas in two months (worth about $200.00 at the then prevailing rate) and was plugged and abandoned. After 34 months of production the No. 1 Adams well has produced, through July, 1975, a total of 143,109 Mcf, and is currently producing at a rate of about 85 Mcf per day.

Respectfully submitted,

D. K. DAVIS.

EXHIBIT A

NATURAL GAS PIPELINE CO. OF AMERICA.
Houston, Tex., March 21, 1973.

Subject: Adams and McCallum Wells in Wise and Denton Counties, Texas.
LONGHORN PRODUCTION CO.
Dallas, Tex.
Attention: Alcia M. Hester.

GENTLEMEN: Mr. Frank Banning wrote Natural on November 3, 1972 requesting the Adams and McCallum gas wells be released from dedication to Natural.

By letter dated December 1, 1972, we requested the legal description of the leases to be released. When the description of the leases was received by your letter of March 14, 1973, we searched our records to identify the contract covering such leases.

Our search indicates that the leases are not dedicated to a contract between Natural and Longhorn; therefore, no acreage release is necessary.

If your records indicate anything contrary to the above, please advise.

NATURAL GAS PIPELINE CO. OF AMERICA,
GARLAND C. CAMPBELL, Jr.
Contracts Administrator.

Mr. WUNDER. Thank you, Mr. Chairman.

Mr. MOSS. Mr. Collins.

Mr. COLLINS. Thank you, Mr. Chairman.

I was interested in your comment in your statement about the president of a utility company that said they decided they would go out and drill for their own gas because they were going to drill it cheaper, and after they got through with drill holes it turned out it was $3 a M ft^3. They have some smart people around there. Is that the best they can do?

Mr. DAVIS. Let me expand on that a little bit, Mr. Congressman. I don't want to imply that that is the whole story. That particular area (the Forth Worth Basin) is an area which is very close to home for them, and the activity that bloomed in there made them feel that they should get in there and drill. But drilling and producing wells is not new for that particular utility. They spent some $29 million drilling wells here recently, but the average cost of the gas that they have developed, and I don't know from which areas it all comes from, is still $1.50. They are not (in my opinion) trying to make any extra profit from those operations.

Mr. COLLINS. You know the reason I thought about that, everybody talks about these Texas oil millionaires but they don't talk about the east Texas duffers that have gone into the oil business and Texas investors that have lost their shirts.

Mr. DAVIS. That is right.

Mr. COLLINS. I was sitting in the office one time with a friend. This guy was trying to sell him on an oil deal. He kept talking about all chargeoffs, the chargeoffs, the chargeoffs. He just held up his hands and interrupted him. He said, "Let me tell you. You never make any money on chargeoffs." I think about that all the time. They have to produce, and they have to come out with a profit. You are talking about the North Texas Basin. That is a field where they had a lot of history and geology. They knew what they were doing when they went in out there. Drilling 158 wells you ended up with 59 dry holes. Were you not staying in the Fort Worth Basin?

Mr. DAVIS. A very small localized area. Very frequently, because of the nature of the geology in that area, you can drill a half-mile away from a very good well and get a dry hole.

Mr. COLLINS. Is it possible to be drilling and they have a production well here, a production well a mile over here and between those two get a dry hole?

Mr. DAVIS. Yes, sir, it is.

Mr. COLLINS. You had that because of pockets or something you have in the gas or what?

Mr. DAVIS. This producing formation is called the Atoka conglomerate which consists of some sands interbedded with a lot of shale. As these sands, which comprise the conglomerates, were laid down, they were laid down like fingers. They are not in a consistent band the way a lot of people think of a field, or the way it is in south Louisiana where you have a big, thick continuous band of sand. Some little finger of conglomerate that is producing right here may not even exist over here, a half-mile away.

Mr. COLLINS. Up here in this area you said you were selling at $1.52 and it is costing $1.40. Based on that you would not want to sell in the interstate market at $1.42, would you?

Mr. DAVIS. I don't see how we could. The name of the game is to at least stay in business. We could not stay in business that way.

Mr. COLLINS. Let me go back to something. We used figures 80–20. I notice you used 81–19. You said when the customer buys the gas that 81 percent is due to the pipeline and the distribution that is involved. I am talking about the residential consumer, that 81 percent was the pipeline distribution, only 19 percent was actual gas. Would

you go back and summarize for me what it costs you to sit there and have idle capacity within your pipeline?

Mr. DAVIS. I can go to the chart that is attached to the back of my testimony or—let me explain it in a little different way. Let us take somebody in Pennsylvania. The average price of his delivered gas is perhaps $1.60. Of that total price approximately—it is really 32 cents—but just for a figure let us say that 30 cents of that total price is what he pays for the gas, itself. But $1.30 of the total is for the transportation.

Now, if you cut the amount of gas in that pipeline to one-half, and incidentally, the projection that was filed with the FPC shows a 45-percent shortage projected in the interstate market by 1980 and, say, at the end of the pipeline the consumer is getting half as much gas, then he only pays half as much, 15 cents for the gas instead of 30 cents, but he still pays the entire $1.30 for the pipeline use; the transportation system.

Now he is paying $1.45—15 cents plus $1.30—for half as much gas as he used to get for $1.60, or to say it another way, he is paying $2.90 for the same amount of gas that used to cost $1.60. The producer is not getting any more money; the pipeline company is not getting any more money; the distributor is not getting any more money. The only guy being impacted is that ultimate consumer, and he is being ripped-off because we let this go on.

In addition to nearly doubling his cost of gas because of the cost of unused pipelines, he also has to replace the other half of the gas he doesn't get with alternate fuels that are invariably higher than the highest price of natural gas.

Mr. COLLINS. I think that is an important point that we keep overlooking, the reason that the pressure is on gas is because it is artificially priced so low and it is an environmentally attractive fuel and therefore everybody wants gas because it is a bargain and we are not going to the alternatives that we really need to go to in this country.

Mr. DAVIS. Yes, sir.

Mr. COLLINS. Thank you, Mr. Chairman.

Mr. MOSS. The Chair recognizes the gentleman from Texas, Mr. Krueger.

Mr. KRUEGER. Thank you, Mr. Chairman.

It is a pleasure to have you here today, Mr. Davis.

Mr. DAVIS. Thank you, Mr. Krueger.

Mr. KRUEGER. I would like to go back to something you mentioned about two wells drilled in 1967 which you said were shut in because, I believe it was Peoples Gas in Chicago——

Mr. DAVIS. Yes, sir.

Mr. KRUEGER. Did not find it financially attractive to put in a pipeline to go to these wells. These wells were then presumably held until a larger field was brought in and then that field, after it had been drilled more fully, was linked up to the intrastate market.

Mr. DAVIS. That is correct. Say these two wells were sitting here and we drilled our discovery well about 4 miles east of those. Then as we developed the field we gradually got over there pretty close to them. Peoples (Natural Gas Pipeline) was again asked to please

hook those wells up, and they still did not see how it was economically feasible to do so. Since the wells had been shut in for several years by then, they were then asked to release those wells if they were not going to hook them up, and they complied by giving the release.

Those wells were then hooked into the pipeline that was constructed in order to pick up the new gas developed in our field.

Mr. KRUEGER. When you say that Peoples released the wells, what was the understanding that your company or the Pitts Energy Group had to reach in order to get a release? Was there a previous contract with them that they would have access to the gas that was drilled?

Mr. DAVIS. Mr. Krueger, I am not sure of the exact terms of the contract. In general the contract that the Pitts Oil Co., or at that time it was called Longhorn Production Co., had with the pipeline company was that—I guess it must have been the east half of Wise County, maybe the entire county—any well they ever drilled in there for the 20-year term of the contract must be dedicated to that pipeline. It also had terms in it that after so long a time, if the pipeline did not hook it up, then you might be able to sell it to somebody else, and they would release it. Of course, there was no pipeline until 1973 and 1974 when we got Delhi in there. So, after holding off hooking the wells up for that long, it was under the terms of the contract that Natural Gas Pipeline of America gave a release of those wells.

Mr. KRUEGER. What would the driller get from Peoples in order to make this kind of arrangement? Would they receive some sort of advance or were they receiving some kind of cash payment in anticipation?

Mr. DAVIS. No, sir. They received nothing from Peoples.

Mr. KRUEGER. The driller simply is looking for a customer and this particular potential customer said, "Yes, we will agree to take the gas that you find in the eastern half of Wise County?"

Mr. DAVIS. No, sir. In order to be hooked up—let us take our contract. I am most familiar only with it, but it is similar to others. When we signed the contract with Delhi Pipeline to receive our gas it was not just for the 35 wells that we then had completed. They said, "Not just for this few square miles but for all of the west half of Denton County, and the east half of Wise County, anything you drill in there for the next 20 years you must give us the chance to hook it up." Our gas is dedicated to Delhi from now on.

Mr. KRUEGER. Why are you willing to make that kind of arrangement? There are a lot of things I don't understand about this business. Why would a driller make that kind of arrangement?

Mr. DAVIS. Really because the pressure would be on him from the pipeline company to make that kind of arrangement. It is a common arrangement. Of course, the pipeline company must be assured that not only does he have enough gas with the wells that are already there (to insure a return on his investment), but he wants to be sure that there is enough gas there to keep that investment going for a long time to come. It is just a common arrangement that is made.

Mr. KRUEGER. What the pipeline presumably gets out of it then is as long as the same driller-producer stays in business he can figure that that driller-producer will likely continue to drill in the same area and therefore that pipeline owner will be able to purchase most gas as a result of that kind of arrangement.

Mr. DAVIS. Yes, sir, that driller-producer, his heirs, successors and assigns.

Mr. KRUEGER. I have never been pleased to be such an heir, successor or assign. It is really a kind of mutual arrangement then because the producer is going to need a customer for what he gets.

Mr. DAVIS. Yes, sir.

Mr. KRUEGER. In this case the first two wells were drilled. Peoples Gas decided they would not put in a pipeline. It was after some period of time released. This would have been a so-called shut-in well.

Mr. DAVIS. Yes, sir. During those years Mr. Pitts did pay shut-in royalty in order to perpetuate the lease. When a gas well is not hooked up you must continue to pay that landowner some fee each year in order to retain possession of that property.

[See letter dated September 15, 1976, p. 209, this hearing.]

Mr. KRUEGER. Another question that I would have along this line is that we hear periodically of great reserves that have been shut in that might be produced for the American people that for one reason or another are not being produced. What is your experience in this connection? How would you explain most shut-in reserves that you are familiar with if you are familiar with shut-ins?

Mr. DAVIS. Mr. Krueger, as I am sure you know, you can't carry natural gas around in a bucket the way you can oil. You can't back a tank truck up to a gas well and fill it up. You must have a pipeline and a pipeline is expensive. I can tell you where there are 20 shut-in wells now. We own part of them. There are about five or six operators that have drilled these 20 wells. They are in the southwest corner of Parker County, Texas. We have not been able to get any pipeline to come down and pick up the gas from those wells. The nearest pipeline is 25 miles away. The pipelines want the gas but the reason they won't come is because they can't see enough reserves in the wells we have drilled to amortize that proposed pipeline.

It so happens we have a little more confidence in the area. So, with these other operators, we now have a plan going where we are going to build that 25 miles of pipeline ourselves, at a cost of $2.5 million—that is $100,000 a mile including the compression equipment—because we believe if we can begin to sell gas out of those wells that there is additional gas that we can drill for to put into that line. A pipeline can't make those kind of geological or risky decisions. It must make decisions on the amount of gas reserves that it can see at that time, in order to be sure that it can amortize its costs. So we are taking the risk.

Mr. KRUEGER. Would you say then that perhaps if there are sometimes disagreements in this very uncertain area of estimating reserves that in some instances perhaps the disagreements between the extent of reserves might come about from the fact that a person who has something to sell and needs somebody to pick it up to transport it before he can sell it is inclined at that moment to be optimistic about his reserves so that he can get somebody to come and take it from him whereas the person on the other hand who has to construct the pipeline in order to pick it up might in his own defense wish to be a bit more pessimistic about those reserves and that perhaps there is some discrepancy that might on occasion result out of this kind of natural optimism of the seller and natural pessimism of the purchaser?

Mr. DAVIS. Let us face it, when we are trying to sell a package of gas somewhere we sharpen every pencil in the house. Yes, there is disagreement. You can give the same facts about a gas field to 10 different disinterested engineers, and part of them, because of their past experience, will give more preference to permeability, another more to structure, another one to the porosity of the formation, another one to pressure. All ten of them may come up with a different answer as to what those reserves are.

The calculation of reserves in a gas well is a regressive type of thing. As you produce the well you get more information. For example, in most areas where we produce, we recalculate the reserves once every year. Every year we get a different figure because we have more information. You never really know what the real reserves are for a well until you have the last cubic foot of gas out of that well.

Mr. KRUEGER. If you got new figures every year might you not bring down Federal investigators to question you?

Mr. DAVIS. Fortunately we are not selling in a federally regulated market. But that is a good reason not to.

Mr. KRUEGER. You indicated that you are currently going to undertake with the Energy Research and Development Administration hydraulic fracturing.

Mr. DAVIS. Yes, sir.

Mr. KRUEGER. At a cost of some $300,000. Can you explain both what hydraulic fracturing is, what kinds of reservoirs it is likely to be used in and, third, what percentage of gas you would recover from this kind of reservoir without fracturing and what quantity of gas or increase in expected reserves you expect to be able to produce as a result of fracturing?

Mr. DAVIS. Every well that we drill in North Texas is hydraulically fractured. We started out, in the original wells drilled there by drilling into the formations and you got some little show of gas. We fractured those wells by using 10,000 gallons of fluid and 10,000 pounds of sand originally.

The first thing you do is to perforate the casing opposite the formation. Then you pump some acid—usually about 500 gallons of acid—back into this formation to clean up the mud and things that may be in there. That gives us a starter hole to fracture from. Then you begin to pump fluid in under tremendous pressure. The contractors use Allison aircraft engines on the pump trucks. The engineers watch a gauge and as that pressure builds up they will see that gauge drop very suddenly. That is the point when the formation has fractured; a crack has started.

The engineers immediately rev up everything. You can hear those engines and pumps running miles away. They make a tremendous amount of noise. You begin to pump all the fluid and all the sand into the formation you can, and you rev up everything to keep that crack going as long as you can. The sand is for the purpose of propping open the crack. After you release the pressure and everything drops back to normal, the sand still props the cracks open and the gas feeds into that. Chemists have made many developments in making water—let us oversimplify it—additives that make water "slicker." But before some of the newer chemical processes were developed, 10,000 pounds of sand was about all we could get into a formation.

More recently we have been able to get about 40,000 pounds of sand in, because they have made the water so that it will slip back further and carry sand further. This experimental job, and it is a program really advanced by the Energy Research and Development Administration, will use additional chemicals and we will be pumping some, I believe, 387,000 pounds of sand into the fractures created by this project. There will be about 50 trucks out there for power and materials to do this job. It will take probably 18 hours. That is probably 20 carloads of sand. We don't know if it will be as successful as we hope. The calculations estimating that the well will produce 400 percent more gas are strictly engineering calculations. I hope that it will be successful.

Mr. KRUEGER. Thank you very much, Mr. Chairman. Thank you.

Mr. Moss. The Chair in consideration of the hour is going to waive questions at this time. We will have the economists on Friday at which time we will address the questions on economic issues.

Therefore, Mr. Wunder, Mr. Collins, Mr. Krueger, do you have any more questions?

Mr. WUNDER. No, Mr. Chairman.

Mr. Moss. If not, the Chair thanks you very much, Mr. Davis.

Mr. DAVIS. Thank you.

Mr. Moss. At this time I would like to have Mr. John R. Dorr, Oil and Gas Exploration and Production, from Pecos, Tex., come to the witness table.

Will you stand and be sworn.

Do you solemny swear that the testimony you are about to give the subcommittee is the truth, the whole truth, and nothing but the truth, so help you God?

Mr. DORR. I do.

TESTIMONY OF JOHN R. DORR, OIL AND GAS EXPLORATION AND PRODUCTION

Mr. Moss. Will you identify yourself to the Clerk for the hearing record.

Mr. DORR. My name is John R. Dorr of Pecos, Tex.

I want to thank the chairman and members of the committee for allowing me the opportunity to appear here today.

I am a graduate of the University of Oklahoma (1961) with a B.B.A. degree in petroleum land management. Between 1953 and graduation, I worked as a swamper-pumper, roustabout, roughneck, landman, and farmer. Following graduation, I farmed full time in the Pecos area, until 1969, when I went back into the oil business. Since that time I have devoted all my activities to oil and gas exploration and production. I did well farming and even better in the oil business. And having done well at both, I feel qualified to discuss the problems in both areas.

I got out of the farming business when I did, because it was easy to see that the water table of the Trans-Pecos region was falling far more quickly than hydrologists had predicted, and that costs for everything needed to farm were escalating on the same scale. Fertilizers, insecticides, energy, equipment, seed, labor (with the loss of

braceros), land, and water supplies continued to increase the cost of operations beyond recoverable margins. In the words of Frank Fulk, chairman, Natural Resources Committee of the Texas Sheep and Goat Raisers Association, "It is a classic example of what happens when irrigation is overdeveloped in a closed underground water basin. The water accumulated over thousands of years was pumped out in just a few (years), to a point that the lifting of it became prohibitive." Possibly water should be conserved for human consumption, which is more precious than natural gas.

"When natural gas costs $.40 M ft^3," according to Gary D. Condra, Texas A. & M. University area economist—management, in his 1975 study of the "Impact of An Increasing Natural Gas Price on Irrigated Crop Production in the Trans-Pecos Region of Texas," "it should be noted that all crop enterprises, except winter wheat, are currently returning less than cost of production." So don't let anyone tell you that the Trans-Pecos Region of Texas has become a barren oasis, with thousands of farmers broke and ghost towns everywhere, simply because of long overdue increased natural gas prices.

In the first place, few alert farmers have gone broke, and what ghost towns there are, are there because both crude oil and natural gas prices were too low. While farming activities, much of which was being done on land which was, at best, marginal, have been greatly reduced, melon, grazing and ensilage crops, along with alfalfa, have shown an increase in recent years.

Most of the problems confronting the West Texas economy are created by the excessive cost of Government controls and red tape. The alert operators foresaw possible shortages and signed long-term gas contracts. Others, looking for a big brother to take one more step towards socialism, by taking over control of intrastate production, and further hampering the domestic petroleum industry, suddenly found that the only gas they could buy was almost non-existent, at any price.

Thanks to the increased prices for crude oil and natural gas, activity in the Permian Basin, employment, housing bank deposits, new car sales (all economic indicators) show the Trans-Pecos Region in better shape than we were during the heyday of King Cotton.

Our own area has induced new industry to come our way because we have natural gas available for their use. Those already operating have come to realize that there will never again be any cheap energy sources, and are willing to pay the necessary price to stay in business. The interstate natural gas market is in deep trouble, not because Texas, New Mexico, Oklahoma, and Louisiana gas producers don't want to sell in this market, but because artificially low, Government required, wellhead prices are far less than the intrastate market. They can sell their product at a better price and without the interference, redtape and uncertainty of Government controls.

The sooner the Congress, the so-called consumer advocates and the public. with the help of the national news media, realize that until there is a 5-cent cup of coffee, 25-cent-per-hour minimum wage, a 35-cent blue plate special, a 25-cent haircut, a 25-cent theater ticket, a 50-cent football game ticket, et cetera, there is not going to be any cheap energy source from anywhere in the world again.

These are prices which would be comparable to natural gas costs, held at artificially low levels until recently. Someone said that if the price of a Chevrolet had increased as much as the price of gas, we would be paying $40,000 for a Chevy. He also said we would be paying $4.80 for a hamburger; $24 for a haircut; $240 for a pair of shoes and $12.80 for a six pack of beer.

The fallacy in this proposition is, he is comparing the natural gas price increase from 1 year, 1974 to the next, 1975, when for 20 years, prior to that time, there had been practically no wellhead increased. Go back to 1936 and check the price of a Chevy then and in 1956. Now compare that to 1976. It has increased 700 percent. Check the cost of labor, 800 percent; a hamburger, 1,000 percent; a pair of shoes, 700 percent; a haircut, 800 percent. A six pack of beer is the only thing he mentioned that has not increased more than natural gas.

The question has also been asked: What caused natural gas to go from 24 cents to $1.85 per mcf? Why use the 24-cent average price against the $1.85 top price? Some gas still sells at 5-cents per mcf. As we mentioned earlier, the demand did increase to a remarkable extent. Also, some people realized that they were going to have to pay a reasonable price for natural gas if they were to have a supply, and were willing to do so. Only those who refused to sign new long-term gas contracts—when their old ones ran out—but tried shopping for more cheap supplies and short-term contracts, ended up having to pay anything like $1.85 per mcf. We heard no complaints, so long as the interstate price was set at an artificially low wellhead price, which also helped hold down exploration and development. Only when natural gas started drawing near the market clearing price did the complaints begin.

Another thing, the petroleum industry is being charged with monopoly. Thirty companies control 90 percent of the business. Has anyone compared this with some real monopolies, like Western Union, 100 percent control; AFL–CIO and UMW labor unions, 90 percent control; ABC, CBS, and NBC, 96 percent control; AMC, Chrysler, Ford, and General Motors, 99 percent control? We could go on and on—tires, stell, appliances, computers, but it is obvious that the monopoly charge is purely a red herring.

Monopoly. unless you consider the Federal Power Commission as such, and we do, has little bearing on the 52 cents per mcf—New York, Arizona, $1.85 per mcf Texas. The market of Texas gas in Texas is the real reason for the difference. What some folks fail to mention, or perhaps they don't realize, is the fact that, when those interstate, 52-cents per mcf contracts run out, there won't be any replacements, at any price. And you can't get alternative energy, even imported gas, at anywhere close to the much talked of $2 per mcf.

The automotive industry, the labor unions, clothing, food, medicine, tires, appliances, furniture, manufacturers, in fact, no business we know of, unless required to do so by Government edict, will voluntarily sell their products at a loss, or can stay in business if they do. Certainly, as a farmer I couldn't and as an oil operator I wouldn't.

Thank you.

Mr. Moss. Mr. Wunder.

Mr. WUNDER. Thank you, Mr. Chairman.

Mr. Dorr, in your statement you say few alert farmers go broke. How would an alert farmer have been able to have foreseen the rapid increase in natural gas prices?

Mr. DORR. I was farming at the time and I could see these prices coming on. I changed my mode of operation. A number of farmers in our area that are still in business have the better land, they are not farming the marginal lands that are put in for the purpose of raising cotton when it was 52 cents during the Korean war prices, when we had 300,000 acres and people were coming from Arizona, California, to the Pecos region. These farms never would have been put in in the first place because there was not a sufficient amount of water.

The good farms are still in good production, raising onions, cantaloupes, raising ensilage for the five feedlots in the area. Our area is not good for raising grain because we have the high salt tolerance in the soil and we don't get the production that they have in the high plains.

I think these people will stay in business that have the good farms and good lands. They have the better water tables in the area. Exterior areas are going to go out like the outside areas of an oilfield.

Mr. WUNDER. Would it be a fair statement then that the farmers are having difficulty on marginal land that but for low gas prices would not be suitable for farming?

Mr. DORR. I think that is partly a fair statement. We have been wasting a lot of our natural gas from this standpoint because electricity used on a farm running a water pump is a direct drive system. Taking an engine using natural gas and going to a turbine, you have a 90 degree turn going from a drive shaft down to the well, you lose a third of your horsepower. This is a waste of energy. By doing this you increase the cost of producing water.

By going to electricity you have direct drive. Electricity uses only enough energy to pump that well for the water you are making. You don't have abundance of waste and excess energy that you do in a combustion engine. I think this is probably more conservative of the power source. The natural gas would be used for making electricity and coal might be a cheaper way. Natural gas might be used for making fertilizer and chemicals even better than burning in engines.

Mr. WUNDER. Thank you, Mr. Chairman.

Mr. Moss. Mr. Krueger, do you know how much time you will require?

Mr. KRUEGER. That depends on how much time is available.

Mr. Moss. We are having a quorum call. We are trying to determine whether to recess and return. Mr. Collins says he has a question.

Mr. COLLINS. I have only one question.

Mr. KRUEGER. I won't take over 4 or 5 minutes.

Mr. Moss. Mr. Collins.

Mr. COLLINS. I want to know what the price of gas is at this time in Pecos.

Mr. DORR. For the farmers?

Mr. COLLINS. Yes, and I want to know what alternate fuels are more comparable or more attractive in price.

Mr. DORR. I believe as I understand it at the present time the farmers have gas offered to them at $1.82.

Mr. COLLINS. Is there any alternate fuel that they are being offered or the cost of it that is any more attractive?

Mr. DORR. No, sir, unless the man was to go to the electric power where he has a shallow water source and he has a minimum he must pay during the winter months when he is not using the power. I would say it is still attractive when fully priced.

Mr. COLLINS. Thank you.

Mr. MOSS. Mr. Krueger.

Mr. KRUEGER. I have questions on two points.

You were talking about the waste of power and I missed part of what you said when you were talking about a 90 degree turn in the pipe. Would you run that by again?

Mr. DORR. Congressman, according to engineering I have read, not being an engineer, myself, but when you make a 90 degree turn through the use of a drive shaft you lose 33 percent of the power coming from the power source by making this 90 degree turn. By having a direct drive, as coming from your automobile engine to the transmission, you are losing 90 degrees going to both wheels. This is my understanding. I am not an expert on this by any means.

By using electricity you have a direct drive that goes straight down the hole and turns the turbine at the bottom of the hole, raising the water to the surface. You don't have the power loss.

Mr. KRUEGER. It is your suggestion that the land in the Trans-Pecos region was perhaps, because of its salinity, best suited for raising onions and vegetables; is that correct?

Mr. DORR. Not because of the salinity but because of the naturally fine weather that we have, because of the ability to irrigate it, and this is a more profitable crop, it is a more risky crop but the area has done well on cantaloupes and onions, bell peppers and alfalfa as a good secondary crop, wheat, ensilage for the cattle feed yards.

Taking the marginal lands out of production I think you will find most of the farms in the Pecos area stay.

Mr. KRUEGER. Do you know what the price range is for a sack of onions in that area?

Mr. DORR. Today onions are very low because our crops came off late. We had a bad year this year. I bought a sack of onions the other day at $3 for 50 pounds. They put them on the truck for about $2.50 I believe.

Mr. KRUEGER. It must go through some pretty extraordinary cycles then because I thought that I remembered them telling me out in Reeves County something like $7 a sack a year or so ago.

Mr. DORR. Last year they had a very good year and the beginning of the crop year they received $7 a sack.

Mr. KRUEGER. Is that a 50 pound bag?

Mr. DORR. Yes, sir.

Mr. KRUEGER. How many sacks do they get per acre average?

Mr. DORR. On a very good crop you get between 800 and 1,000 sacks. On an average crop it is five to six hundred.

Mr. KRUEGER. A thousand sacks per acre?

Mr. DORR. Yes, sir.

Mr. KRUEGER. At anywhere from $2.50 to $7 a sack?

Mr. DORR. Yes, sir.

Mr. KRUEGER. $2,500 to $7,000 an acre?

Mr. DORR. Yes, sir. Realize you have a very high labor cost in this because of the harvesting of this is all done by hand.

Mr. KRUEGER. Did you ever engage in that kind of farming, yourself?

Mr. DORR. No, sir. I was not astute enough to get in the truck farming business. I had some background in the oil business. I did not want to take these kinds of risks. I thought maybe the oil business was even less risky than this.

Mr. KRUEGER. You were not smart enough to be a farmer and chose to go in the oil business.

Thank you very much.

Mr. MOSS. The Chair wants to express the appreciation of the subcommittee for your appearance here this morning.

The subcommittee will now stand adjourned to convene again at 10 o'clock in this room on Friday when we will have Dr. Russell G. Thompson, professor of economics, University of Houston, and Jack Hopper, economist from Austin, Texas.

The subcommittee will stand adjourned.

[Whereupon, at 12:20 p.m., the subcommittee adjourned, to reconvene at 10 a.m., Thursday, September 10, 1976.]

UNREGULATED NATURAL GAS MARKET IN TEXAS

FRIDAY, SEPTEMBER 10, 1976

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS,
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The subcommittee met at 10 a.m., pursuant to notice, in room 2323, Rayburn House Office Building, Hon. John E. Moss, chairman, presiding.

Mr. Moss. The subcommittee will be in order.

This morning's hearing is a continuation of the subcommittee's inquiry into the effect of natural gas prices on consumers, labor, and agriculture in the unregulated Texas market. During our hearings on August 30 and September 8, we heard from a wide spectrum of witnesses representing the interests of residential consumers, industry, labor, natural gas producers, and agriculture.

This morning we are pleased to have with us two economists from Texas who have devoted a great deal of effort to examining the intrastate market structure of energy fuels in Texas. The two gentlemen will appear together as a panel, so that each might have the opportunity to comment on the questions presented today.

Our witnesses are Dr. Russell Thompson, professor of business administration at the University of Houston, and Mr. Jack Hopper, a consulting economist in Austin, Tex.

Gentlemen, first would you rise and be sworn.

Do each of you solemnly swear that the testimony you are about to give this subcommittee shall be the truth, the whole truth and nothing but the truth so help you God?

Mr. THOMPSON. I do.

Mr. HOPPER. I do.

Mr. Moss. Will you give your names to the reporter, please.

TESTIMONY OF RUSSELL G. THOMPSON, PH. D., PROFESSOR OF BUSINESS ADMINISTRATION, UNIVERSITY OF HOUSTON, HOUSTON, TEX.; AND JACK HOPPER, CONSULTING ECONOMIST, AUSTIN, TEX.

Mr. THOMPSON. I am Russell G. Thompson, professor, College of Business Administration, University of Houston.

Mr. HOPPER. I am Jack Hopper, consulting economist of Austin, Tex.

Mr. Moss. Mr. Thompson, I assume that you have a statement, each of you, and you may proceed.

Mr. THOMPSON. Mr. Chairman and members of the subcommittee, I am pleased to have this opportunity to testify today. Since 1974 I have directed a large computer-based modeling effort for the Energy Institute at the University of Houston. The resulting model represents a comprehensive economic framework for the fossil energy sector of the U.S. economy.

All important supplies of energy, industrial conversions of energy, and consumer demands——

Mr. Moss. We might suspend for about 15 minutes and let us get on this first quorum call and we will be back in a few minutes.

[Brief recess.]

Mr. Moss. The committee will resume its sitting.

We are sorry we had to interrupt.

Mr. THOMPSON. I will start at the beginning of the second paragraph.

Mr. Moss. Fine, you may proceed.

Mr. THOMPSON. All important supplies of energy, industrial conversions of energy, and consumer demands for energy are accounted for in the model. The model shows the tradeoffs among producer responses to price, industry responses to price, and final consumer responses to price. Costs of environmental waste discharge standards are explicitly included in the model.

A new feature of the model is its capability to show the broad economic consequences of proposed legislation. This capability is extremely important today because the Congress is considering actions that will greatly affect the structure of the Nation's economy. Actions of the magnitude the Congress is considering will effectively redesign the economy. As congressional representatives, you are in the unfortunate position of not being able to use historical trends to forecast the future. Historical data must be augmented with a synthesis of technical knowledge into an economic framework to show how new policies being designed by the Congress will result in new trends.

One of the important needs for this synthesis is to show you the consequences of present energy policies and viable alternatives to those policies. This synthesis seems ideally suited to assist you in determining whether your subcommittee should recommend more regulation of natural gas prices or less regulation of natural gas prices.

Our modeling results show the following general conclusions for the Nation in 1985. Continuation of low regulated prices of interstate natural gas—$.52 per 1,000 cubic feet—and current regulated prices of domestic crude oil—$7.67 per barrel—mean high energy bills for consumers, large imports of crude oil, and huge overseas payments for oil where prices are measured in 1974 dollars. Imports of crude oil increase 2.4 fold from 2.2 billion barrels, which represents 38 percent of total use in 1975 to 5.24 billion barrels which represents 56 percent of total use in 1985. Nearly 50 percent of consumer payments for fossil energy will go to pay for imports of crude oil in 1985, with continued regulation of gas and oil prices.

Most of the economic stress emanates from the natural gas market, where considerable potential exists to produce more gas at higher prices. The last unsatisfied user of natural gas would be willing to pay $2.50 above the current regulated price of 52 cents for an addi-

tional 1,000 cubic feet of natural gas. Stress induced by regulating the natural gas price below the market price spills over into the coal market, and large economic windfalls to low-sulfur coal producers result. Coal is substituted for natural gas, both directly as a fuel and indirectly via electricity, to the extent it is available. Increased imports of high-priced crude oil represent the only remaining way to totally satisfy the demand for fuel.

Rollback and regulation of the interstate price of natural gas at the current low level for new interstate gas will result in an unusually precarious situation, according to the model. The supply model shows only 15.3 trillion cubic feet of natural gas will be available nationally for consumer use in 1985. According to our studies and those of the Federal Energy Administration, our Nation needs more than 15.3 trillion cubic feet of natural gas to satisfy its basic requirements in 1985. Regulation of both intrastate and interstate prices of new natural gas at low wellhead levels of 52 cents per 1,000 cubic feet is not feasible. Implementation of this policy will require emergency rationing, as used in World War II, to keep the wheels of industry turning and the home fires burning.

In sharp contrast to the pessimistic future implied by extension of current price regulation, imaginative use of the pricing system will give us an optimistic future. With deregulation of the interstate gas price and continued regulation of crude oil prices, U.S. citizens will experience relatively low energy bills, stabilized import levels of crude oil, manageable payments to foreign energy producers, large domestic contributions to the energy supply, and significant energy conservation.

With the natural gas price deregulated, more gas is available at prices—in heating terms—comparable to those paid for coal; with deregulation, the market price of natural gas is twice as high as the current low regulated level of 52 cents per 1,000 cubic feet. However, natural gas is available at this price for increased industrial production and consumer use. This higher gas price, which is also paid for coal, is 42 percent below the average Btu price for crude oil.

Higher gas prices stimulate a considerable expansion of gas supplies in this country, about 56 percent, following a lag of 3 to 5 years for price incentives to materialize in increased production. This available clean fuel is substituted for oil in residential, commercial, and industry uses. Industry substitutes gas for oil both as an alternative raw material and as an alternative fuel.

This substitution relieves the need for large, growing imports of crude oil. Imports stabilize at near current levels, which is approximately 38 percent of total use. Foreign payments for crude oil decrease by 52 percent from the awesome level of $74 billion with continued regulation. This means that $38 billion of employment and investment stays in the good old United States of America.

Most importantly, after all the substitutions have been made, the bill paid by consumers for fossil energy is $31 billion less with deregulation of gas prices than with continued regulation of gas prices. This $129 per person saving in the annual cost of living results largely from the $35 billion decrease in consumer payments for crude oil, which more than offsets the increased costs of natural gas.

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Higher prices of natural gas will provide larger supplies of natural gas for residential, commercial and industrial users only if electric utilities are forced to use coal. Large incentives currently exist for electric utilities to substitute clean natural gas and oil products for dirty coal to avoid installing stack gas scrubbers and to gain from efficient generating technology, particularly combined-cycle technology. With those incentives and fuel cost passthrough provisions, electric utilities can effectively bid natural gas away from residential, commercial and industrial users.

Complete deregulation of domestic oil and gas prices will stimulate the greatest domestic production, the most energy conservation, the lowest oil imports, and the smallest foreign exchange payments of the modeling evaluations made. However, because the United States is a price-taker rather than a price-maker in the world oil market, the consumer bill for fossil energy basically equals the high bill of continued regulation.

Justification for complete deregulation, rather than deregulation of just the natural gas price depends on how much additional economic activity in terms of more jobs, larger incomes, and greater tax revenues will be generated domestically from the nearly $15 billion decrease in foreign exchange payments in 1985.

If you as policymakers deregulate the natural gas price and force electric utilities to use coal, the growing economic imbalance in the U.S. fossil energy market and the worsening trend of increased energy dependence will be rectified. This plan of action will give a mutually acceptable economic balance in the fossil energy markets between consumers and producers in an era of resource scarcity.

With higher prices, producers will increase considerably supplies of natural gas and consumers will be much more conservation-conscious in the use of energy. Larger domestic production and lower foreign imports will mean larger investments at home for the benefit of U.S. workers. Most importantly, this plan of action will provide the lowest fossil-energy bill to consumers.

In summary, both the Nation and Texas in the next 10 to 15 years will benefit from higher prices and greater supplies of natural gas. The favorable effects from increased investment and employment in natural gas production in Texas will far outweigh the unfavorable effects from decreased use and larger expenditures for natural gas by consumers.

Consumers in the nonproducing States will not have the favorable supply effects to offset the unfavorable demand effects. But, higher prices of natural gas and increased availability of natural gas will represent a cheaper source of energy in the next 10 to 15 years than high-priced imported crude oil.

Simply stated. higher market prices for natural gas will keep daddy employed and the kiddies warm at a price mommy can afford.

Mr. Moss. Mr. Hopper, would you like to present your statement?

Mr. HOPPER. Thank you, Mr. Chairman.

TESTIMONY OF JACK HOPPER

I am Jack Hopper. I live in Austin, Tex., and I am a consulting economist. I have spent a considerable portion of the last 4 years advising cities and the Texas Legislature on utility matters.

If I may interject, Mr. Chairman, I will give you some of my technical background. I hold a masters degree in economics, and I am a consulting economist in Austin. I worked for about 19 or 20 years in various phases of industry in research, teaching and consulting, and during that time I worked for Phillips Petroleum Corp. and I worked for Brown & Root. I am now engaged in providing consulting service to cities in the conduct of regulations in Texas, they are the regulatory bodies in Texas.

I will resume where I left off.

I am here today to give the subcommittee my observations and reflections on natural gas problems in Texas and the effect on consumers.

Gas consumers in Texas are undergoing an unprecedented transfer of their income to gas producers, and for many elderly and poor people this transfer can only be described as an economic disaster. Despite what people tell you, or utility company surveys suggest, Texans don't like what is happening and are complaining to anyone who will listen.

They are complaining because this redistribution is big. Approximately $1 billion have been extracted from utility consumers in Texas during 1974 and 1975 for natural gas price increases. Prices began increasing in 1973 and have risen more in 1976, so the total amount today is probably higher than $1 billion. The problem can only get worse if it continues the way it has been going.

If local taxes had risen that much that fast, we would have had a turnover in political leadership at every level of Texas government. So far, consumers have not held their politicians to blame.

Unfortunately, the political leadership in the State, appears to think that this redistribution is the best thing that could happen to consumers. On this point politicians and gas producers in Texas seem to be in perfect agreement. They espouse the same answers for the cause. effect, and solution to the problem of natural gas prices and supplies.

I can tell you that neither the public nor I am satisfied with these answers—for what has become the conventional gas wisdom.

Let me list the arguments and answers we have been given:

First, the problem was caused by the FPC keeping prices too low.

Second, price controls are unnecessary because the oil and gas industry is competitive.

Third, unregulated prices will be cost-justified and therefore fair.

Fourth, an uncontrolled market—sometimes called a free-market—will solve the problem.

Let me interject another one I should have listed.

Consumers will not feel much impact from deregulation.

Consumers are skeptical of public regulation efforts supporting this conventional wisdom. They have every right to be. The answers are either untrue, unproven, or at least questionable. I think the cause of the problem and its solutions are far more complex than the industry would have us believe.

We can learn more about cause and effect by reviewing the history of the gas industry. We would discover that some of the complexities are economic—they deal with supply, demand and price of natural gas. Others are political.

This is not the first time the industry has gone through a period of shortage and unstable prices. It is not the first time we have gone through a period of surplus gas and low prices, either. In 1944 U.S. Supreme Court Justice Jackson described a period in the twenties that would also fit a period 40 years later in the 1960's:

"All was merry and the goose hung high for consumers and gas companies alike * * *."

The dominant influence in the gas industry for most of the last 30 years has been surplus gas. Much of that gas came from exploration for and discovery of oil. For years gas was worthless and a bother; if the producer couldn't get rid of it by flaring it or giving it away, he couldn't produce his oil. Under these conditions, price did not influence supply.

The surplus and the need to get rid of it led to one of the complexities—the rapid growth in the use of natural gas. Industrial use especially, grew rapidly during the last 15 years. That this use could be a problem was suggested years ago. In his *Hope* case dissent, Justice Jackson called into question the gas industry practice of selling gas at low prices for low-priority industrial use:

> Should industrial use jeopardize tomorrow's service to householders any more than today's? . . . the great volume of gas now being put to uneconomic industrial use should either be saved for its more important future domestic use or the present domestic user should have the full benefit of its exchange value in reducing his present rates.

No one—the gas industry, the consumer nor Government—paid any attention to that question.

In that same dissent Jackson also predicted the result of unrestrained use:

> The heart of this problem is the elusive, exhaustible, and irreplaceable nature of natural gas itself . . . But the wealth of Midas and the wit of man cannot produce or reproduce a natural gas field.

Neither consumers nor producers paid any attention to the exhaustible nature of natural gas in those days.

Texans certainly didn't, and they are still trying to adjust to the fact that only a few decades ago the sky was bright at night in nearly every country from the light of flared gas. Now that gas is scarce and the change has been hard to accept.

Can the consumer be assured that prices will influence supply in the future? Will the industry guarantee that unregulated prices will generate adequate supplies of gas at reasonable prices? Are the reserves there to find? Or, is the estimate of unlimited and undiscovered reserves an illusion?

Let me quote Shakespeare:

"I can call Spirits from the vasty deep."

"Why, so can I, or so can any man;

But will they come when you do call for them?"

Exxon for one is not sure they will come. It has revised its estimate far below the earlier, and possibly, wildly optimistic estimates of gas reserves.

There is other evidence to suggest that gas reserves are less than we were originally led to believe. The gasfinding index has fallen steadily, and newly discovered gas fields are progressively smaller.

Furthermore, can supplies be found at a fast enough rate to satisfy necessary use and to influence price? Exxon says that it might take 60 years to find the 600-plus tcf of undiscovered reserves. Yet to maintain current production and use without further growth of demand. the industry must find 23 tcf each year.

And even if there are adequate reserves, can we depend on the industry to reinvest the windfall profits in finding gas? Will oil and gas companies drill in Texas? Texas gas companies are diversifying into real estate, chemicals and fertilizer, process construction, coal and nuclear production, machinery sales and foreign operations. Consumers read the Wall Street Journal; they know when the companies are earning excessive profits, and they know where the companies invest this money.

Consumers are nervous and suspicious when there is talk of letting prices be set by the free market. They question whether competition will protect them. I think their suspicions are well-founded. I have seen no evidence that $2 gas in Texas is justified either as the cost of production or as the necessary price to encourage more drilling. From what I have heard, the industry's opinion of incentive price is not related to cost. It is related only to value, or what the market will bear.

Producers sometimes justify unregulated gas prices by comparing them with the cost of selected alternatives, such as liquefied natural gas, or synthetic natural gas. These comparisons, of course, will provide a basis for what the market will bear, but not a comparison of costs, or a free-market-determined price.

And, of course, there is the further problem that these same companies own and produce much of the Nation's coal and uranium. The consumer is concerned that after OPEC, the oil and gas industry, and the energy conglomerates get into the pricing act, he will wind up with noncompetitive energy prices, whether gas or other fuels.

Consumers remember that for 22 years or more the oil and gas industry has been threatening to run short of gas if price controls were imposed. Some consumers might call this economic blackmail.

Prices have never been regulated in Texas; we never had a price incentive problem. Yet we had a gas shortage in Texas in 1973. Consumers wonder if prices ever had anything to do with supply, at least in Texas. But the wild run-up in gas prices over the last 3 years left the market in an unstable condition. Prices could go even higher.

What would happen if all Federal price controls were removed and General Motors, DuPont, United States Steel, and other large gas-short companies were free to contract for Texas gas? They are searching, even drilling, for their own gas now. There may be enough gas for Texas right now, but there is not enough for everyone.

I think we all agree that the unbalanced Texas market would be converted to an unbalanced national market. Both intrastate and interstate gas prices, if deregulated, could and probably would be driven up above $2 to $3 or $4, or more per mcf. Certainly the gas shortage would become nationwide, and gas consumers everywhere, not just those in Texas, wouldn't know what hit them when they got their next gas bill.

The industry has not convinced the consumer with the argument that there are so many gas producers that prices are competitive. In

Texas, Humble [Exxon] was the major gas producer 30 years ago, and still is today. The largest eight producers, which includes five members of the old international oil cartel, produced 52 percent of the natural gas in Texas in 1975. Economists call this an oligopoly market arrangement.

And regardless of whether or not the gas industry is or can be expected to sell gas at competitive prices, the OPEC cartel will bring its monopoly influence to bear on gas prices. As long as gas contracts are tied to fuel oil prices, there will not be a competitive price.

I think it is ironic that while Congress is talking about deregulating gas prices, Texans are talking about imposing regulation. I support a proposal that the legislature require the Railroad Commission to set a reasonable ceiling price on natural gas in Texas. The ceiling would rise each year and in 5 or 7 years, when the Commission will begin to phase out the use of gas for boiler fuel, ceilings would be eliminated.

This schedule could give Texas electric companies time to shift to cheaper fuels. Consumers could have time to change their consumption patterns and habits and use less energy. Whether fuel and electricity prices decrease or not, consumers would at least have time to adjust to scarcity.

Consumers are not happy about gas prices in Texas. To paraphrase that quote by Justice Jackson, 'The gas companies are merry and they are hanging the consumers' goose high."

I am afraid that it could be worse. If all controls are taken off gas prices, the effect on the unstable gas market will probably cause another run-up of gas prices. In that case, the consumer's goose would not just hang high, it would be cooked.

Thank you.

Mr. Moss. Thank you.

Mr. Krueger.

Mr. KRUEGER. Thank you, Mr. Chairman.

I should like first of all to ask unanimous consent at this time to insert in the record a statement by the executive director of the Governor's energy advisory council of Texas which was signed off on by Governor Briscoe, Lt. Governor Hobby, the attorney general, the comptroller, Mr. Bullock, and to insert in the record a letter from Mr. Clayton, the speaker of the Texas House of Representatives, because he was alluded to in previous testimony that we have had and he has written and I should like to ask unanimous consent——

Mr. Moss. Without objection, the material will be included in the hearing record at this point.

[The documents referred to follow:]

[The executive director's statement was not available to the subcommittee at the time of printing.]

STATE OF TEXAS,
HOUSE OF REPRESENTATIVES,
Austin, September 7, 1976.

Hon. JOHN E. MOSS,
Chairman, Commerce Subcommittee on Oversight and Investigation,
Rayburn House Office Building,
Washington, D.C.

DEAR REPRESENTATIVE MOSS: I understand that the Commerce Subcommittee on Oversight and Investigation, of which you are chairman, held hearings on

August 30th to investigate the impact of unregulated natural gas prices on certain users in the intrastate gas market. During the course of the hearing, a statement attributed to me, was in error. The statement made during a joint hearing of three House committees (May 11th–13th) was incorrectly read into the record. The correct statement, however, was included in an official transcript of the hearing. Please note, my statement was,

"The reason for these three days of hearings and the reason we have requested knowledgeable persons from all sections of the State to come here to testify, is because we must do everything within the power of the Legislature to give the people of Texas needed and substantive relief from the high utility bills they face."

The hearings were not held to promote the regulation of natural gas. Instead, the committees attempted to understand all aspects of pricing, taxation, development and production of natural gas and to make recommendations that would end wasteful and expensive practices. No one hoped to resurrect a bygone era of cheap energy.

I would like to go on record before your subcommittee as strongly opposed to the regulation of the intrastate natural gas market and in support of deregulation of the interstate market.

Somehow crises are never called crises until they are really understood. Most people in Texas, however, will tell you that there is an energy crisis in America. Although Texans have been spared curtailments similar to those that have occurred in other states, they have seen first hand the rapid depletion and waste of their non-renewable energy resources. These people know that despite a record number of gas wells drilled in 1975, production is down and the total reserve additions for the past five years is up only 6%.

In time, the rest of the nation will understand the seriousness of our current energy situation. This month, nineteen pipeline companies will meet with Federal Power Commission officials to prepare for expected curtailments of 20% or more. The shortage may reach 3.62 trillion cubic feet. In the future, gas to supply ever-expanding residential demand can only come at the expense of commercial and industrial users and through such supplements as liquified natural gas. When the future is here, Congress will find it would have been a lot easier to explain the high cost of energy rather than trying to explain why no energy supply exists.

The current regulated natural gas market promotes energy extravagance. As a result, consumers of regulated natural gas are insensitive to and confused about the value of the depletable resource. To further complicate the situation, the economics of natural gas production and exploration is complex. A 30,000 foot well, for example, does not cost just 6 times as much as a 5,000 foot well—it costs 120 times as much. Furthermore, drilling costs have increased over 40% since 1974 and the producers continually pay for more and more dry wells that are being drilled. The Energy Research and Development Administration estimates that the capital requirement for the natural gas industry from 1976 to 1985 will be $81–95 billion.

If producers are not allowed to develop additional sources of natural gas, we must develop alternate energy resources or import expensive foreign energy. Either way means higher prices for consumers.

To replace last year's 15% shortfall of 2.8 trillion cubic feet of interstate gas, consumers paid $3 billion for alternate fuels. The 85% of the gas that was delivered to them cost only $3 billion. This year's projection of a shortage of a 3.62 trillion cubic feet could have reverberations throughout the economy. Unless America adopts an energy policy based on self-preservation, sound economics and profits associated with the free enterprise system, this country will force itself to the brink of economic and political disaster. I ask, what kind of social and political stability can we have in an environment of economic deprivation based on high cost and unreliable foreign energy?

The current United States energy policy has done nothing to help American consumers who continue to buy costly foreign energy, while domestic reserves continue to decline. A policy of deregulation could slow the exportation of American dollars to foreign energy dealers and strengthen our economy.

Deregulation would encourage development of our remaining resources. In North Texas alone, the unregulated market has caused a 300% increase in drilling activity and has brought about a 1500% increase in gas deliveries.

As a result of deregulation, large businesses and industries would find it profitable to use other sources of energy. Without this impetus, it could take 60 years or more to switch from natural gas to another source of energy.

Laws and regulations which reduce the incentive to take risks and impede production are actually anti-consumer actions. Consumers, deprived of domestic energy resources, spend billions of dollars on expensive foreign energy. In 1975, these consumers paid over $4 billion for unused pipeline capacity and alternate fuels. Current price controls are nothing more than a subsidy to OPEC nations.

Thirty-two eastern gas distributors filed a report with the Federal Power Commission fifteen months ago that showed if pipelines could be filled again, even with $2.00 gas, consumers would actually save $6.4 billion a year by 1980 over the cost of alternate supplies.

As a public official in an energy producing state, I am concerned about Congress' understanding of our energy crisis and their actions to alleviate the situation. If Congress is not willing to encourage domestic energy production, then I would hope that nothing be done to worsen our present situation. Regulation is a problem, not a solution.

All industries, whether agricultural, automobile or textile, will suffer if we do not have a self-preserving energy policy. I understand the testimony of August 30th centered around the agricultural business in Texas. I would suggest that the agricultural problems be remedied through agricultural policy and not through energy policy.

No bureaucrat in Washington or Texas and no leader in Congress has more wisdom than the collective judgment of the American people. A survey of West Texas, a predominantly agricultural region, indicated that 76% of those surveyed believe regulation and price controls would mean fewer wells drilled and an even greater shortage of natural gas.

Let the American people develop an energy policy through the market system. Give them this choice, while they still have a choice. If not, Congress will have to explain how they intend to legislate and control the price of OPEC oil when the United States runs out of gas.

Sincerely yours,

BILL CLAYTON.

Mr. KRUEGER. Thank you, Mr. Chairman.

I should like, first of all, today, to address the question of the Btu equivalency prices of natural gas when compared with other potential substitute fuels because both people on the panel have alluded to this particular question. It has been alluded to in the past by people on both sides of the question.

There are those who favor the required Btu equivalency pricing scheme who would like to see more regulation, there are others who on the other side of the question favor deregulation saying the price of gas is inappropriate because it is not at the Btu equivalent of other fuels.

I wonder whether we might first of all, since both Mr. Hopper and Mr. Thompson have alluded to the need. I think this is correct, you are both agreed on the need to change over, over a period of time from natural gas to coal for the production of electricity; is that correct?

Mr. HOPPER. To coal or other fuels, possibly nuclear for electricity.

Mr. KRUEGER. But you would see it as being preferably neither oil or gas?

Mr. HOPPER. Not necessarily not oil, probably oil would give us problems with the balance of payments, but certainly not gas.

Mr. KRUEGER. What kinds of problems—let me address first that last reference, the problem of balance of payments and then get back to the question of coal.

What kind of balance of payments problems do you see possibly resulting from this, Mr. Hopper?

Mr. HOPPER. It depends on what the dependency turns out to be, how heavy it turns out to be. It is already pretty great right now. It will probably get worse regardless of what we do. I see it as a problem whatever happens.

Mr. KRUEGER. Do you see any solution?

Mr. HOPPER. Well, I see some possible solutions in terms of trying to go to alternative methods of producing oil and fuel but the problem there is as long as that $12 price can be lowered and lowered below what, say, synthetic fuel is produced for this country. We are all going to be reluctant to spend very much money to set up equipment to manufacture synthetic oil.

Mr. KRUEGER. As long as the price can be lowered——

Mr. HOPPER. Arbitrarily, yes, sir.

Mr. KRUEGER. Are you assuming that the OPEC nations might lower it?

Mr. HOPPER. No, sir, I am assuming that if domestically produced synthetic oil got to be a threat, they would have no hesitation about lowering that price and running them out of business.

Mr. KRUEGER. You don't see that larger potential of domestic oil reserves?

Mr. HOPPER. I see it as a reason domestic suppliers don't want to do that, they don't want to invest large chunks of money in alternative sources.

Mr. KRUEGER. What alternative sources are there on a Btu equivalent basis——

Mr. HOPPER. I am speaking of the shale oil manufacturing process or coal to gas and oil process.

Mr. KRUEGER. People, some of the people involved in shale oil told me last week they are getting out of that attempted shale oil because they could not produce it for anything like $12 a barrel because the environmental cost to clean up the process would cause the oil to cost very much more than $12. This may have been an unusual instance of shale oil but their justification was not that they feared the technology would not produce oil at $12 but it might produce it at $22, and they didn't see the price of oil going to that figure.

Perhaps I could at this point call on Mr. Thompson and ask him what your model shows, your computer model with regard to both the price of substitute fuels and also the balance of payments drain from a heavier reliance on oil?

Mr. THOMPSON. In the next 10 to 15 years the only effective substitute we really have for natural gas and oil products is coal. The new technologies for synthetic fuels, for gasification are in the development stage and all of the studies indicate that we cannot expect a very great contribution from those new technologies within the next 10 years.

Now, as far as this, this means that it is going to take us a period of time for the transition to coal and what alternative fuel do we have to help us in the transition? Well, the one that has the supply response potential is gas. If we don't take advantage of gas, as we are presently not doing, then we are going to have increased imports of crude oil

because that is the only way in the relatively short run, 10 years, that we have of fully satisfying the demand.

Mr. KRUEGER. What is our current balance of payment position in the United States generally? Would either of you know more or less where we stand with regard to balance of payments at this time?

Mr. THOMPSON. We are presently paying around $3 billion a month for crude oil.

Mr. KRUEGER. Imported oil.

Mr. THOMPSON. The study shows the trend is upward.

Mr. KRUEGER. Your computer models would suggest that if some portion at least of that money now going overseas for imported crude were to be spent on reinvestment in this country in an effort to bring on additional petroleum supplies, that there would not only be less balance of payments drain but that there might be more economic stimulus inside this country; is that correct?

Mr. THOMPSON. Yes, that is right; the investment will be made at home in the petroleum and coal industries that is presently not being made.

Mr. KRUEGER. Mr. Hopper, you have quoted Glendower and Hotspur, if I may allude to the characters. I think it was Glendower who said he could call up spirits from the vasty deep, and it was Hotspur, the irascible man who lost his life, who said, "Will they come when we call them?"

I see on page 6 of your testimony you allude to "These comparisons, of course, will provide a basis for what the market will bear, but not a comparison of costs, or a free-market determined price."

Now, is it your judgment that most products sold in our markets today are sold very strictly on a cost-based basis or is it rather a conjunction both of supply and demand that is likely to set the price for most products in the market?

Mr. HOPPER. I think theory would say both are involved in setting the price. But I think also theory would tell you that the cost ought to be very close to the price and I think everybody has some idea and some conception of the just price and the just price is one that is based on cost. There are occasions when price well above cost may be justified. In theory they are but, normally speaking, they come back to cost.

So I would suggest that in a competitive economy the public, and economists, too, like to think that price stays pretty close to cost, in economics cost include the profit.

Mr. KRUEGER. What is the cost of producing a painting? How would Mr. Picasso weigh his costs? Would he be on an hourly basis or would it be rather more what the market would bear?

Mr. HOPPER. If I were to hire him to paint a picture for me, I suspect the cost would be pretty close to the price of the picture.

Mr. KRUEGER. But his cost might be different from someone else's cost.

Mr. HOPPER. If they were bartered in the market, it would be what I have to pay.

Mr. MOSS. If the gentleman would yield, it would require divine cooperation.

Mr. KRUEGER. At this particular point it certainly would. A few years back it might have required only his cooperation which might have been almost as difficult as divine cooperation. I am not sure.

It seems to me we usually have both demand and supply figuring into our costs when they are set.

Mr. HOPPER. The reason I emphasize cost is because in a regulatory system cost is the basis for regulation and it is the basis because we think of price as having some relationship to the costs that went into making it.

Mr. KRUEGER. That is correct. It seems to me it is a good deal easier to assess what costs are if we are involved in a process that has more to do with manufacturing than one that has to do with mining where, you know, we can drill for water, oil, or anything else in various places and find it at various depths.

But I would like to get back to the question of what the coal costs would be if we substituted coal for natural gas in the production of electricity at this time. How much can the consumer expect to save, if anything, if we were to convert at this time from natural gas to coal for the production of electricity in Texas?

Mr. HOPPER. Well, first, we have to decide whether we are talking about a complete switch over or partial switch over. The electric industry in Texas is switching over now. It is phasing its gas production out.

Mr. KRUEGER. What I guess I am asking is, is this going now to bring the consumer's price down as we see this changeover? I might add that, while I introduced legislation to decontrol the price of natural gas, my own legislation also contained a requirement for the switch over of production of electricity from natural gas to other sources, but I don't think that I ever implied that this would bring on a saving of money to the consumer, maybe I was more honest than some people in this regard or maybe I was just wrong. I am wondering what kind of savings either of you assume might come as a result of switching over from gas to coal?

Mr. HOPPER. I would agree with your assessment. I would not be prepared to offer any savings. All I could offer would be stabilization probably. It is true that the coal cost delivered for some of these plants being planned are lower than the existing gas prices those same companies are paying.

On the other hand, I don't know what is going to happen to the price of coal or the price of transportation. In the case of the biggest producer of electricity in the State, that producer is using 25 percent lignite and his lignite price is probably half of the going coal price. So that company is producing electricity for far less than others in the State are.

From that point of view there is a saving right there and that firm is switching over even more to lignite.

Mr. KRUEGER. Dr. Thompson?

Mr. THOMPSON. Texas is already beginning to buy Wyoming coal; if the contracts, the prices of the contracts being consummated, are an indicator of the price of coal delivered to places like San Antonio, Texans can generally expect to pay higher electricity prices rather than lower with the switch from gas to coal.

Mr. KRUEGER. What kind of capital conversion costs are we talking about when we talk about shifting from gas to coal and how would these capital conversion costs, if any, be paid for?

Mr. HOPPER. You can't switch. Gas fired units in effect can't be switched over. You have to build new units. If you did switch them over in a process of building new plants for coal, that is going into the rate base and the consumer will pay for it.

Mr. KRUEGER. It will go in the rate base so the consumer is going to pay for the capital cost of construction of new facilities because it would go into the rate base. This also is the case in a good deal of legislation that has come before this body with regard to natural gas and synthetic fuels, that is, people frequently put into the rate base the cost of converting other fuels into gas and very seldom do they ever talk about it being under $2. It is usually above $4.

I wonder whether I might return for a moment to some of the agriculturally related questions because we previously had testimony from people in the agricultural industry in this committee. We had a representative from the Texas Farmers Union who indicated he favored intrastate regulation of natural gas prices and he alluded to representing 10,000 farm and ranch families in Texas.

I might point out among those organizations that enforced deregulation of natural gas are the American Farm Federation, National Grains, National Council of Farm Cooperatives, National Council of Wheat Growers and the National Council of Corn Growers, the National Cattle Association, the National Association of State Departments of Agriculture and Fertilizer Institute.

When we were dealing with the farmers, some of the farmers whom we had representing the 10,000 farm families said that they were being somewhat put out of business by the higher price for natural gas, particularly with regard to irrigation and also with regard to fertilizer.

We were told the price of fertilizer went from $75 a ton in 1972 to $200 a ton in May 1974. I think I might observe that in May of 1974, foreign countries were willing to buy a good deal of our fertilizer at above $200 a ton. And at some point after the gavel falls, we might return to the question of agricultural pricing.

The Chair has been most generous.

Thank you.

Mr. MOSS. The Chair recognizes the gentlemen from Texas, Mr. Collins.

Mr. COLLINS. Thank you, Mr. Chairman.

Having two visiting authorities from Texas, I was interested in asking one question which has come up in our discussions of deregulation of gas and that is the subject of monopoly. You are two authorities down in Texas. We have probably as many and certainly we have most of the major oil and gas companies. In fact, I don't know any oil and gas company that does not operate in Texas one way or another. So you have seen them firsthand and you are completely familiar with their operations and you are here as sworn witnesses.

I will just start right over here. Would you tell me of any instance you have seen which would cause you to believe there is any monopoly of any type in the oil and gas industry?

Mr. HOPPER. I could not tell you yes or no, Mr. Collins. I don't deal with the chairmen of the boards and the presidents or vice presidents that may collude. I prefer to believe they don't. I would prefer oligopoly to monopoly.

Mr. COLLINS. You have heard the subject mentioned, whenever a politician gets on the stump he always mentions this and in the next 2 months we are going to hear it many times.

Have you seen any instance or heard of any direct instance yourself, leaving out the chairmen of such, but just as a layman? We would feel it if we had a monopoly down there. Do you know of any single instance you could point to?

Mr. HOPPER. In terms of collusion?

Mr. COLLINS. In terms of collusion where they formed a cartel.

Mr. HOPPER. No, sir, but I think we know there is a community interest. I think the laymen talking to you about monopoly have in mind some sort of price leadership in the industry.

Mr. COLLINS. I have talked to them to the point they won't even stay in the same hotel together. If I try to get them in a closed room they want to have three lawyers come in with any witnesses.

Mr. HOPPER. They are pretty sensitive.

Mr. COLLINS. Let me turn to the other witness.

Can you think of any instance where you have seen a monopoly?

Mr. THOMPSON. I believe there is confusion here on the point between distribution and production. In the case of distribution you have what we call a natural monopoly which we organized in the best interests of the consumers.

Mr. COLLINS. You are talking about like a pipeline, one pipeline together for all of the gas in one area?

Mr. THOMPSON. And distributes all the natural gas like to one city. We have long recognized the need for that type of organization to best serve consumers.

Mr. COLLINS. I am glad you made this point. You are saying where you have one gas pipeline gathering system it is to the interest of consumers and where you have one gas pipeline distributing sytem it is to the interest of consumers?

Mr. THOMPSON. Yes, this has long been recognized in the policies of the United States that we need to form natural monopolies in the distribution of gas to all consumers like in one general consuming area because, if we had two or more distributors, we would have a much higher cost system.

Mr. COLLINS. If I could interrupt. I know this has come up and I am glad you are emphasizing this. It has come up 19 percent of the cost to consumers was the cost of the raw gas and 81 percent was the distribution cost and you say, if we had duplicated facilities, it would be even more?

Mr. THOMPSON. It generally would be higher because you would have several or many distributors competing for that one market.

Mr. COLLINS. You would have more pipe.

Mr. THOMPSON. Duplication of facilities and so on and so forth.

So in this Nation we have long recognized the need for natural monopolies to best serve the interest of consumers in distribution. This is being confused, I believe, with the production side. In the case of production of natural gas, the records show that there have generally been a relatively large number of people and producers involved in finding gas and bringing this gas to the point of development to serve, or to be put into distribution to different markets.

Mr. COLLINS. It is my understanding—let's go into production, production of gas is generally discovered by independents, these new fields; is that right? Not majors but independents?

Mr. THOMPSON. The statistics show that there is a relatively large number of the so-called wildcatters and independents that are in the actual discovery of gas.

Mr. COLLINS. When they go in the market, they act on a competitive basis based on the percentage of gas gathering pipelines in their area. I have found in some areas that producers have had to get their own pipeline systems built.

Taking this a step further, 19 percent is the cost of raw gas; is that your general feeling?

Mr. THOMPSON. You are saying nationwide——

Mr. COLLINS. To consumer, a residential consumer.

Mr. THOMPSON. The cost of producing gas is relatively small compared to the cost of getting it to the point of use.

Mr. COLLINS. Yes.

Mr. THOMPSON. In this Nation that is generally true.

Mr. COLLINS. Taking it from an economist's viewpoint, have you heard of any places where these major oil companies or major pipeline companies have either through collusion or through any type of system caused the price to go higher than it should go?

Mr. THOMPSON. No.

Mr. COLLINS. Thank you, Mr. Chairman.

Mr. HOPPER. May I respond to one of Mr. Collins' comments? Nineteen percent may be the figure in Connecticut where there is a large transportation cost. It is not true in Texas.

Mr. COLLINS. In Texas it would be what?

Mr. HOPPER. In Fort Worth around 49 percent, in Monohans it is around 40 percent.

Mr. COLLINS. What other fuel can be furnished to a residential consumer at a lower price?

Mr. HOPPER. I don't know that any other fuel can be supplied to the householder at any price. He can't burn anything in the system but gas is what I mean.

Mr. COLLINS. A little while ago I thought you said if they put in lignite, whatever it is, if they had to build a new system and gas isn't acceptable, they could put in another system. If they put in another system, what other system would be less than gas?

Mr. HOPPER. Right now?

Mr. COLLINS. Yes.

Mr. HOPPER. Any time you add to the existing system, it will cost more money, of course.

Mr. COLLINS. What I am trying to get to is, is there any natural raw material, any raw source of energy cheaper than gas Btu-wise? We have heard of oil selling at $12 a barrel and gas should sell at $2 a barrel comparable in Btu.

Mr. HOPPER. I have heard that but I don't know that it is true. I don't know that Btu equivalency is the just way to make that evaluation. It is a value evaluation, not a cost evaluation.

Mr. COLLINS. What would you suggest they should use?

Mr. HOPPER. If there were a free market I would like to see it used but there isn't, so I don't know what to use. I think we are stuck with whatever we have now.

Mr. COLLINS. Thank you, Mr. Chairman.

Mr. MOSS. On the matter of Btu's, isn't there a significant difference in the Btu content of gas and various types of coal?

Mr. HOPPER. There certainly is with lignite, which is about 50 percent of the normal coal content. But once again, it is a matter of making the equivalent adjustment.

Mr. MOSS. I believe in my own district we produce a fair amount of gas. We have marsh gases that are rather low in Btu content, they are wet. We have other gases that are high in Btu content.

Mr. HOPPER. The natural gas in Texas is full of nitrogen and dioxides and 850 Btu instead of 1,000 or 1,050.

Mr. MOSS. I assume the same would be true of coal. There are coals with high Btu content and others with much less.

Mr. HOPPER. Yes, sir; that is true.

Mr. MOSS. Dr. Galloway.

Mr. GALLOWAY. Professor Thompson, I remember very well the time and the courtesy that you granted me in your office in Texas last spring when you reviewed your research with me. Again I would like to prevail upon you to deal with some rather basic economics.

I am correct, am I not, in believing that there is a price for natural gas beyond which one would not expect an appreciable increase in natural gas supplies; in other words, if the price of natural gas was set at $10 per mcf, we would not get any more gas than if the price were set at $8; is that correct?

Mr. THOMPSON. What happens in the case of natural gas production, as you increase the price of natural gas you will exploit less and less productive fields. The most productive fields will be exploited first and then less productive and less productive fields exploited as the price allows the different cost for production recovery.

Mr. GALLOWAY. Is it possible, using a sophisticated computer model, to determine how much gas will be produced at various prices ranging from 40 cents per mcf to $3 per mcf?

Mr. THOMPSON. We have supply models which reflect the additional cost of producing gas from new and old reserves and we use those models in our efforts to show the additional cost of getting additional gas.

Mr. GALLOWAY. So from this we can then determine the price beyond which it makes no sense to increase the price of natural gas. Price-wise we reach a point of diminishing returns, do we not?

Mr. THOMPSON. Yes; we have diminishing returns in gas as well as from any source.

Mr. GALLOWAY. Suppose it was determined that this magic price was 80 cents per mcf. Anything beyond this would result in windfall profits to producers, would it not, with little or no accompanying benefit in the way of increased supplies to the consumers?

Mr. THOMPSON. In the case of the windfall you have two considerations. No. 1, how much gas is coming from old reserves, proven reserves, and how much will come from new reserves.

We are primarily interested in, or one of the main interests is, what is going to come from new reserves with higher prices.

It is true that you could say that costs have already been incurred for presently known reserves.

Mr. GALLOWAY. I am talking here about a price, this point of diminishing returns, so to speak, beyond which there is no benefit to be incurred by consumers by way of increasing supplies. I used in my previous example a price of 80 cents per mcf. Is that not the price, Professor Thompson, that the Federal Energy Administration in its Project Independence Report determined to be the price that would elicit the maximum supply of natural gas by 1980?

Mr. THOMPSON. I can't recall immediately from the report. I do know this, the price that they had in the 1974 report was considerably below the 1976 report. For the exact number I would have to check the report.

Mr. GALLOWAY. I understand that your computer model provides some insight into this market clearing price that we have been speaking about and I was very impressed with a recent study of yours that was funded by and published by the State of Texas Governor's Energy Advisory Council.

This study, put out by the Governor's Energy Office that you and your colleague did, determined that a price of 60 cents per mcf in 1972 dollars was adequate.

Now, it is a rather voluminous study and we obviously can't introduce your entire study in the record, but I think it might be helpful if we were to introduce into the record the testimony you gave this past April 13 before the Subcommittee on Consumer Affairs of the Texas Senate where you explained in layman's terms the results of your computer model efforts.

Mr. Moss. Without objection, the material will be included in the record at this point.

[Testimony resumes on p. 254.]

TESTIMONY OF DR. RUSSELL G. THOMPSON BEFORE THE SUBCOMMITTEE ON CONSUMER AFFAIRS OF THE TEXAS SENATE, APRIL 13, 1976

THOMPSON : Thank you. I'm Russell G. Thompson, a Professor at the University of Houston and I'm an Applied Economist and we have been developing economic models for sometime to try to look at the supply, industry and demand picture in a comprehensive form of framework and see what some of the most important stresses are that are elected to be in the system in the interim to a long run period of time. Not, necessarily what will happen to the price of natural gas, like next week, but what will be the stresses that will be in the system when the producer influences the industry influences and the consumer influences are all tend to balance themselves out under different sets of policy specifications.

CLOWER : Translated in to what would happen if natural gas were deregulated.

THOMPSON : Yes. One of the considerations is what would happen if natural gas is deregulated. In fact, what would happen if also crude oil prices were deregulated. Since there is a joint supply relationship there. And in that case, suppose you consider deregulation of both crude oil and natural gas prices in the country. And we look out of a period like/1985, say what would happen then if we have lax versus strict environmental discharge controls. But, we find in the case of lax environmental controls, on both water and--major water and air pollutants. You get market clearing prices

like about a $1.00 per thousand cubic feet. That's of course, competitive fuel use. All of the people can bid competitively for whatever fuel they want to use. To fire boilers, to feed stocks and so forth. However, if you let--have the strick controls --if you go to the strict controls as presently in the legislation that the environmental legislation and have like zero discharge of pollutants to the water in 1985 and maximum technological removal of sulphur and particulants in 1985, then you will find that the model gives market clearing prices of about $2.40 a thousand cubic feet. So, there you have almost a 1 and 1/2 fold increase in prices. Thats an indication of the type of stress that the environmental restrictions will put in the system. So you have an important indirect policy influency that is coming in, independent of energy. Coming in from the side from the environment. So we have a question there of how rapidly do we want to clean the environment? You look at the modeling solutions, you find that there is this tremendous pressure or tremendous incentive on the part of electric power generation in particular, at other large boiler users to substitute clean fuels for investments in air emission controls. Its really surprising how much they can afford to pay for clean fuels in order to keep from making those investments in air emission control facilities, which are expensive.

So there's--so the next question then comes up but suppose--how much could we moderate the cost of attaining a clean environment if we prohibited the use of natural gas and oil products in new electric power generation facilities. And the results show that that would depress the price of natural gas considerable. In fact the market cleaning price falls for a case of strict environmental controls to around 71¢ a thousand cubic feet. So there you have swings going from a $1.00--around a $1.00 per thousand cubic feet to around $2.40 a thousand cubic feet and

back down to 70¢, which are resulting from indirect policy influences. On the one hand, you have the environment and on the other hand a regulation of fuel use in electric power generation. New electric power generation facilities.

: How practicle would it be?

THOMPSON : To regulate?

: To prohibit the use of fuel?

THOMPSON : Well, with the Texas Railroad Commission, in the fall of 1975, made a step in that direction. By starting that type of program--starting a program of phasing out the use of natural gas in electric power generation.

: I'm told by everyone that I know in the industry, that there is no more new gas plants. That everything new is either coal, lignite, or nuclear.

THOMPSON : Well, we also have _____ peaking. Whats being done in peaking across the country.

: Excuse me.

THOMPSON : Whats being done in peaking across the country? Peaking power--

: In other words, they are expanding natural gas plants.

THOMPSON : There's a tremendous incentive to put them in.

: Right.

: Yeah.

THOMPSON : If they can get--if contracts can be made there's an incentive to put that economic stress in the system. Because you not only have the incentive on the part of avoiding air emission control costs, but you have the incentive from the higher--coming through from tactical efficiency. And as other people have been arguing today, we can change considerably the fraction of the

load that peak and the fraction that is base by the pricing. Another question comes up and that is suppose you would--we want to have a clean environment and also are willing to prohibit the use of a natural gas and oil products and all due electric power generation facilities. Then what will happen if we change our pricing policies on natural--on natural gas and crude oil. We might on one hand we could continue the present regulation if regulates the crude oil prices at around seven--something like 7.70--7.67 or something like that. And we have the regulation on interstate natural gas prices. If you do that type of--you run that type of analysis with the models you find that in 1985 we have very low--we have low domestic production high imports, high foreign exchange drain, high--high fossil energy use, because our energy prices are kept low and we have a high fossil energy bill. A bill there, thats the--represents the balance between what the producers are going to get and the consumers are finally going to pay.

Now, if we deregulate completely the model show that you will have--you will have a more domestic production of crude oil and natural gas. You will have low imports of crude oil. You will have a low foreign exchange drain, in other words, you keep the employment and investiment at home. You will have a low fossil energy use because you have high prices, which stimulates conservation. And you--what you have a fossil energy bill that is almost--very similar to--not quite as high, but about the same level as for the case of continued regulation. Now, we have had--since we have had case in this country where natural gas has really only been an economic product in the last 25 or 30 years, before that we flaired most of it. And we have--there hasn't been the incentive and even throughout that period to exploit our gas reserves as much as our oil. Seems reasonable to ask the question, what if we would continue to regulate oil prices in this country and deregulate gas prices. Then in

that case, the modeling results show medium consequences for all the characteristics that I mentioned, but the fossil energy bill. The fossil energy bill is the lowest in the case of deregulating gas and continuing to regulate oil prices.

Now you can run--you can run different variations, you can assume a lower pessimistic supply response. rather than an optmistic supply response, but you really won't change the relative character of the policy results. The relative character stays about the --is about the--you could say practically invarient.

Now, as far as the next few years are concerned, --maybe I ought to ask this question--How do these results compare with what industry has forecast, or we might ask the question before that. What are the major differences in all of this. What about the end use? The end use is about the same as like FEA has and industry has under different scenerios--really--we're really not talking about differences there. The major differences among the leading professionals are all on the supply side. What will the supplies be-- what will the supplies be in the future? And they I would say that major difference among the different professionals is basically what they are assuming. You look at this chart here that I gave you and you'll notice that if you assume a low finding rate for natural gas and you continue to assume regulation of crude oil and natural gas prices, that then the supply response of the models and the supply response forecast by Exxon are virtually the same. You'll notice you look out at 1985 that its a considerable difference between what if--that you get in that case in the low curve and what FEA has. However, if you notice if you assume an average finding rate a more optomistic finding rate that the low one and complete deregulation of the prices. Then, there's a period of time for the incentive to work its way through the system, but out in the late '70's, things are going to start being much more favorable and by 1985

we will have a--the models show a very favorable supply response and there you will notice that the differences--FEA's forecast are up near the high curve. Nearer the high curve--much nearer the high curve that the low curve.

In conclusion, I would say there's several things: 1. There a strong incentive throughout the whole economic system to substitute wherever the people can clean fuels for investments in air emission control facilities. There--the market systems--the market system in of itself according to the models doesn't appear at any what--where we would think would be reasonable prices will stimulate the substition of alternative fuels for natural gas. Natural gas is just a very favorable fuel and people will want to use it--get it and use it and they will continue to use it at what we would regard--what I would regard at very high prices. Its according to the model, they can bid extremely high prices to use natural gas rather than to/stall air emission control devices and burn dirty coal. Another point is that with the continued effort to clean up the environment and even if you prohibit natural gas use in new electric power generation facilities and you might even want to go further--you get considerably different results from the models for the different pricing policies. For different pricing policies assumption. Continued regulation may seem favorable in the new term, but according to the models it will be extremely unfavorable in the interim to long term.

: How long does it take you to put one of these models together?

THOMPSON : We worked on it about four years.

: Does it have any flexibility to it where you could adjust it a little bit?

THOMPSON : Oh, yes, we can run--we can _____ the models' to run many different variations.

: Let me run something by you and see what you think about this. See, we're faced with federal regulation that is given a certain way that we can't do anything about. And we don't know what the federal government is going to do, but given the proposition of federal regulation as it stands now. Given the proposition of environmental efforts as they stand now, what would happen if we attempted on a interim basis to regulate the intra-state price of gas. Is there a certain, you looked at that--are there any incentive price at which point people would begin to drill or have you looked at this at all or could you look at that. Would you care to comment on it?

THOMPSON : You have continued environmental legislation continued inter-state regulations--

: Things that this state legislature have no control over.

THOMPSON : Okay.

: Assuming that you can guess about what the federal government is going to do as well as I can. In trying to on an interim basis regulate the price of natural gas at the well head.

THOMPSON : In the state of Texas?

: In the state of Texas, only.

THOMPSON : Well, you are going to add another negative factor in the picture in the interim to long run. In the short term of course, people that presently have contracts and so forth will benefit, but in the bill collectors is going to come in the future--

: Have you really looked at it at any point in which there is an incentive price to drill for natural gas that will be in the inter-state market? 95¢, $1.25--

THOMPSON : Oh, okay. What does the results show under

the different prices, under the case of partial deregulation. The model show a market clearing price of 95¢.

: What do you mean partial deregulation.

THOMPSON : Deregulate gas but not oil.

: See we have no control over that, what we are dealing with is give all the federal variables as they are, what could we do to inter-state price. Have you looked at that?

THOMPSON : According to the--if, uh--our models are showing that Texas will continue to be an exporter--okay--of natural gas in '85--okay, even if you continue the present lid on price regulation--inter-state prices, there are going to be a few years in which you got the downward slope of this curve. But, that higher--the higher incentive even for 52¢ on the average is going to be working its way through the system with all these drilling rigs out and--

: Did you at any point make a study that would indicate to you at what level the price of natural gas that drillers begin to start thinking about drilling?

THOMPSON : I would argue that there is--the models show that there is considerable incentive to drill and produce natural gas at prices up--anywhere from--well prices in the range of 70¢ to a $1.00.

: So, in other words, like Mr. Pitts testified--I don't know whether you heard his testimony, that he started drilling at 60 or 70¢. I can't recal exactly what it was, but--

THOMPSON : Well, what happens is that they--you get most of--most of the--of the drilling response and supply response comes at prices at generally less than a $1.00. Once the prices get above a dollar on the average, you don't get much additional supplier response. You've exploited most of the--

: You've done what--

THOMPSON : You've exploited most of the possibilities.

: So in other words, if the price were-at a certain price, say 70, 80 or 90 cents, or something like that, people start drilling and then as it rises up to a certain price, as I say a $1.15, they're drilling all they can drill and can't drill anymore and if the price goes to a $1.50 or a $1.70 they are still going to be at the same level.

THOMPSON : You're not getting much additional gas.

: Right.

THOMPSON : Okay. You put in an awful lot of additional effort, but you don't get much additional gas. You get most of your additional gas if the price is less that a dollar.

: Now, I don't know if I understand you exactly correctly. Do you mean, when the price--say the price would go up to a--at 70, you are at 70¢--you are going make more conservative drilling decisions on where you drill and if its a $1.70 you are liable to wildcat more or if that a fair--I know a person would be willing to take a bigger risk if they were going to make more money at it so...

THOMPSON : Well, yes, of course, you'd take a bigger risk. And you'll take risk on--on the--on less and less promising opportunities as the price goes up.

: What would be the effect in Texas, in your opinion if we gave the Public Utilities Commission of Texas the authority to set well-head prices of gas?

THOMPSON : It all depends on what level they set them at.

: There is a level that they can set it at that would not discourage production?

THOMPSON : Well the modeling results show that your--we're going to get prices around like 70¢, 80¢--we're going to get a very favorable supply response over a period of time. Now, those 1974 dollars, so you don't have the inflation factor in there.

: So you are talking about $1.05 now, or whatever it turns into.

ANDUJAR : Dr. Thompson, I know you may never finesse to do this, but would you like to comment, if you were here at one time or another, you may have heard the call for nationalization of the oil industry. And you also are aware of the fact of the breaking up of the industry, in its different components. Would you comment on the two different approaches--what would happen if we nationalized the oil industry--what would happen if congress does go ahead and make the oil companies divest themselves of the different aspects of the opperation?

THOMPSON : Well, if you nationalize it, its going to be like a military operation.

ANDUJAR : Well, cost-wise and include not the bill for the gas for the energy consumed by the customer, but the total tax--would it tend to cost more to produce the oil or less?

THOMPSON : I can't see how the average prices would be less with nationalization unless they subsidized. If the nationalization reflects the true economic cost of production, then the cost and you maintain the same incentives in the system, then the cost to produce gas should not be any less with nationalization than with industry. Now, on the divestiture issue, that's a very complex issue and--well, lets look at it this way. What really happens in the case of divestiture? In the case of integration? In the case of integration, you have interalized a whole set of markets from extraction of the crude oil through to the gasoline pump. There are many

more --the manager in the integrated system--okay--giving this competitive on the extraction side and given its competitive on the final sale side--the manager of this integrated system has many more decision options and many fewer constraints on his overall behavior than you would have if the system was broken up into its different components. It would imply a given--that the efficiency --would imply then that the integrated system would be more--have more--have higher technical efficiency and more stable prices for both the inputs their purchasing and for the products they are selling. So with divestiture, it would appear from that type of reasoning that you will have lower technical efficiency throughout this--from extraction through to the sell of refined products. You will have higher costs on the average and you will have much less stable--or prices that vary much more in magnitude.

ANDUJAR : Does the customer know whether the bill is going to be fifty dollars or five dollars? or--

THOMPSON : Well, with the--more variance in the--whether you are a wage-earner or you are a purchaser, would generally imply that you would--if you are a purchaser--would imply that you would pay more and if you were a wage-earner, you would get less.

: _____explore one possibility back about what I was talking about previously. Supposing we went to well-head regulation on intra-state gas. And you said that an incentive for drilling and we've got alot of extra reserves at a certain level, whatever it is, a $1.00 or whatever it is, what would be the long term difference? The ten year affect of that regulation----

. . . .80¢ or something like that ..

CLOWER : Or whatever that incentive price was that you found.

THOMPSON : Okay -- Let's suppose -- there would be a price of 80¢ that could be allowed -- at a price of 80¢ you are going to get a favorable supply response of natural gas in Texas. Now I would have to go back and look at things further to tell you how much.

CLOWER : Okay, looking at it--say looking 25 years down the road, would the response be the same if you had wellhead regulation at this price that you are talking about as it would be if we had no regulation and it floated on the free market. Would the reserves be the same in your opinion?

THOMPSON : With no regulation, there will be more incentive to drill in the short run. However, in the longer run that greater incentive --the increased supply response coming forth should result in depressing prices down to a level that would be giving you results in the long run. Would give you long run results about the same, if you take a price about 80¢.

It's the long run price that really counts -- what's the price going to be in the case -- since you have such a lag here in response, what's the price going to be over a ten-year period? That's the type of price that's really going to determine the supply response you are going to get.

CLOWER : In other words, the regulator would have to continue to monitor that incentive price.. . .

THOMPSON : Yes, very much so.

CLOWER : . . . . to adjust it.

THOMPSON : And at the present time see we have tremendous confusion between what the economists call marginal or incremental spot prices and the average price. People are talking about $2.00 prices, but Dr. Holloway will shortly point out

that that's not the average price of gas--what's being paid in the State. The average price is way below that. Now I've been talking here in terms of average prices for gas--an average price of 80¢.

CLOWER : That's just the Coastal Lo Vaca price.

THOMPSON : I can't answer that.

CLOWER : We thank you for your testimony. We appreciate it. Hope you catch that plane -- sorry to keep you here so late.

Mr. GALLOWAY. Would you turn to page 8 of the transcript provided you, Professor? The question was asked at this hearing before the subcommittee of the Texas Senate, "Did you at any point make a study that would indicate to you"—this is on page 8—"at what level the price of natural gas that drillers begin to start thinking about drilling?"

You responded, "I would argue that there is—the models show that there is considerable incentive to drill and produce natural gases up—anywhere from—well prices in the range of 70 cents to $1."

Then you go on to say at the bottom of the page "That is what happens when you go beyond this price, you get most of the drilling response and the supply response comes at prices at generally less than $1.

"Once the prices get above $1 on the average, you don't get much additional supplier response. You have exploited most of the possibility."

You go on to say, "At the price of $1.15"—top of page 9—"they are drilling all they can drill and can't drill any more and if the price goes to $1.50 or $1.70 they are still going to be at the same level."

Professor. I found this to be very interesting and significant testimony. I wonder if you could tell us to the extent which the Governors Energy Advisory Council has relied upon your study in making its many policy recommendations?

Mr. THOMPSON. Let me take the questions one at a time. You referred to the 60 cent price in the previous study which was submitted by the Federal Energy Administration to the Senate hearings in 1975. I will say this, that price was computed from the model——

Mr. GALLOWAY. Could we clarify, the report I was referring to——

Mr. THOMPSON. The Governor's Energy Advisory Council Report.

Mr. GALLOWAY. The report that I am discussing is entitled "The Relationship Between Supply/Demand and Pricing for Alternative Fuels in Texas: A Study in Elasticities," page 31 of the report is where you talked about a 60 cent price. This report I understand, was funded by the Governor's Advisory Council, and discussed by you before the Texas Senate subcommittee.

Mr. THOMPSON. Yes; there are two points I would like to make. One, the 60 cent price was derived from the model with no environmental cost considerations. Further, the supply data used, or the reserve data used in that analysis was based on the previous U.S. Geological Survey estimates of reserves. Since then they have lowered that estimate considerably. That is point No. 1.

Point No. 2 is that if you let the price of gas rise, as I tried to explain in this testimony, you are going to get a certain increment of additional supplies, new sources at 70 cents, another increment at 80 cents, another increment at 90 cents, another at $1.

My point was that the increment you get will reflect the principle of diminishing returns.

I was further pointing out that we have considerable, we have productive, generally productive fields of natural gas in Texas and that from these fields we are going to get a very favorable supply response. if we let the prices rise to like $1.

Mr. GALLOWAY. But not $2?

Mr. THOMPSON. I would argue that in a period like 10 years, for which the study was done, we are generally not going to see the $2 prices in 1974 dollars. Those estimates are way on the high side.

Mr. GALLOWAY. Dr. Hopper, were you aware of Professor Thompson's research that showed that optimum production could be obtained at a price about half of that which is currently being paid for by Texans?

Mr. HOPPER. I almost got caught for speeding going out to the Governors Energy Council Office to get a copy of it when I found out about it.

Mr. GALLOWAY. Dr. Hopper, what indications do you have that people throughout Texas and not just in a few isolated areas are upset by unregulated natural gas prices?

Mr. HOPPER. Well, I served a number of cities, 40 or 50 probably, and these cities themselves are indicating concern because they are getting involved with the regulatory process. They have in Texas cities in the past rubber stamped this process. There has been no regulation in Texas in past years. They are now beginning to regulate. In city council meetings I have had people come up and make charges to me about monopolies, capped wells, all the things you have heard the public talk about.

Another case is the complaints the Utilities Commission and Railroad Commission are getting and they are getting plenty and the cities that have utility staffs, they are getting complaints.

One of the best indication I have are the cartoons that you see and the Railroad Commission is just literally under seige and the Austin American has a very good cartoonist and he has a whole series of cartoons here with the gas industry beating up the consumer, shaking down the consumer, doing all sorts of things to the consumer and I think that is an indication of the public's reaction.

Mr. GALLOWAY. I think I have time for one final quick question.

Dr. Hopper, what can you tell us about industry profits?

Mr. HOPPER. I think first that any review of the oil and gas industry is deceptive and there is no reporting on the gas producing industry as such, so we don't know how profitable the industry as a whole is. But there are indications of individual gas producing companies that show they are very high, two or three times the national average for stockholders. I have some numbers on these individual companies, they are quite high.

Mr. GALLOWAY. Could you supply some of those numbers for the record?

Mr. HOPPER. Yes; I can.

[The material requested was not available to the subcommittee at the time of printing.]

Mr. GALLOWAY. No further questions, Mr. Chairman.

Thank you.

Mr. Moss. I have just a few more questions.

Dr. Thompson, you stated we need to form natural monopolies. I think we all agree that is the case. There is a tradeoff in a natural monopoly, isn't there? We substitute some outside force for the normal workings of a free marketplace to insure fair and reasonable pricing, the rate of return. Whatever the natural monopoly we create in this country, the history has been that we regulate it; is that true?

Mr. THOMPSON. Yes; the natural monopolies were created in the case of natural gas distribution to consumers——

Mr. Moss. Electric generation?

Mr. THOMPSON. That is correct.

Mr. Moss. Telephone communication, railroads, trucking, wherever we have created, we have then undertaken the task of regulating; is that correct?

Mr. THOMPSON. Yes.

Mr. Moss. Then if we were to continue this natural monopoly in gas under an unregulated market, how do you envision it working?

Mr. THOMPSON. A natural monopoly for gas in an unregulated market?

Mr. Moss. Yes.

Mr. THOMPSON. You mean a natural monopoly at the consumption end but not at the production end?

Mr. Moss. How can you regulate one without regulating the other? You have to have regulation along the line or have no regulation at the end. We have it, the Federal Power Commission at this moment is imposing upon some municipalities a requirement that they meet their commitments to their customers at less than the cost they are required to pay their wholesalers because of passthrough provisions. And that is a matter this committee is going to have to take a careful look at. We are getting numerous complaints. But you can create a bind there. I am just interested in how you would feel about the problem of the ultimate cost to the consumer as a result of this natural monopoly if everything going into the pipeline is unregulated?

Mr. THOMPSON. If it is unregulated going into the pipeline, you are going to have what I would regard as a form of workable competition. Producers will be responding to the price incentives that are coming from a number of different pipelines serving different communities.

Mr. Moss. Let's take it right here. In the city of Washington, D.C. I have a residence. My supplier is the Washington Gas Light Co. How do I get a competitor?

Mr. THOMPSON. That has been the whole point of our natural monopoly legislation, the consumption end. The assumption is, it is not the best interest of the consumer to have it competitive at the consumption end.

Mr. Moss. Wasn't that premised on the assurance to the consumer that there would be as a substitute for competition reasonable and fair regulation?

Mr. THOMPSON. You mean on consumption——

Mr. Moss. Of course.

Mr. THOMPSON. It seems to me you are right but I think the point is you have in one case where it would be more costly to have it competitive than a natural monopoly.

Mr. Moss. How do we do that?

Mr. THOMPSON. For example, if you have two or three distributors you would have duplication in lines, for example.

Mr. Moss. Doctor, I have been sitting as a member of legislative committees regulating the utilities for 28 years, 4 of them as a member of the California State Assembly and 24 as a Member of the U.S. House of Representatives and I have learned that there is

another curve and I wonder if it is in your model, that is the curve of expectations, that is the hope, a sensing by the utility that if it pushes hard enough it will get a price increase especially if it conjures up a whole bag of fears of what is going to happen unless it gets a price increase, one going beyond the normal cost plus a reasonable rate of return concept. Have you ever cranked that into your model?

Mr. THOMPSON. Yes.

Mr. Moss. What is it?

Mr. THOMPSON. We are trying to deal very much with the price expectation.

Mr. Moss. Does it reflect that there is product being withheld from the market because of expectations?

Mr. THOMPSON. I really can't answer that. To say that the product was being withheld from the market, I would say that anybody who is interested in the natural economic tendencies, there is surely a tendency for those who can afford to gamble.

Mr. Moss. There is a probability there is an incentive to withhold. A reasonable man wants to make all the profit he can.

Mr. THOMPSON. There are incentives with current uncertainty.

Mr. Moss. I really wanted to address myself to that, then we get to this matter of 19 cents as the cost of raw gas which was discussed earlier by Mr. Collins.

The cost of raw gas is very important and it would almost have to be fixed at any one point on the map where it would be delivered, wouldn't it?

Mr. THOMPSON. Yes; every producer is likely to have different costs.

Mr. Moss. So there can be no generalization as to cost?

Mr. THOMPSON. It depends on what you want to define as the market area.

Mr. Moss. Would that develop a medium price for raw gas? Have you developed an average price?

Mr. THOMPSON. We commonly communicate our results in terms of average prices.

Mr. Moss. All right, average price for raw gas, what will it be?

Mr. THOMPSON. The average price for raw gas?

Mr. Moss. Yes; would it be different in the Sacramento market in California than in the El Paso market in Texas?

Mr. THOMPSON. Yes.

Mr. Moss. That is what I mean. Then it is a variable. It is very difficult to generalize. You can give averages for an area but beyond that it would be unreliable as statistical data, would it not?

Mr. THOMPSON. You have to be careful in your interpretation of those numbers.

Mr. Moss. You have to target those numbers, don't you?

Mr. THOMPSON. Yes, sir.

Mr. Moss. Thank you very much.

Mr. Krueger.

Mr. KRUEGER. Thank you, Mr. Chairman.

I shall soon go back to the farm with my questions but what I would like to get into rather briefly with regard to agricultural costs

and prices, to continue where I was slightly earlier, is that we saw the price, according to the testimony of Mr. Mullins last week, of agriculture fertilizer go from $75 a ton for hydrous ammonia in 1972 to $200 a ton in May of 1974.

I was suggesting when my time expired that at that time foreign countries were willing to pay more than $200 a ton for that fertilizer and that agricultural prices were higher in 1974 than they had been for some time. Currently we are back below those prices.

My point was simply that the price of that product, that hydrous ammonia at that time was determined not only by the cost of the natural gas although I am told it takes about 40 mcf to produce about a ton of hydrous ammonia among the fertilizers, it was governed not only by those costs involved but by the markets present and those markets have somewhat slacked off.

In reference to previous testimony we heard last week with regard to the closure of Reynolds Aluminum plant in Corpus Christi, I was contacted by Mr. Richard Bidwell, director of energy resources for Reynolds Aluminum, and he indicated the reason the plant closed in Corpus Christi was basically that there was in 1974 a lack of sufficient markets for aluminum products in the United States. The demands for aluminum had dropped about 30 percent in that year. They closed not only a plant in Corpus Christi but also one in Arkansas. Currently they are again enlarging. I should say they are reopening their plants and in the process of reopening they will be opening the Corpus Christi plant on November 1.

The Corpus Christi plant is a high cost plant for a variety of reasons, among them the fact of the way in which they contract for gas means that they are paying higher prices than they were before. But the plant is reopening and it was not under particular and special circumstances as might be implied.

I don't think I will deal with the question of public attitudes through the cartoonist since I am all too aware of what the cartoonists frequently do with the Congress. I think that the impression of Congressmen is slightly higher than that of the oil and gas industry. But obviously cartoons are not always based on truth and objective perception of the Congress and the oil and gas industry, but sometimes are subject to myriads of other perceptions.

But I would like to get back to some questions on oligopoly, monopoly, and monopsony. I think what was being suggested earlier, if I understood it correctly by Mr. Thompson, was that there was probably monopoly, or purchaser monopoly of power that we find in the pipelines and distribution systems because the pipelines are sometimes the only available purchaser or have nearly monopsony power in that regard and the competition exists and should exist if it is there, not in the distribution systems but rather among the producers as there are a large number of producers.

Mr. Hopper, you alluded to eight companies producing 52 percent of the gas in Texas as being oligopolistic power. If you are basing that judgment on number, that is 8 over 52 sometimes equals oligopoly. I suppose you would have to determine from that that we are an oligopolistic society and what is true of the industry is true of our society at large.

Mr. HOPPER. There are large elements of oligopoly in our society. If you want to talk of examples, IBM is a prime example.

Mr. KRUEGER. That I would think would be a monopoly rather than an oligopoly if we are thinking of the larger computers. Of the large computers IBM has about 90 percent.

Mr. HOPPER. I think they are under investigation, too, on antitrust.

Mr. KRUEGER. That is one thing to be under investigation of antitrust and it could be broken up or have different tax laws. It is a different thing under price controls.

I have, interestingly enough, not yet heard it suggested there should be a price ceiling on the production of computers, that is, an IBM computer should sell for $10,000 or $100,000, or whatever, but no more, and perhaps we should look at the historical cost of computers and if we go back to the historical price of computers in 1964, we might trace the costs and find that a computer should not sell for more than $8,100. But that may not be rational or sound economic thinking, at least in my judgment.

I would suspect you would agree on that.

I wonder, on page 8, Mr. Hopper, I have three other areas I hope to get into. One is on page 8 where you refer in your testimony to the fact it is time to switch to cheaper fuels. You say, "This schedule could give Texas time to shift to cheaper fuels." You are speaking, as I recall, of 5 to 7 years. What do you anticipate being cheaper in 5 to 7 years? Is that one of the spirits you will call up from the vasty deep?

Mr. HOPPER. It is the industry that is often calling the spirits and I question whether they are going to come.

Mr. KRUEGER. You are calling for cheaper fuels?

Mr. HOPPER. The electronic industry claims they can produce electricity cheaper from nuclear power and they also say they can produce electricity cheaper from coal. If the price of gas keeps going up, that is certainly a possibility.

Mr. KRUEGER. What you are suggesting is that is not a spirit that you can call up.

You refer to cheaper fuels but you don't know what they will be at this time and you don't seem to be favoring nuclear by the tone of your comment; am I correct?

Mr. HOPPER. I don't mean to imply that. There is a requirement that the Texas Electric Co. should get off gas. That is just plain and simple. There is a good possibility that there will be some stability in the price of electricity but I said, even where there is or isn't, it seems to me they deserve some breathing spell to adjust to whatever these prices are.

Mr. KRUEGER. I would concur. I suppose what we need to have clear is we are not as a result of this suggestion, we are not suggesting it will save the consumer money. It will not do that in shifting because we are not talking about cheaper fuels, we are talking about other fuels. We are talking about the social good to be gained by using, for example, natural gas for feedstocks and other more precious purposes but we are not really, if we are talking about known technologies, talking about shifting to cheaper fuels in 7 years unless you are assuming that natural gas will go a great deal higher. But

if we go by the current price in which 1½ percent of the gas was sold last year at $2 a barrel, you are not really talking about cheaper fuels based on current natural gas intrastate prices?

Mr. HOPPER. I was hedging a while ago when I said stability but the electric industry is selling nuclear power in terms of being more economical.

I suppose that means cheaper. Whether it means cost saving, I don't know. I can't perceive the future.

Mr. KRUEGER. You wish to hedge on that phrase "cheaper fuels?"

Mr. HOPPER. I think the fuels are cheaper right now that we are planning to switch to.

Mr. KRUEGER. With regard to the incentives to withhold that were alluded to earlier, Dr. Thompson, there could very well be, I suppose, a variety of incentives to withhold. One of the things we had suggested in today's testimony and perhaps on other occasions is perhaps there should be certain incentives to withhold gas at least for the incentive of electricity.

If you talk of incentives to withhold natural gas in expectation of hope for higher prices, which would certainly be one economic reason for doing that, what are some of the offsetting circumstances on the other side of that equation that work against—I assume there are always some working for and some against—what are some of the factors on the other side of that question that would work against withholding natural gas? Are there any?

Mr. THOMPSON. Yes. People have to be able to afford to gamble. If they have that wealth, then they might be able—very well be able to suffer the penalty of continued regulation of gas prices at the current interstate level.

What they really see is a price that the last unsatisfied user will be willing to pay as far above the allowed price and the marginal cost of production in interstate sales. And this provides them with an anticipation that the gas price will be allowed to go higher because it is in the best interest of consumers of the Nation, it represents the cheapest alternative source of fuel.

Mr. KRUEGER. One final area I should like to explore in the time that has been generously given me is the question of windfall profits that we alluded to earlier; that is, the profits on the one hand that might accrue from much earlier expended costs and I wonder whether we might hear a bit of discussion from each of the two economists before us on the question of price controls as an effective tool in the public interest versus taxation policy, how do economic markets work most easily, what is the best means of allocating capital and what are the imbalances or the conservations effects of one against the other. in great cosmic economic terms before the gavel is raised, in just 2 or 3 minutes from perhaps each of you, your general judgment on price controls versus taxes as a means of handling distribution of economic incentives, and so forth.

Mr. HOPPER. I think we are both fumbling here in trying to get some handle on the issue itself. I have to rely on politics now, but I think politically speaking the windfall profits thing could be handled by taxation but, if you think about incentives, we still fall back on the notion of what level of surplus and what level of costs are going

to be allowed to remain and it might be true in the windfall profits situation which you are taxing you might find that you have more problems associated with directing those funds and regulating the reinvestment of those funds than you can handle.

Mr. THOMPSON. I would say to use the pricing system and windfall profits; you are then using price incentives. On the other hand, if we go with increased regulation, then we have to go with all the allocation controls associated with that.

With regard to the amount of old gas, we have estimates of that; that must be provided and windfall profits tax could be computed in a very straightforward way.

Mr. KRUEGER. Thank you again, Mr. Chairman.

Mr. Moss. I am rather intrigued by this question of how we control windfall profits tax and how price incentives will do the job.

It has been my experience that one of the great problems that we have with the windfall profit is first to develop an accounting standard, a generally acceptable accounting standard for the industry that you are going to extract the windfall profits from, the tax from. Do you find that would be a problem?

Mr. THOMPSON. Yes, you would have to have an accounting basis.

Mr. Moss. That might become almost as onerous on many of these companies as the present system of regulation.

Let me say that I happen to have spent quite a bit of time looking at accounting standards and how to develop them, both in the securities industry and in the petroleum industry. I am the author of the amendment that required the development of accounting standards for reporting in the industry and I am the author of the act that required the Securities and Exchange Commission to develop accounting standards, working with the Federal Accounting Standards Board for the securities industry.

And I see it here as a very major problem if you are going to use the technique of a windfall profits tax because you can create disincentives as well as incentives through such a device. You can penalize the efficient and reward the inefficient; isn't that true?

Mr. THOMPSON. You have to have accounting systems in the case of windfall profit taxes and in the case of the allocation system. The fundamental difference is in one instance you use a carrot and in the other instance you use a stick.

Mr. Moss. I have a problem defining it as a carrot. I think it is a mixture of a rather large squash that could be used as either the carrot or the stick. Maybe this is one that happened to get an awful lot of fertilizer and grew to Texas size proportions.

Mr. THOMPSON. Generally economic theory shows that your incentive system will be a cheaper cost system than your allocation system. That is a supporting element here. I can't go beyond that.

Mr. Moss. The committee listened to considerable testimony in the 1973–75 period when we were drafting the energy legislation that led to an imposition of the present controls and one of the things that was vigorously opposed as being totally unacceptable and unworkable was a windfall profits tax. I believe it was overwhelmingly rejected by the House when it came out in a piece of legislation from the Committee on Ways and Means.

I would suggest that a rereading of the testimony before this committee and the Committee on Ways and Means on this issue in the floor debates of the House would probably give a better picture of the practical difficulties of trying to move in that direction. They are significant, I assure you.

Now, on this matter of the ability to afford to gamble, to hold back products, in many instances we are faced with an industry that is not willing to gamble its own dollars. We had illustrations in testimony before this committee of Mobil having a field with 450 million cubic feet of proven reserves. It was held off the market because Mobil would not accept a certificate of the type usually granted by the Federal Power Commission and it is my information that this field while completed, is still not in full production even though all of the front money, every dollar of it, was put up by the pipeline companies out of their customers' money and not a dime of it by Mobil.

Now, you can hold quite a while on a hope of expectations in that situation, can you not?

Mr. THOMPSON. It seems so. I have never heard of this case exactly before.

Mr. Moss. Are you aware that the practice of pipeline companies of putting up front money is a very usual one in recent years.

Mr. THOMPSON. I have heard of it, yes.

Mr. Moss. And it would have some effect on the ability to keep product off the market. This happens in the case of Mobil that it is one that is clearly committed by law to the interstate market.

I think there is just one other question on this matter. On the IBM, I say to my good friend Bob Krueger that I don't think the demand for IBM computers is as widespread as the demand for heat or energy.

There is a difference between the arms-length dealing in a free market as opposed to an unfree market; is there not?

Mr. THOMPSON. I think this is the main point. When we talk about market prices, we are talking about a workable type of competition, we are not talking about laissez faire. We are talking about a type of competition where you define the rules of the game but you do not run the game. There are certain incentives basic to running the game within the rules that you can define.

In the case of comparing IBM to energy you have one case here where products are much more of a necessity than another case. As an economist would say, the demand for computers is more elastic to price than the demand for gas. People have more flexibility generally.

I think the whole point, the point that is so central is, what is the cheapest way we can provide energy to consumers of this Nation in the period of the 1980's? We have largely exploited our oil reserves because of the favorable incentives in the past. We have not exploited our gas to the rate we have exploited oil because initially gas was flared because we had no use for it. Then it was a byproduct of oil. Finally it was a coproduct of oil and you might say it is now. It appears that in the not too distant future it might become even a much more favorable product relative to oil.

There is supply potential in the case of gas that we can turn on with higher prices which represents one way we can stop this worsen-

ing trend of energy dependence while we are having utilities transfer from petroleum products, oil or natural gas, to coal.

Mr. Moss. Is it the only way, Doctor? OPEC sets the price and what we are trying to do now is have all producers of energy in this country, whether it is coal or gas or whatever, rise to what OPEC has set as the standard, particularly when you start talking of Btu equivalents.

Now, OPEC did it with a minimum of resistance from our Government and with the acquiescence of our producers. They didn't fight.

Go back to the history of OPEC and it was almost an American product rather than a foreign product. Now, OPEC decided that it would charge us all the market would bear at a time when it looked advantageous and figured that we were not going to resist them. We have seen evidence, I think fairly strong evidence that OPEC can crack, it has crumbled in a few spots, there has been some lowering of prices by OPEC; am I correct?

Mr. THOMPSON. It has been reporting certain people are selling on the side.

Mr. Moss. That is my understanding. Perhaps if we had a little more vigorous effort on the part of our Government using more vigorous mechanisms as we did it in World War II, when we acted as a buyer for all the petroleum in the entire United States; I think that market could become competitive if we were to apply some of the pressures to make it competitive, at least a lot more competitive than it is now.

I don't think OPEC would remain monolithic. I think it would fragment under proper encouragement from this country.

We have had a policy since the early seventies of total acquiescence in whatever they wanted. As a matter of fact, we went beyond that in gas, we almost forced the Canadians to make the border pattern pricing that has now emerged. We didn't resist it. I think we did an unbelievably inadequate job of speaking for the American consumer interest with Canada. There were a lot of tradeoffs along the border. We didn't use them. We have not attempted, as a Government, to use our leverage to try to bring this market back to something resembling a rational market.

What is the cost of petroleum? In the Middle East it is very low. I recall when testimony was given by members of the industry in your State in 1973, they told us if we would give them the foreign order price, we would give them enough to allow for the recovery of costs plus an incentive to produce. We gave them a price of $5.25. We were told that was not adequate, we had to go up to about $11 to have an adequate price. What is the fair and reasonable price? I think we should address ourselves to that and try to determine how much of the total product of this Nation we can direct into energy, how much is it wise to put into energy? I don't think we are totally the captives of the OPEC nations unless we are willing captives.

Mr. THOMPSON. I would agree with you. We have to somehow get the use down and, where we have a potential at relatively low cost to the consumers, we have to get production up.

Mr. Moss. I think we must encourage the use of alternate sources. We have talked today of coal. There are significant areas of the Nation where there are geothermal resources. That can be developed.

I don't know that the synthetic fuels are as promising as has been painted but I know we could accelerate some of our research efforts.

Fortunately, we are beginning to do that. Nuclear is an excellent source of fuel and, if we block the present effort to force the price of nuclear fuels up artificially, it can remain fairly inexpensive from the fuel standpoint, although it is fairly high cost per installed kilowatt generating capacity. It is a very high price from the investment standpoint. We have always the possibility—we never know when it will occur—of the dramatic breakthrough in fusion, which could change the whole pattern and give us an abundance of energy.

Mr. THOMPSON. Yes; that is true. We are talking here largely of timing and cost to the consumer. What is the near-term problem in the next 10 years or 20 years, and the years after that?

My point is that we have a very serious problem because of a lack of policy to reverse the tendency on imported oil. We are becoming increasingly in a critical situation with imports rising up to around 40 percent of our use. We somehow have to get alternative energy sources to consumers at a modest cost in the next 10 years, then in the period of 10 to 20 years and the period thereafter.

My point is, considering the different costs of bringing things into production, that increased production of natural gas at higher prices represents the cheapest cost fuel to residential, commercial, and many industrial users in the next 10 years. That is given, of course, the utilities go coal. That will give us a certain amount of time to stabilize the present unfavorable, increasingly unfavorable energy situation in this country. It will do it at a cost that is the lowest in terms of different alternatives to consumers. And it will allow us to make a relatively smooth transition in this country from petroleum-based products to coal and then alternative sources of energy.

Mr. Moss. Dr. Hopper, would you like to comment?

Mr. HOPPER. I wish I could be as sure as everybody seems to be that we can find the gas by jacking the price up. I just don't have that confidence. Certainly we are going to have to shift over and certainly we may have to live with higher prices. Certainly we may wind up—the industry has been on strike since 1946. They decided then and there they didn't like regulation and they weren't going to live with it. They have not and I think we may have to accept that because you see other big organizations, American Telephone and Telegraph sometimes decides it does not like to do certain things and it does not.

So we may have to live with this sort of situation but I think in the interim, in the transition, people deserve to have a breathing spell and I think there is a better way to do it than by just getting the price up and restricting demand on that basis.

Sure you can restrict demand on the basis of price, but I think the consumers deserve a little better than that. I would like to see what would happen if you totally deregulated it.

Mr. Moss. There is also some restriction on price. I recall last winter when the Potomac Electric Power Co. had petitioned for an increase in rates here because of declining demand and they needed to have the high level of return in order to service their bonds.

So we find that if people conserve and reduce the use, then they are priced higher because they have not supplied the flow of cash necessary to service the needs of the utility.

So there is an interesting bind that occurs that we have to take cognizance of.

My concern goes to the fact that I just don't think that the customers can continue to allocate a growingly disproportionate share of their income to energy and I don't think that there has been a case made that that is necessary in order to secure production. I think that your figure, Dr. Thompson, that you gave in April to the Texas Legislature of about $1 to $1.15 being the area within which you would get your maximum price response is probably a lot closer than the one that is actually being charged today.

The 52 cents figure you use in your paper, of course, is not the figure being used around the country, it is considerably above that and in the interstate market considerably above that. So the 52 cents was a figure but it is not now.

Mr. THOMPSON. You are saying with variances they are now being allowed to sell.

Mr. Moss. No, the Federal Power Commission raised the price.

Mr. THOMPSON. We have a question whether or not it is an effective price because of the judicial ruling.

Mr. Moss. It is effective. The question of the judicial ruling was whether or not there would be arrangements for refunding. That is the issue.

Gentlemen, I do want to thank both of you. You have been very patient and supplied us with material which I think will be very helpful in the committee's deliberations.

The committee will stand adjourned.

[The following letter was received for the record:]

UNIVERSITY OF HOUSTON,
Houston, Tex., September 15, 1976.

Hon. ROBERT KRUEGER,
Cannon House Office Building,
Washington, D.C.

DEAR CONGRESSMAN KRUEGER: I enjoyed the opportunity to testify before the Subcommittee on Oversight and Investigations of the Committee on Interstate and Foreign Commerce of the United States House of Representatives. I hope you found my testimony substantive and my response to questions helpful to the Subcommittee's responsibility.

Since returning, several points of clarification have come to mind which I would like you to insert in the record of the Hearings:

(1) The 1974 study for the Texas Governor's Energy Advisory Council, "Relationship Between Supply/Demand and Pricing for Alternate Fuels in Texas: A Study of Elasticities," by R. G. Thompson, R. J. Lievano, R. R. Hill, J. A. Calloway, and J. C. Stone had the following particular characteristics:

(*a*) All prices and costs were expressed in 1972 dollars. The Consumer Price Index (1972=100) was 118 in 1974 and 136 in 1976 (mid-year). This means the market-clearing price of natural gas of 60 cents per 1,000 cubic feet in 1972 dollars is 82 cents per 1,000 cubic feet in 1976 dollars;

(*b*) The price increasing effects of environmental waste discharge standards on the market-clearing prices of natural gas were not evaluated in the study;

(*c*) The study was completed before the U.S. Geological Survey's revisions of potential reserves were reported; if the revisions are correct, lower potential reserves will decrease the finding rate from increased exploratory drilling and contract the supply of gas at every price;

(*d*) The study was also completed before the depletion allowance was revised downward from a uniform 22½%; the much lower depletion allowances will contract the supply of gas at every price;

(*e*) Based on historical experience, drilling activity was restricted to a maximum expansion of 20% per year; this limitation induced insensitive supply responses to high prices of gas; and

(*f*) The supply function for natural gas in the lower 48 states was extrapolated from the supply function for natural gas in Texas, because of limited time and resources; this extrapolation may give optimistic forecasts of gas production for prices generally below $1.00 per 1,000 cubic feet.

You may recall that points (b) and (c) were made in my response to Dr. Calloway at the Hearings.

(2) My testimony before the Subcommittee of the Texas Senate on Consumer Affairs, Natural Gas Hearing, April 13, 1976, Senator R. Clower, Chairman, was generally directed to the following points:

(*a*) A general description of the supply response to price for natural gas produced in Texas was provided; the supply functions estimated in the 1974 study were the primary reference framework; and

(*b*) All references to price in the Texas Senate testimony were in terms of average prices for old and new natural gas; this point was made explicitly by me, "Now I've been talking here in terms of average prices for gas . . ." It was further underscored later that same day by Mr. Alvin Askew, Executive Director of the Texas Governor's Energy Advisory Council, who said, "Something that I want to point out in the numbers that Dr. Thompson refers to in his model are average costs for old gas—not new gas." Dr. Milton Holloway reported at the same Hearing, "The average price of all gas produced in Texas in the fourth quarter of last year—that is the fiscal year—was approximately 50.8 cents, as estimated by the Comptroller.

We are currently updating the 1974 economic analysis for the Texas Governor's Energy Advisory Council. This analysis, which is presently planned for completion this fall, represents an effort to overcome the primary shortcomings of the earlier study.

I hope you find these comments helpful in fulfilling your responsibilities in the Congress. Please feel free to call on me if I can be of further assistance.

Sincerely,

RUSSELL G. THOMPSON,
Professor of Business Administration.

[The following correspondence and statement were received for the record:]

MOBIL OIL CORP.,
New York, N.Y., September 22, 1976.

Hon. JOHN E. MOSS,
House of Representatives,
Washington, D.C.

DEAR MR. MOSS: During the course of a hearing on September 10 by the Subcommittee on Oversight and Investigations, which you chair, you stated Mobil had a well which was "held off the Market," and was "not included . . . in the inventory of total reserves because Mobile [sic] would not accept a certificate of the type usually granted by the Federal Power Commission," and that the well "while completed, is still held off the line, but all of the front money, every dollar of it was put up by the pipeline companies out of their customers' money and not a dime of it by Mobile."

I assume you are referring to Mobil's Grand Isle 95 Field off Louisiana. You may recall I testified before your Subcommittee on January 23 concerning this same subject. I explained Mobil acquired interests in the relevant blocks in the September 1972 lease sale; that we made a discovery in November 1972, that we ordered expensive platforms and production facilities in an attempt to bring this field on production at the earliest date possible; that we entered into an advance payment loan agreement on March 4, 1975 with Trunkline Gas Pipeline; that we applied for the necessary FPC certificate in March 1975; and that, if the certificate had been issued as anticipated, we would have been able to start production in November 1975. However, the certificate was held up due to requests by the FPC for extensive additional data, and because of attempts by the FPC staff to condition the certificate in an unprecedented manner which amounted to an unlawful attempt to rewrite our contract. Even in September 1975, additional conditions were imposed.

Production facilities for Platform A were substantially completed in November 1975 and had the pipeline been connected, production could have started in November of 1975. Because of the failure of the FPC to grant our certificate

in timely fashion, some 60 to 70 million cubic feet per day of gas did not go to the public last winter. The sole reason the public did not get that gas on schedule last winter is that the FPC staff tried to change policies and dictate our contract terms. As I tried to express before your subcommittee, this was beyond the FPC's jurisdiction and was not in the public interest, as subsequent orders by the FPC confirmed.

Platform B production facilities were completed this summer and should enable additional production of 90 to 120 million feet per day. Again I would like to point out that until we have some production history, production rates are extremely difficult to fix.

On September 10 we publicly announced the beginning of natural gas production from Grand Isle 95 Field. Deliveries commenced from the A and B Platforms to Trunkline on September 2, 1976. A copy of our announcement is attached. As shown, Mobil share of production from these two platforms is expected to be approximately 115 million cubic feet per day.

It is obviously to our benefit to generate revenue as quickly as possible. The advance payments which Trunkline advanced to Mobil under the terms of our contract went for exploration and development expenditures which will have to be repaid. But Mobil also invested about $33 million in lease bonuses, and those were not covered by any advance payments. In view of this large capital investment, Mobil has no incentive to withhold production.

We hope you will make this letter and the attached announcement a part of the record.

Very truly yours,

J. E. EARNEST,
Manager, Natural Gas.

MOBIL NEWS RELEASE

NEW YORK, SEPT. 10.—Mobil Oil Corporation has begun natural gas production from Grand Isle 95 Field and West Cameron 533 Field, located offshore Louisiana.

Deliveries to Trunkline Gas Pipeline Company from Grand Isle 95 Field commenced September 2, 1976, and Mobil expects to supply approximately 115 million cubic feet of natural gas per day from platforms A & B. When production facilities have been installed on Platform C, and necessary FPC certification obtained, Mobil will start additional deliveries from the field.

In West Cameron 533 Field, deliveries to Natural Gas Pipeline Company began on September 5, 1976, and Mobil expects to be supplying approximately 40 million cubic feet of natural gas per day.

Natural gas production from platforms A & B of Grand Isle 95 Field was delayed, awaiting required FPC certification. Although applied for in March 1975, certification was not obtained until June 1976.

U.S. HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS OF THE
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C., October 12, 1976.

Mr. J. E. EARNEST,
Manager, Natural Gas,
Mobil Oil Corp.,
New York, N.Y.

DEAR MR. EARNEST: Your letter of September 22, 1976, with enclosure, concerning the Grand Isle 95 Field, has been received and is being included in the record of the Subcommittee's hearing of September 10, 1976.

You reiterate Mobil's position as stated in your testimony before this Subcommittee last January—that, in substance, the delay in bringing gas on line from Platform A of Grand Isle 95 was attributable to the Federal Power Commission's attempts to condition the certificate in an unprecedented manner which, you contend, amounted to an unlawful attempt to rewrite your contract with Trunkline Gas Company. The fact is there was no justification for Mobil's attempt to obtain FPC certification based on a 10-year contract term, given the substantial quantity of reserves involved. The public is entitled to an assured supply and price for at least 20 years, especially for gas on public lands. Neither was there justification, on the part of both Mobil and the FPC, for the loss of production from this field during the 1975–76 winter heating season.

You state on page two of your letter: "It is obviously to our benefit to generate revenue as quickly as possible." In the case of Grand Isle 95, nothing could be less obvious. The economics of the situation simply do not support your statement. Had Mobil commenced production from Platform A in November 1975, as it could have, the gas would have sold for about 53¢ per Mcf. Daily production of 60MMcf (your lower estimate) over the 8-month period from November 1975 to July 27, 1976, when the FPC issued Opinion 770 increasing the rate, would have produced total revenues of approximately $7.6 million. By its failure to bring this gas on line last year, Mobil now stands to realize a substantial profit.

As a result of Opinion 770, Mobil, in late August 1976, filed with the FPC for a rate increase from 53¢ to $1.45 per Mcf. If Mobil's rate increase is approved, retroactive to September 2, 1976, when the gas came on line, production from Platform A over the next eight months will generate revenues of some $20.8 million, compared with the $7.6 million for the same volume of gas if production had started in November 1975. Quite obviously, it was *not* to Mobil's benefit "to generate revenue as quickly as possible" in this instance. And Mobil's share of this additional revenue will more than offset the interest payments on the $33 million Mobil has invested in lease bonuses in this field to date.

Further, it is both pertinent and interesting to note that in May 1976, Mobil amended its contract with Trunkline to extend the term from 10 to 15 years—the principal issue that Mobil was unwilling to consider a year earlier.

I also note that while natural gas production in the Grand Isle 95 Field commenced on September 2, 1976, Mobil did not publicly announce these deliveries until September 10, the same day that I commented on the Grand Isle 95 situation at a hearing of this Subcommittee.

Sincerely,

JOHN E. MOSS,
Chairman, Oversight and Investigations Subcommittee.

STATEMENT OF A. V. JONES, JR., PRESIDENT, INDEPENDENT PETROLEUM ASSOCIATION OF AMERICA

THE FOLLOWING ASSOCIATIONS JOIN IN OUR STATEMENT: EASTERN OKLAHOMA OIL PRODUCERS AND ROYALTY OWNERS ASSOCIATION, MICHIGAN OIL AND GAS ASSOCIATION, NORTH TEXAS OIL AND GAS ASSOCIATION, OKLAHOMA INDEPENDENT PETROLEUM ASSOCIATION, PANHANDLE PRODUCERS AND ROYALTY OWNERS ASSOCIATION (TEXAS), PENNSYLVANIA OIL, GAS AND MINERALS ASSOCIATION, TEXAS INDEPENDENT PRODUCERS AND ROYALTY OWNERS ASSOCIATION

My name is A. V. Jones, Jr. I am a partner in Jones Company, Ltd., an independent oil and gas exploration-producing organization at Albany, Texas. I am appearing here as President of the Independent Petroleum Association of America (IPAA), a national organization of more than 4,000 independent oil and natural gas producers who operate in every producing area. In addition, this statement is presented on behalf of Eastern Oklahoma Oil Producers and Royalty Owners Association, Michigan Oil and Gas Association, North Texas Oil and Gas Association, Oklahoma Independent Petroleum Association, Panhandle Producers and Royalty Owners Association (Texas), Pennsylvania Oil, Gas and Minerals Association, and the Texas Independent Producers and Royalty Owners Association.

The July 27 order by the Federal Power Commission setting the national rate for new natural gas at $1.42 and establishing new rate schedules for flowing gas will not, in our opinion, overcome the shortages already experienced and those anticipated. It was a substantial step in the right direction. We commend the Commission for its action which was a significant breakaway from two decades of unrealistic price regimentation that has brought on our present natural gas shortages.

The increase from 52 cents per Mcf to $1.42 for new natural gas has been touted widely in the press as a tripling of gas prices to American consumers. Those who have parroted this line of attack should know better.

The price of natural gas has long been depressed and is inadequate and unrealistic by any means of judging either the fairness to producers or counter-productive effects on consumer supplies. For purposes of putting into perspective gas prices, both as they have been and are proposed by the FPC, I offer the following observations:

1. As the FPC has pointed out, the rolling in of the higher priced gas ($1.42 for gas dedicated after 1/1/75, and $1.01 for that dedicated from 1/1/73 through 12/31/74) will impact minimally on consumers. The average residential gas bill would increase about $15 to $16 per year, or about six percent.

While the consumer impact would be moderate, the economic impact on natural gas exploration and development could be—in our opinion—immediate and extensive. The stimulus to develop very deep sedimentary basins and so-called "tight" formations onshore, as well as difficult and costly offshore reserves—all uneconomic at present prices—would be evident within months. If these new exploratory initiatives succeed in bringing on substantial additional natural gas committed to the interstate market, the future impact on consumers will be much less than if they are left to depend on far more expensive alternatives.

If these intiatives are not successful in bringing on sufficient new gas to alleviate present shortages, then the cost to consumers will be *nothing*. Consumers still would have to shift to more expensive alternatives, but this cost is not affected by FPC established rates.

2. Even after the immediate $1.5 billion increase in producer rates, the average wellhead price of natural gas sold in interstate commerce will be less than 39 cents per thousand cubic feet. *This equates to crude oil selling at $2.34 a barrel.* By contrast, the composite price of domestic crude oil under federal controls is about $7.80 and the laid-down cost of imported oil approximates $13.50 per barrel.

It is important to realize that much of our growing dependence on insecure foreign oil—which can be cut off at any time—is attributable to the domestic shortage of natural gas, because the unmet demand for gas has been offset primarily by increasing oil imports.

3. Even the maximum price for domestic natural gas established by the FPC, $1.42 per Mcf, is below alternative energy options available to consumers. It is below the cost of imported oil. It is below the price of liquefied natural gas (LNG) that can be imported, and lower than synthetic natural gas (SNG). It is cheaper than Canadian gas which presently sells for $1.60 and has been raised by the government in Ottawa to $1.94 per Mcf, effective next January.

Significantly, the price suggested by the FPC also is below the price of natural gas in the intrastate market, and is lower than the new gas price ($1.60 per Mcf) in the pending bill (S. 3422) approved by the Senate Commerce Committee.

4. In 1975, the 10,000 producers of petroleum fuels in the United States produced at the wellhead 39.9 quadrillion British Thermal Units (Btu's) of energy, with 22.2 quadrillion Btu's or about 55.6 percent in the form of natural gas, the remainder being crude oil. The total wellhead value of both gas and oil was $31.9 billion, of which $23.1 billion was the value of the crude oil produced, while the total value of natural gas production both inter and intrastate was only $8.8 billion.

Domestic production of natural gas has exceeded crude oil production on a Btu basis since 1964. While natural gas production in 1975 accounted for 56 percent of the combined oil and gas Btu production, it contributed only 28 percent of the combined wellhead value of oil and gas. The underpricing of natural gas relative to oil and other energy sources has persisted far too long and the prescribed new rates are a belated but much-needed step toward correction of this situation.

It is even more significant that after adding in the $1.5 billion increase in natural gas revenues advocated by the Federal Power Commission, if we assume the 1975 production ratios between crude oil and natural gas, revenues for natural gas still would represent only 30.9 percent of the gross value of domestic petroleum fuels at the wellhead.

In spite of this, critics of our industry are not satisfied with these facts and have simply because we continue to repeat the well-known fact that domestic oil and gas prices must rise if we are to bring on more production in the deeper formations onshore and in the more expensive offshore domains. We are criticized by them for pointing out that for every Btu consumed that is not produced domestically, we have to import that Btu from insecure, expensive, foreign sources.

In response to these charges, we are compelled to ask some questions of our own. Where is their answer to our precarious energy problem? What do they propose? How long can they tell hundreds of thousands of American families denied new natural gas hook-ups that they are second class citizens when it comes to energy? If it's not new oil and gas production, what is it? Nuclear?

The same critics of oil and gas shout even louder "no's" to nuclear. Oil shale and tar sands? Continued government price fixing of oil and gas, which keep these fuels at artificially low prices, leave those sources from our reach. Again, the same critics have a whole laundry list of reasons why we can't and shouldn't mine and use our abundant coal reserves.

To these critics we say it is time they took a positive stance and came forth with some answers for Americans who want reliable sources of energy at fair prices. If their answer is nationalization, we need only to point to the Postal Service and numerous urban transit authorities to prove that government operation of business ventures has been and continues to be a disaster from the standpoint of the consumer and the taxpayer.

In conclusion, we hope the legal issues can be resolved quickly so that the new FPC order can take effect soon. Many legal questions remain, especially for independent producers, even after issuance by the FPC of its refund obligation order. Likewise, we hope the Congress will take no action counter to the FPC order. In fact, we are here today to urge the Congress to move ahead on its unfinished business of decontrolling new natural gas prices once and for all.

[Whereupon, at 12:05 p.m., the committee adjourned.]

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