

P U B L I C H E A R I N G

before

SPECIAL SENATE COMMITTEE
TO INVESTIGATE THE AVAILABILITY OF NATURAL GAS
(Established pursuant to Senate Resolution Number 3004)

Held:
August 4, 1977
Assembly Chamber
State House
Trenton, New Jersey

MEMBERS OF COMMITTEE PRESENT:

Senator Raymond J. Zane (Chairman)
Senator Barry T. Parker
Senator James P. Vreeland

ALSO:

Norman Miller, Research Associate
Legislative Services Agency
Aide to the Committee

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SENATOR RAYMOND J. ZANE (Chairman): This is the first meeting of a Special Senate Committee to Investigate the Availability of Natural Gas.

I have a couple of opening remarks which I think establish the objectives of the Committee.

In 1976, the U. S. Energy Research and Development Administration under its Policy Analysis Division compiled and released an exhaustive study entitled, "New Jersey's Natural Gas Shortage: A Policy Analysis." In that report of 1976, it stated, "No state in the nation has a greater gas shortage than New Jersey, in terms of both volume and percentage of curtailment. Some have lost a greater volume of gas. Others have faced larger percentage curtailments, but none rank higher in both categories. Projections indicate that the winter of 1976-77 may prove even more problematic with respect to the availability of natural gas to New Jersey's basic needs. A colder than normal winter in 1976 could pose serious problems in New Jersey." This was stated in 1976. It does not take an analyst to realize that this last sentence was indeed a prophesy. And because of the severity of last winter, it has brought to light a situation which we all knew had been lingering on the horizon for some time.

But a major difference occurred, however. As fears of the past turned to the realities of the present, schools closed, factories and businesses shut down, and threats of martial law surfaced. A new vocabulary emerged: "curtailment," "peak seasons," "synthetic natural gas - SNG," etc. Called upon to make sacrifices by the Governor and the President, the citizens of New Jersey responded in order to help meet this immediate crisis.

Then, after the bite of winter had passed, a new development: We were now being told that some of the utilities which a few short months ago were declaring that there was no more natural gas were asking permission to take on additional customers. Credibility, I believe, has indeed become an issue.

This then forms the background of the founding of this Committee. Our purpose is not to point an accusatory finger or merely entice publicity. Our purpose will be to probe the questions that remain unanswered and to insure the general public that the utility policies which economically affect them every day will not be concealed from them in any way.

The newly created Department of Energy is an indication that the entire issue of supply, demand, allotment and conservation of fuel will be gathering increased attention in the months to come. It is our hope that this Committee will provide a major step towards New Jersey's efforts to not only meet the problems of the present, but to avoid the crisis of the future.

Gentlemen, I believe that that, in a nutshell, is the position of this Committee.

There are two other Committee members on the way. I know there is a time problem for both Mr. Bowen and Mr. Betz. So we will move on. We have with us another Committee member, Senator Vreeland, who is sitting to my left. Senator Parker and Senator Bedell are on their way. Senator Wiley will not be in attendance today.

Senator Vreeland, are there any remarks that you would like to make?

SENATOR VREELAND: No, Mr. Chairman, except that I have questions in my mind which I will hold in reserve until after these gentlemen speak. The Transco and Public Service representatives are here. And I would prefer to ask my questions

of them after they speak, if that is all right with you. Thank you.

SENATOR ZANE: I would like to call our first witness, Mr. Bowen, who is President of Transco Pipeline. The Committee wishes that all witnesses be sworn, and the oath will be administered by John Tumulty.

(W. J. Bowen sworn.)

SENATOR ZANE: Mr. Bowen, that may seem frightening to start with. But we want to create a very relaxed atmosphere about this whole thing. We just want to get to the problem.

Are there any opening remarks that you would like to make to the Committee?

W. J. BOWEN: What I would like to do, Mr. Chairman, is to sort of review the activities of Transco in increasing its gas supply, what are we doing to improve on our gas supply, and then review our projected situation for the winter that we are facing, the winter of '77-'78, and then talk about, say, the next ten years, both from a national standpoint and as far as Transco, and where gas is going to be available and, of course, whether there will be additional gas available for the growth in the residential, commercial and high-priority industrial markets. That is what I propose to do.

I will give you as complete an update on Transco's gas supply situation as I can. We are the major supplier to the State of New Jersey. We supply about two-thirds of its gas and we also supply about 80 percent of the gas to Metropolitan New York City.

So with that lead-in, I will go ahead and get started.

SENATOR ZANE: Thank you.

MR. BOWEN: Transco's gas supply has been reducing each year for about the last seven years. We used to deliver on our system about 3 billion cubic feet of gas a day. We are down to something a little over 2 billion now. We believe that we are at the bottom of the curve, that beginning towards the end of this year, our gas through-puts will start to increase, and they will continue to increase and we will build back up to a good deal higher level than we are now.

Now, in solving our gas supply problems, there are three ways that you can go about it. And we are actively pursuing all three ways. The first way, of course, is getting involved in exploration. All of our gas comes from Texas, Louisiana and a little bit from Mississippi. We started out 25 years ago with 100 percent of our gas coming from the onshore Gulf Coast and now it is about 75 percent coming from offshore Gulf Coast, Louisiana and Texas.

The main reason we have had this shortage on our system is, we have been unable to buy any gas that has been found in the onshore area for the last six or seven years. And everybody is familiar with that, but just for the record, it is because the price that we could pay for new gas discoveries was less, and recently considerably less, than the price that a purchaser who is going to use gas found in Texas, use it in Texas, could pay, or likewise Louisiana. So we were unable to buy any gas and we were really relegated to the offshore area. And that is true of the other interstate pipelines that get their gas out of the Gulf Coast of Mexico. That is the principal reason we have had a shortage of gas on this system. It is a reason beyond our control and it looks like Congress is finally at long last going to do something about it. And we will be able to purchase gas again for

New Jersey that is being discovered onshore Texas and Louisiana - and Mississippi. And it has been a long time coming. Congress has known about it, but they are finally going to do something about it. At least, that's what it looks like.

Well, to solve our gas supply problem, we decided one of the things we needed to do since we were restricted in buying gas or unable to buy a lot of gas that is being found, we'd better get into exploration where we could control where that gas went. So our company has become very active in exploration. We have also brought other companies in with us. In fact, Public Service Electric and Gas is a partner of ours in drilling ventures in the offshore area. And any gas that we find that is attributable to their interest, we'd haul up here to where we make deliveries in New Jersey. We have other gas distributing companies participating with us in drilling both onshore and offshore.

We are making that effort as strong as we can. Now we are not going to take over Exxon's place or Texaco's. But, for a company our size - for instance, last year, we put twice our net income, our total net income, in the company - we multiplied that by just about two and that is what we put into exploration and development drilling. And all the gas that we find is committed to Transcontinental Pipeline, our pipeline subsidiary, whether it is onshore or offshore. Whether we could get a higher price onshore or not, we make the commitment to the pipeline, as a producer. So that is going as hard as we can - as fast as we can.

We participated with Texaco in buying leases offshore New Jersey. We were fortunate in buying three leases and, of course, we have been unable to drill. Texaco is the operator under two of the leases and we would hope that we will be drilling out there certainly early next year. But there is tremendous potential offshore New Jersey. Our pipeline is the closest system. We would hope to be bringing that gas into the United States not only for Transco's customers, but for other pipelines where we would make deliveries to them. But we are very active in exploration. We have been successful and it is going to make a real contribution to our gas supply. And Transco got into it late. Other pipelines have been in exploration for many years. But Transco came in rather late. But we are catching up.

The second thing that we are doing to add to our gas supply, of course, is what we have always done; that is, buy gas that is found by other companies. We buy gas from over 200 fields, several hundred different producers, and I would say right today about 99 percent of the gas in our system is gas that has been found by some other company and sold to Transco under an FPC regulated price for delivery to our markets. And, as I said earlier, about 75 percent of our gas is coming from the offshore Gulf Coast -- very competitive in trying to buy this gas. Other interstate pipelines are actively seeking it and about two years ago we made the decision to get as aggressive as we could out where we could compete. Remember we can't compete onshore because we can't pay the prices that the other markets pay onshore. But offshore we could pay as good a price as anybody else. And we became very competitive. We ended up with making advanced payments on 195 of the offshore tracts, offshore Louisiana and Texas. I guess we become about the largest participant in the advanced payment program that the FPC permitted. Now they no longer permit advanced payment arrangements. But those that were in place are going to be honored and we expect to get a lot of gas out of these advanced-payment tracts. Each tract

is about 5,000 acres, and to give you some concept of the size of the target under those 195 tracts, the producers for the working interests dedicated to Transco paid bonus payments of about \$850 million. The exploration and development expenses were probably just about equal that and there have already been 65 discoveries announced and about 35 platforms.

So very little of the gas has come on yet. It takes anywhere from 3 to 5 years after you buy a lease from the federal government to get production on. The first thing you have to do is drill the wildcat wells and then you have to order the platform and then you do the development drilling - then build a pipeline out there. But it is going to start showing up and it has just started this year and it is going to get considerably bigger. By 1980 or '81, we should be getting the full deliveries out of these advanced payment tracts.

We are also trying to buy other gas that is being developed in the outer continental shelf that has not been committed. I want to make this point too, that while there is a considerable amount of gas in the offshore Louisiana-Texas area that is uncommitted that is being explored and developed at this time, it is not being held off the market in so far as time goes. Some producers elected not to take advanced payments. They felt that they would furnish their own money - and advanced payment is an interest-free loan paid back by the producer. They felt they would be better off if they did not take the advanced payment, but committed their gas later on in a timely fashion. The exploration and development work goes on at the same pace and, as far as the molecule of methane, the gas that comes out of the well, it will come out about the same day. But they will wait maybe till six or seven months before the development drilling is finished and the tract is ready for production to commit that gas to the market. Well, we are trying to buy that gas wherever we can.

Then I guess the best thing that is going to happen to the pipeline that serves your State, both Texas-Eastern and Transco, is to get the ability to compete again for new gas discoveries in the Texas-Louisiana Gulf Coast area. You should know this - that between Texas and Louisiana and Oklahoma, the Gulf Coast and the Southwest, including Oklahoma, you have about 70 percent of the gas in this country. So your supplier - and we cover that whole Gulf Coast area - we are in the best area. It is the most prolific; it's a mature area. But it has the greatest potential for the future. While we have been able to buy gas off-shore for the last six or seven years, now, hopefully, Congress is going to give us the ability to pay the same price that any other power can pay on new discoveries onshore Texas-Louisiana. Whether that is deregulated or whether it is a ceiling like the House passed yesterday of \$1.75, we do get that competitive parity.

Activity in drilling in the Texas and Louisiana Gulf Coast is as high as it has been in my memory. There is very active onshore drilling now. And it is going to be very active offshore. These higher prices have permitted this to take place. All the rigs are busy and a lot of discoveries are being made. And we expect to get, hopefully, more than our share of these new discoveries.

Now the third way we are going about improving our gas supplies is in the unconventional areas of gas supply - synthetics and supplemental sources. And this will be a great thing for the future of the gas industry. But it takes a long time and it is more expensive gas. In this category, I am talking about synthetic gas out of liquid hydrocarbons, synthetic gas out of coal, and imported liquefied

natural gas. Transco is involved in all aspects of this. We have been trying for several years now to put together and get under construction a large synthetic natural gas plant just south of Philadelphia. We have some \$40 million invested in the plant and its equipment, but construction has not started yet. This will be a big plant and be capable of making 250 million cubic feet of gas per day - remember that is over 10 percent of our through-put today - out of naptha or natural gas liquids. There are several of these plants operating in the United States and we would hope to start the construction of this plant early next year. It is high-priced gas, but it is gas that is needed, I think, for the proper balance and mix of Transco's long-term gas supply. It is long-term gas supply. This plant will be operating well into the next century. When I say high-priced, it is \$4 a million BTU, based on today's naptha prices.

But still, the capital cost of the plant is not so great - about \$200 million, to produce something capable of making 250 million cubic feet a day.

We have been working with the gas industry in research and development and with ERDA in research and development on coal gasification. You will recall back in 1925 - not many of you will, but some of us - all of the gas in the country was made out of coal. It was low BTU, poisonous. What we are talking about now is high BTU gas, 1,000 BTU's per cubic foot, nonpoisonous methane. And there are several different processes under investigation, not only by the industry, but in conjunction with ERDA, to find the most efficient way to turn some of our vast coal resources into natural gas.

I might just point out here the economics of this. Coal is our most abundant hydrocarbon. And, of course, anybody that studies the energy problem says, "Look this country has got to develop its coal reserves," which is true. This is our ace in the hole. We have tremendous supplies of proven coal reserves. Now you make electricity out of coal through steam plants. You can make gas out of coal. You can make electricity out of coal. New steam plants today cost something of the order of \$15 to \$16 million a million BTU. Coal gasification is of the order of \$4.50 a million BTU's. When you compare the capital costs, a coal gasification plant to make 250 million BTU's - 250 million cubic feet per day - a very big plant, costs about \$1,200,000,000. An electric plant to make the same equivalent BTU's out of coal, over \$3 billion. So, to me, it makes good sense for our country to be developing a whole new industry making methane, which is natural gas, out of coal, our most abundant hydrocarbon resource. And it is by far the cheapest way to use our coal and it is environmentally acceptable. There is no air pollution when you burn gas. The pipelines are underground. And what is very important, you can store it and take it out on the days you need it. And you do not store electricity. So I think that will be a tremendous thing in the future for the gas industry.

Now there are other sources of gas, what I would call unconventional sources of natural gas, that have tremendous potential. But it is going to take a real effort on the part of this country and the industry in research and development to find the most efficient way to unlock these other resources.

Let's look at a few of them - gas from the very tight reservoirs out in the Rocky Mountain areas. This is really tight sandstone. There are 5 or 6 hundred trillion cubic feet of proven gas reserves. Compare that to the known, proven, domestic natural gas resources to get a perspective on it. There are about 220

trillion cubic feet of gas, proven and producing today, except for Alaska, which has about 30 of that 220 trillion. Our annual consumption is about 19 1/2 trillion. It used to be about 21 1/2 trillion. So, you see, we have something a little over 10 years of proven supplies.

Now the conventional resources under the most likely case of natural gas to be found onshore and offshore are something of the order of maybe 700 trillion. Add that to the 200 trillion we have in the bank now. It is about 900 trillion. At the present rate of consumption, 20 Tcf a year, that is about 45 years. Now these unconventional sources of natural gas are over and above that, this 5 to 6 hundred trillion of gas in the tight sands of Western Colorado. Add to that several hundred trillion of known gas in the Devonian shales here in the eastern part of the United States - West Virginia and Ohio - tremendous resource of methane in Devonian shales and coal seams if we can find a way to extract it economically.

Then the biggest potential source, which should really reshape the whole energy economy of the United States, is methane from the very large geo-pressured aquifers in the Gulf Coast. Down around 15,000 feet, 16,000 feet or 20,000 feet in the Gulf Coast areas of Texas and Louisiana, both offshore and onshore, are tremendous supplies of hot brine, saturated with methane. You are going to have to produce an awful lot of salt water to recover the methane. But there have been several studies on this and tremendous numbers have been advanced as to the potential sources of methane just from the geo-pressured aquifers, something in the order of several thousand Tcf - even more than that. You hear numbers as high as 20,000 Tcf. It is such a big thing; it is just staggering.

Then, of course, the ultimate base of energy for the United States well into the next century could be hydrogen, which is gas, clean burning, easily transported in pipelines, stored. Combine it with oxygen and you make electricity in a fuel cell. That is probably the perfect fuel. But we have to find a way to unlock hydrogen from H²O in an economical and feasible way.

So when you add all of these things together, plus liquefied natural gas from foreign sources, which is a technology that is well known today - and it is in operation - I am very optimistic on the future of the gas industry.

Let me turn a little bit now to what this winter's situation looks like. Our flowing gas supplies are projected for the winter of November 1, 1977 to April 1, 1978, to be slightly less than they were last year at this time. On the other hand, the storage that is available ---

SENATOR ZANE: How much less, Mr. Bowen?

MR. BOWEN: Well, it will be something of the order of 20 trillion less -- excuse me, 20 billion less. And the magnitude of the total deliveries - about 300 billion would be delivered to our customers this winter on our system. So we have about 20 billion less this year than we went into last year's winter with. But if you look at the storage on our system, the storage has increased from about 110 billion cubic feet available to our customers to 132 billion cubic feet. We have put large sums of money in developing a storage field in Louisiana. We have been able to purchase some additional storage. So the net result is, we should be maybe something of the order of 10 or 12 billion cubic feet better off going into this winter than last winter.

The other pipeline that is serving New Jersey has also indicated that its supplies of gas will be better for this winter than for last winter. So I

think we will be in better shape. Certainly everything we see would indicate it. We do not anticipate any interruptions. We didn't have any curtailment interruption of residential or commercial last year. We certainly don't anticipate any this year. And, as far as the high priority industrial customers that are in effect on our system that are customers of the companies we serve, those that do not have alternate fuel capability - they have a process that only uses methane - we do believe we will have enough gas for those customers this year.

Remember last year was the coldest winter in 100 years and you had a very extended cold spell of about 20 to 25 days. Now sure you could have two winters like that back to back. But the odds of that are very high. So I think we will be in better shape. We should get through this winter without any serious trouble.

Now, beginning the winter of '78-'79, we expect to see our flowing supplies increasing, and they should continue to increase. And we are going to continue to add to our storage, to develop more storage capability on our system. And, at the same time, we are working on our synthetic gas plant. We are involved in two LNG proposals that are proposed, two LNG prospects; and, of course, the long-term coal gasification projects look good to us.

Let me just point to a couple of charts here which I think might bring home some of these figures. (See pages 1X, 2X and 3X.) Well, this is the curve right here of the Transco system (indicating). This is 10 years, 1972 through 1981. Over here on the vertical we have a measure of the average day through-put of the system - total amount of gas delivered to our customers in any one year, divided by 365 days. Here we are at 1 billion a day, 2 billion, and at 3 billion, which is our pipeline capacity. This used to be up about like that (indicating) and you see how it has been coming down. Now this is actual - five years actual. The red represents proven, dedicated fields, producing to our pipeline system at this time. You can see they are on a decline. Many of these fields are 15 or 20 years old. There is just so much gas and they are gradually sort of pooping out. The pressures have gone down and they don't produce as much gas as they used to.

The purple represents gas that we are hauling for customers up here that have come down and either found some gas or bought some gas. They tender the gas to Transco and we haul it up and make deliveries. Remember, as a pipeline, we do not make any money out of the gas, per se; we make money out of a return on our investment and facilities, which is regulated by the Federal Power Commission. As far as the cost of this gas, we get back exactly from our customers, to the penny, what we paid for that gas. The producer makes a profit on this gas. Some of them lose money. But they are the ones that explore and produce the gas and sell it to our pipeline.

Now this chart, I think, is a conservative chart because it is based on the assumption that Congress does not give Transco the ability to buy gas in Texas and Louisiana for the customers it serves in New Jersey. I don't think that is a right assumption anymore, particularly after what was passed yesterday in the House. But let's assume that, that we still don't get that competitive parity onshore Texas and Louisiana. We still think that our gas volumes are going to come up.

The yellow on this chart represents this gas that is committed to us under these almost 200 tracts offshore Louisiana and Texas. This is firmly committed to Transco. It is just now starting to come on, as the development work is being finished and the pipelines are being tied in. We are involved in four or five big offshore

pipeline projects now to start tying this gas in. And you can see it gets up to about 700 million cubic feet per day in just about three years. This is our best estimate. Maybe it will do a little better than that.

The blue on the chart represents gas that we found ourselves which we are selling to Transcontinental Pipeline, both onshore and offshore, principally offshore. And this gets up to be about 300 million a day, according to our best estimate - very significant in our company.

The green represents --- No, the green was the gas that we found ourselves.

The blue represents gas - it's about the same size - that we think we will be buying from other companies, both onshore and offshore that is not already committed to us. This blue could get a lot bigger if we get this competitive capability.

The purple represents gas that we haul for others, like some of the gas distribution companies that we serve that are drilling with us, like Public Service Electric and Gas that we will haul up here under a jurisdictional tariff. But if you add it all up, you can see how the volumes are going to go up.

Turning to a chart of the United States, this happens to be my estimate, based on the things that I have seen put out by the industry and put out by government sources and people that devote a lot of time to predicting what the future looks like in the energy business. This is 1976, actual figures on gas supply, and where did it go? - a very simple chart, supply and demand, actual figures: 21.2 trillion in 1976; 20.9 trillion was domestic natural gas and imports from Canada and Mexico; 19.9 trillion was lower 48 states - that is onshore and offshore; none from Alaska; and about 1 trillion came from Canada.

As far as the supplemental or synthetic sources of gas, only 3/10ths of a trillion - and that is all from liquid hydrocarbons - there are no LNG imports of any size at all at this time. Total it all up, you get 21.2. Where did that go? Highest priority, residential and commercial, took 7.8 trillion. High priority industrial use - feed stocks, processing, annealing, just where they need gas for special sources - I mean, special uses - 6.2 trillion. Low priority, 2.5. A total of 8.7.

Then power generation - large volume boiler fuel uses of gas to generate electricity, most of this in Texas and Louisiana - and, in Texas, most of the electricity is made with gas - about 3.0.

Then, other uses, 1.7.

How can that change? And this is what I think New Jersey has got to look at. I have two estimates here: a low estimate and a high. I also have a chart that just goes to Transco and I will get to that in just a minute. I am almost finished with my presentation.

I will try to be conservative on this - as conservative as I can be about the gas industry. Domestic natural gas, including imports from Canada and soon Mexico - I put that at 1 trillion, put Alaska at 1 trillion, and 16 trillion for the lower 48 - a total of 18 trillion. Supplemental - .6 from synthetic gas plants, .4 from coal - only four plants in the next 10 or 12 years, 1 trillion from LNG. There are already about 1.8 trillion that have been announced. But let's be conservative on it. That is 20 trillion.

So where is that going to go? Well, power generation is going to drop off because power companies are going to have to convert to coal in many cases. So that is going to go from 3 trillion, let's say, to 1 trillion. This gas has to go somewhere

if we are going to be at 20 trillion, which I think is a conservative estimate. You have room to go in residential and commercial. This is a very fast growth rate, getting up to 9 trillion by the year 1987, let's say. High priority industrial, 6.2 to 7.0. Low priority industrial would drop off.

Let's go to a more optimistic estimate of the gas industry ten years from now. I think we can do this really. I think we can maintain 19 trillion a year from the lower 48 states, offshore and onshore, with a very active drilling record, whether that is by a very high ceiling or whether it is deregulation of new gas. But I am assuming all the drilling rigs are going to stay busy and the federal government has an adequate number of federal lease sales so that the offshore areas can be explored to the maximum extent possible. Alaska, 1.5 trillion; imports from Canada and Mexico - so Canada drops down to 3/4 of a trillion - Mexico could come up to 3/4 of a trillion - 1.5 trillion. Total 22 trillion.

SNG from liquid hydrocarbons, .7; SNG from coal, let's say 8 plants - we can certainly do that in this country - .8 of a trillion; LNG imports, 1/5 trillion, which would be less than 10 percent. The gas is available if we want to do it. It is expensive, but we can do it. The technology is known. Add it all up, that is 25 trillion.

Then you work on the demand side and you can see residential and commercial growing to 10 Tcf, a tremendous growth rate. Of course, I am of the opinion that the homes in this country ought to be heated with natural gas, the new homes. They ought to do their cooking, their drying, their washing, with gas. And I think we will have the gas for it. I think it will be the most economical way to heat a home and to do clothes drying and cooking.

Industrial goes up to 8 trillion.

Now let's get on to the Transco system - and it follows about the same pattern. Last year, 632 billion - of that total of the industry, six hundred and thirty-two was Transco. All of it came out of lower forty-eight - no supplemental, no synthetic, no LNG, nothing from Canada, nothing from Mexico or Alaska. Where did it go? Four hundred and twenty billion went to residential-commercial; 181 went to high priority industrial. And we had 6 billion, which is about 1 percent, that went to power generation.

Now going to the next ten years, under what I consider a conservative approach for Transco, I can see our domestic production at 700 billion a year, of which 150 will come out of existing fields - that is going from 632 down to 150; 500 from new fields we will be attaching to the company's system; and then 50 we will be getting from either Alaska or Mexico. SNG - I assume that half of that plant would come on to the Transco system; LNG imports, I assume we will be involved in one at about 200 million cubic feet per day. Add it up - it is 800.

You get a good growth rate in residential and commercial when you do this of about 2 1/2 percent a year; and you get a growth rate in high priority industrial usage. You get no growth in low priority industrial. That is wiped out. And, of course, power generation is wiped out. You go to a higher estimate. You come up with a little over a trillion and you have something over 3 percent growth rate in residential and commercial; a strong growth rate in high priority industrial; and, of course, you maintain your low priority industrial - but no power generation.

That pretty well completes my story on Transcontinental and the natural gas

industry. I am quite optimistic about it. I feel good about this winter and I want to assure you that Transco is your principal supplier. We are doing everything we can to augment our gas supplies.

SENATOR ZANE: Mr. Bowen, I am sure we all have questions. Before we do, I would just like to acknowledge that, to my right, is Senator Parker, another member of the Committee.

Mr. Bowen, I would like to ask a few questions at the outset. Is there any particular attitude that is adverse to our interest that is common in the Gulf area where the main producers are, that prevails through the producers?

MR. BOWEN: There is no attitude. It is a very obvious economic fact that if any company, whether it is an independent or a large major finds gas, say, out of San Antonio or north of Houston or in Texas, they are going to sell that gas to a Texas market. That is because they will get paid more for it. So there is nothing about an attitude there.

Offshore, any discoveries made out there, I think Transco can compete for it as well as any other company; and there is no attitude at all, other than the attitude that the producer wants to get that gas on stream as quickly as he can and at as high a rate as he can, which is exactly the way you want it too.

SENATOR ZANE: Are there supplies today that you have under contract that are capped, that are capable of producing, but they are being held off the market?

MR. BOWEN: I know of no gas that is being held off the market. All of the gas that is being found in Texas has gone to the market very promptly and it is being consumed in Texas and it is being used by residential-commercial and industrial markets in Texas. I don't know of any uncommitted gas in Texas. If I did, I don't think we could buy it.

Offshore - there is uncommitted gas offshore. There are wells that are capped, but they are tied into platforms where there is still development drilling. And you do not start producing these gas wells until you complete your development drilling and you complete your production facilities. This is not true of some oil fields. Some oil fields start oil production and the associated gas with the oil can be produced. But it is my understanding - and it is certainly our experience in the platforms that our company is developing today - that we are going to finish the development drilling before we tie in the pipeline. Now that is true of uncommitted gas too; and as soon as you get to a point of maybe 6 or 7 or 8 months, or maybe even 5 months, to that point where your development drilling will be finished and your production equipment is installed on the platform, then those producers will make a sale of that gas. But, as far as the day when the gas comes out of the well, it is the same day, whether it is committed now or committed then, in my opinion.

SENATOR ZANE: Is there any deliberate delay in the producing systems?

MR. BOWEN: None that I know of. I think, as an explorer out there, even if we weren't a gas buyer, we would have every incentive to go ahead and drill the leases as soon as possible, do the development drilling, and get the gas on production. It's a very simple law of economics - the present worth of money. These bonuses that are paid to the federal government are very large indeed. Some of these tracts have gone as high, just for one tract, \$200 million, just for the privilege of drilling wildcat wells on there. Of course, they had pretty good

seismic information and felt like they had a good oil or gas discovery. But, with that much money tied up - and it is all regulated gas - the producer wants to drill the wells as soon as possible - one real test of it, all those rigs are busy; and drill the wells; order the platform - and there is about a two-year wait on most platforms now because the demand for platforms has gone up so much; then the development drilling; and then tie it in.

SENATOR ZANE: Do you think there is any relationship between -- I am not really sure I should say "shortage of natural gas" after your presentation, but I will, for want of a better term. Do you think there is any relationship between that and Congress's apparent attack on tax incentives to oil producers, gas producers, etc.?

MR. BOWEN: Well, you know, Congress did away with the depletion allowance for most of the majors and reduced the depreciation allowance for a lot of the independents. But, the last year, there has been more active drilling than the last ten years. So it is very active in exploration. There is no shortage of energy in the United States. There is a shortage of the availability of energy. This country is blessed with energy. We have 30 percent of all the known resources of oil, gas, uranium, coal, shale oil - 30 percent of it is here. Only 1 percent is in the Middle East, but they have that that is so readily available. This country has got to make up its mind that it is going to develop its own resources. It is foolish not to do that - and keep the money developing here at home.

That is what I am saying about gas. There is an enormous resource of gas, but you have to drill wells to produce it. The wells in this country are producing the maximum amount of gas that they can. I know on our system, we take the full amount that the well is capable of producing every day off of all the platforms we are tied into - and the producer wants it that way.

SENATOR ZANE: Mr. Bowen, just one thing that has been bothering me that I wanted to ask when we met with the PUC a couple of weeks back - I would just like to get this one thing out of the way and then we will get back to something else. I have been told that there are bumper stickers that are pretty commonplace in the Gulf States area - Texas and Louisiana - which, in fact, read, let the bastards freeze in the dark. Is there any truth to that? Have you seen these?

MR. BOWEN: Yes.

SENATOR ZANE: You have seen them?

MR. BOWEN: Yes - probably on the order of maybe one out of five thousand cars, not too prevalent. I have seen some bumper stickers elsewhere in the country too that are not too pleasant.

SENATOR ZANE: Do you have any idea who is paying for those bumper stickers?

MR. BOWEN: No, I have no idea. It is just nothing. It has no influence on anybody's thinking down there in any responsible job at all.

SENATOR ZANE: Certainly, Transco would not have any part of that or any of the pipelines or the suppliers?

MR. BOWEN: Absolutely not. We have got other things to do. We are spending all of our time and effort and money trying to get gas for this system.

SENATOR ZANE: Senator Vreeland.

SENATOR VREELAND: Yes - thank you.

You said, Mr. Bowen, that the gas produced in Texas is all used in Texas.

MR. BOWEN: I said that new gas that is being discovered in Texas in the last six or seven years, essentially all of it has been sold to Texas markets. And there is no shortage of gas in Texas. They have plenty of gas for the markets there.

SENATOR VREELAND: Yes. But I guess my question is: Do they use all that gas in Texas or is some of that shipped out to other states?

MR. BOWEN: No, it has to be used and consumed in Texas. If it is bought in Texas and shipped out of Texas, then the price is regulated by the Federal Power Commission; and that is what the producer obviously has wanted to avoid because the price of gas in Texas went up to the BTU equivalent of oil, which is about \$2 a barrel, and the highest price we could pay - well, two years ago - was about 52 cents, recently it is \$1.42. But the intrastate companies and the power companies, the petrochemical companies, the companies that sell gas for residential and commercial, bid among themselves to get it up to \$2 because they felt that gas should be priced at the BTU equivalent of crude oil. It is a better fuel. It is clean. You don't have to store it in tanks. It comes out of the pipeline. So it went up to \$2. But it is staying in Texas. Now with the legislation that is proposed in Washington, I think Transco is going to get back into the gas buying business, which is going to be good for New Jersey.

SENATOR VREELAND: You also said that, as far as you were concerned, you thought that the homes in the United States should be heated with gas.

MR. BOWEN: Sure.

SENATOR VREELAND: --- and cooking should all be done by gas. But do you really think that you could supply enough gas to do that, plus all of the commercial and industrial?

MR. BOWEN: Well, I am not talking about changing out all the appliances. I am talking about new houses in the country, new homes that are being built, and replacement appliances. I think many of those should be going to gas. I think it is the most efficient way to use our resources. How are you going to make the electricity? I am talking about the new electricity. You are going to make it out of coal and you are going to make it out of uranium. You are not going to make it out of crude oil because that doesn't help this country any and you are not going to make any more out of gas, over and above what you are doing now. So, if you are going to make it out of coal, I said the most efficient way to make the BTU out of coal is to turn it into gas. And you don't have the environmental problems. You have already got the pipelines installed. You can store gas and it is cheaper. I just happen to have a personal preference for cooking with gas.

SENATOR VREELAND: Well, I can see that. But do you think then that the gas companies, in your opinion, should now start to enlarge their acquiring new customers, residential, let's say, because that is top priority?

MR. BOWEN: Well, according to these tables that I have just discussed - and I believe the figures - that's the best estimate I can come up with - it shows an increase in gas availability for residential and commercial consumption in the United States and on Transco's system. So, if that is true and if those estimates are accurate - they are the best I can come up with - then it follows that you have to add more customers to do it.

SENATOR VREELAND: But, by the same token, if you had another winter as we had last year, another one coming, you would still have the problem of not having

enough, wouldn't you?

MR. BOWEN: We didn't have any problem on residential and commercial service last winter. I don't know of any residential customer ---

SENATOR VREELAND: Well, not residential, no; but how about industrial?

MR. BOWEN: According to the estimates that I have, we are going to have increasing quantities of gas available for high priority industrial consumption. We will have more gas available this winter by a slight amount, maybe 3 percent. We are coming into this winter, according to our best estimates, about 3 percent more gas available to the gas distribution companies we serve on our system than we had last year.

SENATOR VREELAND: Well, that is encouraging.

MR. BOWEN: And the curve I showed you shows that 1978 is better than '77; '79 is better than '78; and '80 is better than '79.

SENATOR VREELAND: One more question: As I understood what you said, your company is tied in with Texaco. I am thinking now of offshore drilling in New Jersey, which those leases have already been let, haven't they?

MR. BOWEN: That's right.

SENATOR VREELAND: The federal government has leased areas off the Jersey Coast. Is it your opinion that your company would be involved when this drilling starts? How would you do it? Would it go through Texaco? I think that is what you said.

MR. BOWEN: Well, a big sale took place about a year ago. It was held in New York City and a lot of companies participated in the bidding. It was a much stronger sale than we had anticipated. Now Texaco had a group. We participated with Texaco's group. There were two or three other companies involved. We were the only pipeline company. And also we bid separately with a company called Freeport Minerals on two or three tracts that Texaco and others weren't interested in.

Well, we exposed -- I forget how much money - I think it was well over, maybe over \$200 million. I forget exactly what it was -- our overall group did, maybe \$300 million. But we only spent about \$50 million. The big buyers out there were Mobil, Exxon, Shell Oil Company, of which Public Service Electric and Gas participated with Shell. Exxon bought 35 tracts out there and spent well over \$300 million out there. Now we spent, our group, about \$50 million and our company only spent about \$5 million of that. We bid with Texaco. We bought two tracts with Texaco and we bought one tract just with ourselves and Freeport Minerals, of which we own 50 percent.

On the two tracts with Texaco, Texaco will be the operator. They have the biggest interest, they have the experience, and they will drill the wildcat wells. They were two very good tracts, expensive tracts. On the one tract we bought with Freeport Minerals, we will be the operator. We will probably wait and see what happens on some of the other drilling out there before we drill on that tract because it was a low-cost tract.

There has been no wildcat drilling yet. It has been held up in the courts. I would hope that by early next year it will be clear to drill out there. I won't go into all the reasons, but there is just no reason not to do that. Now, once the drilling takes place, it is still going to be four or five years before the oil or gas is going to be produced because it is a new province, there are no pipelines

out there, either crude oil or gas, and you have to put in the platforms and do the developing drilling. But there is tremendous potential offshore New Jersey where those tracts were put up for bid - tremendous structures out there. It could be very, very important to the United States. Our pipeline system is the closest major gas transmission system and what Transco would certainly propose to do, and hope to do, would play the role of the gatherer out there of natural gas and bring it onshore in an environmentally sound way, tie it into our existing systems and make gas available not only to our customers, but to other companies that may be buying some of the gas.

SENATOR VREELAND: Thank you.

SENATOR ZANE: Senator Parker.

SENATOR PARKER: Mr. Bowen, you indicated there was 3 percent more gas available to Transco. Is that gas, that 3 percent, available to New Jersey or is it for all of your servicing states?

MR. BOWEN: That is a systemwide figure I gave you and we expect to have about 3 percent more gas available for this five months' winter heating season, made up of a total of flowing gas and storage. And I can ask my associate here about New Jersey. They will get a comparable figure, he says, about 3 percent.

SENATOR PARKER: New Jersey will get 3 percent of the 3 percent?

MR. BOWEN: Well, okay, yeah. Let's say we increase by X, New Jersey would get their percentage, which is about 20 percent or something like that. I think New Jersey takes about 20 percent of our gas supply. Is that right? So you would get 20 percent of the 3 percent on an average.

SENATOR PARKER: I assume that the amount of available gas to New Jersey is based on contracts that you already have in existence.

MR. BOWEN: Oh, yes. I think this is all pretty much --- well, we are assuming we can buy some emergency gas that isn't under contract, but it is a small amount. Ninety-nine percent of this gas is identified; it is our best estimate of how it will be produced; and, of course, the gas in storage, we know how much we put in storage and are still putting in storage at this very time.

SENATOR PARKER: I'm sorry. Maybe I didn't make myself clear. You have all of your reserves I know committed by contract to New Jersey, to Public Service, to South Jersey Natural Gas and the like; is that correct?

MR. BOWEN: That's right.

SENATOR PARKER: And you have had this in the past, have you not? You have always had contracts before the gas has been delivered.

MR. BOWEN: We have contracts with some 70 gas distribution companies, starting all the way down in Mississippi and ending up in Metropolitan New York City. It is the same contract. Everybody has the same type of contract. Only the volumes are different. The prices are regulated by the Federal Power Commission.

SENATOR PARKER: Each year a volume is put into the contract as to how much is to be delivered. Isn't that correct?

MR. BOWEN: Well, there is a curtailment plan on file with the Federal Power Commission and that formula that has been approved by the Federal Power Commission determines how much gas a particular customer company will get. You have a pie so big and, according to the Federal Power Commission curtailment plan, is how that pie is divided up.

SENATOR PARKER: My question is: Over the past couple of years, in each

of those years, have you not supplied less than your contract called for to each of the suppliers in New Jersey?

MR. BOWEN: We have supplied less than the contract quantity, I think, to all of our customers, haven't we, Al, throughout our system - New York, Washington, Philadelphia, New Jersey too.

SENATOR PARKER: When you say "all your suppliers" ---

MR. BOWEN: Our purchasers, not suppliers.

SENATOR PARKER: I'm sorry - your purchasers. When you say all of your purchasers, specifically in New Jersey, you have curtailed as high as 15 percent on the contract that you have entered into with them over the past several years, have you not?

MR. BOWEN: I think it has been higher than that.

SENATOR PARKER: All right. I was trying to be a little conservative, being a Republican. How about the curtailment in the other states, has it been the same? In other words, has New Jersey taken more of a curtailment on their contracts and availability that you say is there than the other states?

MR. BOWEN: The curtailment that each gas distribution company has, as compared to its gas purchase contract from the pipeline, is developed from a curtailment plan prescribed by the Federal Power Commission.

Now, if you have a gas distribution company like Brooklyn Union Gas Company that is - I am just guessing here - well over 90 percent residential and commercial, priority number one, and compare that with a company like South Jersey Natural Gas which has a much higher percentage industrial and a lesser priority than priority one, then when it comes time to curtail, the fellow that is more industrialized is going to get more curtailment than the residential and commercial. Now you can argue that, but the FPC came down on the question that the last guy off is going to be the homeowner, the residential and commercial. The first guy off is the very large volume user, boiler fuel industrial user, and then it comes down in various categories of industrial use.

SENATOR PARKER: Do you have these figures available to us so that we can see what states, based on the priority of use, get the availability of the gas on your pipeline?

MR. BOWEN: Yes, we can make those available to you. Our curtailment plan is on file with the Federal Power Commission and the amount of gas that we estimate for the next five months, and then how much goes to each customer - he is identified - and we can make that available to your Committee.

SENATOR PARKER: We would like to have that. And when you talk about the plan that is on file with Congress, this is a curtailment plan. Do you follow that each year to the letter? In other words, do you follow the plan?

MR. BOWEN: We certainly do. We follow the plan that is prescribed by the Federal Power Commission. We tried to work out a settlement among our customers - and Transco had been successful in this over the last two or three years - where all of the customers got together and we worked out an arrangement among the customers as to what is the most - well, the fairest way to divide up the available gas. We were unable to do that last year. So the FPC said, well, here is our plan - you follow that. And that is what we are doing this year. We are following the FPC plan.

SENATOR PARKER: And that is based on priority of use - home users first, commercial, and on down the line?

MR. BOWEN: Well, residential-commercial, priority one; priority two is high - priority low volume industrial use, without alternate fuel capability. We will be glad to make a copy of that schedule available to you too. It is being used by all the gas companies in the United States unless they have a different plan. Most of them are using that same priority plan though, I believe.

SENATOR PARKER: Now let me ask you this: How much can you deliver per day to New Jersey through the pipeline, the physical capability?

MR. BOWEN: Well, we will have to get that for this particular state. I don't have that figure in front of me. But we can give you an estimate of that. As far as the system capability, on a peak day for several days, we could sustain about 4 1/2 billion cubic feet per day. Remember that ---

SENATOR PARKER: Is that to New Jersey ---

MR. BOWEN: Oh, no.

SENATOR PARKER: (Continuing) --- or is that the total system?

MR. BOWEN: No, that is systemwide. You couldn't use that much gas.

SENATOR PARKER: How much for New Jersey?

MR. BOWEN: I'll have to get that figure for you. See, right here, in New Jersey, we have two liquefied natural gas tanks. Each tank has one billion cubic feet of gas in it. It is very expensive gas and expensive storage. But we can take 500 million cubic feet per day out of those two tanks for four days, and then we are out of business.

SENATOR PARKER: You said there is 3 percent more gas available and whatever New Jersey's roughly 20 percent of that is -- and you are going to give me the figure on the availability of what the pipeline will deliver here. I want to know what the increase in consumption of gas has been in the past year for New Jersey?

MR. BOWEN: It has been a decrease. Conservation has played a big part in the gas consumption throughout the United States. And this is true of the electric business as well as the gas business. The American homeowner is finally realizing that he didn't need as much energy. He is using his thermostat differently than he used to. He is turning off his lights when he is not at home. The same thing is true with gas. So we have been delivering less gas, priority number one, to all of our customers than we have in the past.

SENATOR PARKER: That is somewhat encouraging. You have, I assume, projections or figures on that?

MR. BOWEN: Yes, we have a projection on our market. I think it might be better to get that for New Jersey from the companies that operate here. They have their own projections on how much gas they think they could serve this winter and they know how much conservation has meant to each one of those companies much better than we do. But it has been significant; and, of course, it is a very good thing.

SENATOR PARKER: Let me ask you one thing further: You indicated - I don't know what it was - four days' use of reserve for liquefied natural gas.

MR. BOWEN: Remember that is one billion out of 132 billion on storage.

SENATOR PARKER: All right. My concern is about storage because, like the Chairman, I am from South Jersey and I happen to think that our biggest problem when we have a shortage is our economy - the people out of work, the drain it has as far as tax dollars, revenues to the State, cost of unemployment, and the cost of

doing business in our State, which has the highest unemployment in the country, as far as I know, and especially South Jersey. Now we feel - I am speaking for myself and I am sure for Ray - that it is an intolerable situation not to be able to serve our industries here in New Jersey. We are already having difficulty with the South and the advantages that are being offered by the South, who are luring our industry out - and many of them are leaving.

I want to know if there is sufficient capability in your reserves in your other areas and your reserve capacity here with your liquefied plants - what do they call them, LPGN plants, or whatever they are - your gasification plants - to supply our industry this winter.

MR. BOWEN: There is going to be curtailments of industry. But, as far as those industries that do not have alternate fuel capability -- in other words, if you cannot use some other fuel and you get curtailed, then you are going to shut down - that is who you are talking about -- in my opinion, there will be enough gas to supply those high-priority industries that do not have alternate fuel capability. If he has alternate fuel capability, it doesn't shut his plant down anyway.

SENATOR PARKER: So, as I understand your answer, it is a qualified answer in that only those industries of high priority are assured of getting gas. For instance, those in South Jersey which are glass manufacturing plants, I do not believe are in that high priority.

MR. BOWEN: We don't serve any priority three hardly anymore, and anybody that is four or five has been off the Transco system anyway. So all we have really on the system is essentially priority one and priority two. So he is not getting any gas now anyway.

SENATOR PARKER: What do you mean by priority two? Priority one, as I understand it, is farm and ---

MR. BOWEN: I will have to give you the definition of priority two. I don't have it in front of me. Plant production, process and feed stock is priority two.

SENATOR PARKER: What is priority three, just the manufacturing?

MR. BOWEN: It is a larger volume. But we will furnish you the list of priorities and the definitions.

SENATOR PARKER: Anyway, as I started to say, I understood your answer is somewhat qualified by the priority; that may answer it. But I am concerned about many of our big manufacturing plants in South Jersey, such as Owens-Corning, Wheaton Glass and various others. You have indicated that there may not, as I understood your answer, be sufficient gas to supply them. I want to know two things: Number one, why you have not provided more on-site storage and/or the PUC has not required you or Public Service or the other gas companies to have more on-site storage in New Jersey or in this area.

MR. BOWEN: Well, we have just put in another 20 billion cubic feet of storage this past year. I guess our investment was - what? - \$50 million dollars. We built it as fast as we could. You just don't go out and say, "We're going to build a storage field." As far as building another LNG storage, it is much cheaper to develop an underground storage cavern in the south. We are buying another underground storage field too that we can expand. So I think the company is doing everything it can to increase its storage. But we could always try to do more - and

we will.

Now, each one of those tanks has one billion, I believe; and that is two billion out of a total of 132. So it is pretty small in the over-all storage picture.

Now the total storage coming out of the fields we are tied into could be as much as 2 1/2 billion a day. Add that to our flowing gas of about 2 billion and you get up to the 4 1/2 billion a day peak capacity. We can maintain that for several days. We can't maintain it indefinitely. If we have a winter this year - the coldest winter in 500 years, let's say, and let's say Florida freezes over - I don't know what is going to happen. You just don't build for a 100- or 200-year capability for two weeks. You just can't afford it. I don't think any industry does that. They had shutdowns in Texas last year of schools, of certain industries, because they hadn't prepared for a 100-year, two-week spell either. Probably it is just as well. Why carry that cost for a hundred years and only use it two weeks?

I think we will get by all right this year. I think we are in better shape than we were last year. And, if we have a winter that is normal or even 10 percent colder than normal, but not 20 percent, we should be all right. It is going to get better, according to our estimates, as we go on beyond that.

But when you think about the things we did --- I have been talking to people in politics, in government, for five or six years about what we needed to get gas for the interstate systems. We wouldn't have had that shortage last year if we had been able to buy gas. If we are not able to buy gas, it just follows we are going to have a shortage.

SENATOR PARKER: Let me just ask you two other questions. Maybe you have already answered the first. I understand when you put the gas in the ground and store it in these caverns in the South, that when the pressure gets low, when you start to have low delivery from your other sources, you can't feed the reserves into the system and get the maximum volume through to New Jersey, for instance. Is that true?

MR. BOWEN: I don't know of any problem that we couldn't get the gas out of storage at a rate that we anticipated. I suppose, as pressures do go down, compressor stations are not as efficient as they were if they were operating at higher pressures. I just don't recall whether we experienced that problem or not last year. We were very concerned about our storage. About the latter part of January last year, our storage was coming down like a roller coaster and we were very concerned about running out of any gas in storage by the first of March and not have any gas for March out of storage. So we really had to curtail and we had to say, look you have to get everybody off, except priority one. We did that. Of course, fortunately, last year, we had a warm February.

SENATOR PARKER: The last question is concerning the delivery of gas under those circumstances. Isn't it true that it cost you more to deliver the gas out of reserve and to deliver it to New Jersey - the cost to you - than it is to deliver it to, say, Tennessee? And the following question is: Do you in those instances when there is low pressure and you are having to pull it out of reserves, pump it and compress it and send it over these longer distances -- do you divert it to those other states before you deliver it to New Jersey?

MR. BOWEN: We don't deliver any gas to Tennessee.

SENATOR PARKER: I used that as an example.

MR. BOWEN: As far as our customers - and you can be sure of this and you don't have to worry about it anymore - we do not discriminate against any of our customers. We handle our pipeline in the most efficient way that we can and everybody is treated alike. And we have no motivation to handle it any other way. As long as I am there, it will always be that way.

SENATOR PARKER: I just wondered if your costs were up and it cost more to deliver to New Jersey than one of your other states, it made sense to me that you would deliver it to another state.

MR. BOWEN: If it did cost more, we would still make the deliveries according to the curtailment plan. We are getting compensated for operating this pipeline. We are going to do the best job we can.

SENATOR PARKER: Thank you.

SENATOR ZANE: Mr. Bowen, to pick up on what Senator Parker was just saying, does it make any difference at all to your company's profit position if you were to supply a different state than New Jersey on your priorities?

MR. BOWEN: I can't see that it would make any real difference at all. You couldn't find it.

SENATOR ZANE: Okay.

MR. BOWEN: Our rates are set on a certain volume of gas to be delivered and theoretically we make the same amount of money whether we deliver a higher volume or a lower volume if that is built into our rates.

SENATOR ZANE: Do you get the same rate for transporting to New Jersey as to other states?

MR. BOWEN: We charge more to haul the gas up to New Jersey than we do to North Carolina. I think there is about a three-cent differential on \$1.25. And it has been that way for 20 years. As far as I know, we have always had a zone differential. I think there are three zones in the company and it is about a three-cent spread between delivering gas from Texas and Louisiana to a customer in Alabama. Then we charge about three cents more to deliver it up in North Carolina and then another three cents to get it to Newark. Actually, the hauling charges are much greater than that, but the differential has been in there historically for a long time.

SENATOR ZANE: Does that differential compensate so that the basic profit to your company is about the same?

MR. BOWEN: Well, the differential is being reviewed now. It has been questioned by customers in the South. They think the differential ought to be greater, that New Jersey ought to be paying a much bigger differential. And New Jersey says, no, we like to pay the same smaller differential. It is going to be reviewed by the Federal Power Commission. We have taken the position that whatever is the proper differential, that is what it should be. We make no more money whether it is this way or that way. It's just a question of who pays it.

SENATOR ZANE: Does your company have internal figures that you have had access to that would show a difference in profit, let's say, supplying the Carolinas or New Jersey?

MR. BOWEN: There is no difference. We make a return on our investment whether we supply this much gas or some other amount. All the figures are available. There is a public hearing that takes place on all of our rates and the New Jersey Public Service Commission, I assume, is an intervener, and I know the New York

Public Service Commission is, the North Carolina is - and they are all very active. They know everything there is to know about Transcontinental Gas Pipeline, our economics, our rates and the way they are set. So there are no secrets.

SENATOR ZANE: I don't have to mention it - you know what we went through here in New Jersey last year. A question occurs to me: If you have a storage today which is greater than you had last year - I think it is 132 billion cubic feet as opposed to 110 a year ago -- Is that correct?

MR. BOWEN: That is correct. On our system, available to our customers, either through storage they rent or storage that we have, it is about another 22 billion this year -- 32 billion.

SENATOR ZANE:: Thirty-two. Mr. Bowen, when was that storage built up?

MR. BOWEN: Well, it was built up, some of it, at the Washington Storage Field, I guess.

SENATOR ZANE: I am not asking where - when?

MR. BOWEN: When was it put in the ground?

SENATOR ZANE: Over what period of time did you build up this storage in excess of last year's?

MR. BOWEN: We started putting storage in in March because it was warm. And we started in April and May and June and July and August. We do this every year - put the storage in in the season when there is less demand and we try to go into November 1 full.

SENATOR ZANE: In other words, the storage was not going on while we were facing our problem?

MR. BOWEN: It was coming out of storage then. We were taking everything we could out of storage when it was cold. That is why we put it in the ground in the first place.

SENATOR ZANE: Well, the specific question to which I would like a yes or no answer is: The storage was not going on at the time that we were facing our problem here in New Jersey, which was January and February?

MR. BOWEN: We don't anticipate putting anything in storage in November and December and January and February coming up. It may get warm in March and we would have some gas available for it, but I doubt it. Probably we will be taking out of storage throughout the five months. Now, on a warm day in November, we will husband that storage. It's like money in the bank. We say, let's save it for that cold day in December or January or February. That is why we put it there.

SENATOR ZANE: My question was misunderstood. During that period of time we were facing the problem, January and February, was Transco in the process of storing natural gas to build up the supply?

MR. BOWEN: Were we injecting gas during January and February?

SENATOR ZANE: Were you what?

MR. BOWEN: Were we injecting gas in storage rather than making deliveries to our customers?

SENATOR ZANE: That's correct.

MR. BOWEN: Not to my knowledge.

SENATOR ZANE: You were not.

MR. BOWEN: We were doing just the opposite and anyone would have done just the opposite. That is why we built the storage. You are paying for it. It is your storage to use. It would be insane to be injecting gas in storage when you

need it on your system.

SENATOR ZANE: Well, there are a lot of insane things about this entire problem. That is why we and many other people throughout this country are meeting and concerned with natural gas.

MR. BOWEN: Well, we don't operate our company that way.

SENATOR ZANE: The utility contracts that you enter into, are they based upon actual availability of natural gas at the time the contracts are entered into?

MR. BOWEN: At the time the contracts are entered into, I assume that Transco felt that they would have the gas and would be able to buy additional gas in the future to supply the contract volumes in the contracts.

SENATOR ZANE: Does that mean that the gas is not necessarily available at the time contracts are entered into?

MR. BOWEN: You do not buy gas on a 20- or 30-year basis. The fields will produce, themselves, in 10, 15 or 20 years. But the way the gas industry has always been operated -- and remember the gas industry is really fairly new. It really got developed after World War II when we had a surplus of gas and we felt like this surplus would go for a good many more years than it did. The demand went up much faster than it should have because the prices were very low and it was a better fuel to use than the competing fuels. Demand went up and the additions to reserves did not keep pace with demands.

SENATOR ZANE: In other words, the contracts are long-term, so you are basing it upon projections and good estimates at the time.

MR. BOWEN: Oh, very good estimates - and it is all presented in testimony with independent engineers. But the pipelines you build in the ground are going to last 40 or 50 years.

SENATOR ZANE: What are the average lengths of a contract entered into, let's say, with Public Service Electric and Gas or South Jersey Gas?

MR. BOWEN: Twenty to twenty-five years.

SENATOR ZANE: Just subject to alterations upon their demands - what they need?

MR. BOWEN: If you want an increase, why you have to justify it with the Federal Power Commission. And, if you want to build more facilities, you have to get a certificate of public convenience and necessity to make additional deliveries.

SENATOR ZANE: Do I assume from that then that you do not enter into annual or yearly contracts to supply Public Service or South Jersey or the others?

MR. BOWEN: No, we do not.

SENATOR ZANE: You mentioned a curtailment plan earlier and then you indicated - I believe you did anyhow; correct me if I am wrong - that you are now using a curtailment plan, I think, designed by the Federal Power Commission.

MR. BOWEN: That is correct.

SENATOR ZANE: Your original curtailment plan that you submitted, is there certain input from the federal government as to how that should be done or is that something left to your discretion? I will tell you what I am really driving at. I want to know sometime during these hearings why New Jersey is in worse shape than other states. That is what I am driving at. So you have the genesis of my question.

MR. BOWEN: Well, as far as our system goes, those states that are more industrialized are in worse shape than those states that are more residential and commercial - that's the name of the game - because gas is allocated on the basis of priorities. So if you are highly industrialized, you are going to get less gas relating to your contract quantity than if you are all residential and commercial. So that tells you the answer to that. You don't have to worry about that anymore. That is the way that is set up.

Now, as far as the settlement plan, we meet with our customers in an open hearing in Washington, D. C. and the staff of the Federal Power Commission is in the hearing room and we present proposals and customers present proposals and the staff presents proposals - and you try to come up with a settlement that everybody can buy, which involves a little give and take. You know we get the same amount of money whether it is settled on this basis or this basis. But it is how the gas is divided up. And, of course, those companies that are more industrialized want to get a bigger volume and those that are highly residential-commercial want to keep as much gas as they can. Well, for four or five years, as we started curtailing, we were able to work out a settlement among our customers, I guess to the advantage of the more industrialized customers. Last year, we were unable to. So we had to have a curtailment plan by Federal Power Commission standards and the FPC said, "Well, if you haven't worked out a settlement, you are going to have this plan. This is our plan." So that is the one we are working on today. That is the one we had last winter. If you don't like the plan, the place to go to is Washington and tell the Federal Power Commission that they ought to change their plan.

SENATOR ZANE: Mr. Bowen, you indicated that those industrial states are going to suffer a greater curtailment ---

MR. BOWEN: That's right.

SENATOR ZANE: (Continuing) --- than the less industrial states. Can you elaborate on that as to why?

MR. BOWEN: That is because the Federal Power Commission in their infinite wisdom decided that, if you are going to cut somebody off, they'd rather cut an industrial customer off than to cut a homeowner. In the final analysis, they would rather have an industrial cut-back and plants operated at less than full capacity or shut down in a period of very cold weather than to put a town out of gas and have to relight all the pilot lights and to put laundries and commercial establishments and hotels out of business. That is their priority one.

Now if you have a disagreement with that, you have got to go down to the Federal Power Commission and say, "Look, you ought to be cutting the homes and the towns off and leave the industries on." We don't take a position one way or the other. That is the federal government.

SENATOR ZANE: Something that I don't understand I would like you to clarify. It is my understanding - correct me if I am wrong - that industrial users, the glass companies we are talking about and what have you, pay a lower rate for gas than a residential user. Is that correct?

MR. BOWEN: We don't sell gas.

SENATOR ZANE: I know you don't.

MR. BOWEN: I think you should ask these customer companies here about their rates. I am not familiar with their rates. But I am sure that there are people

in this room that know what they charge for gas in New Jersey.

SENATOR ZANE: Let me tell you what I am driving at with that. Would that have any bearing on the original source supplier? I know it does not on Transco. Would that have any bearing on the original source supplier? It doesn't differentiate ---

MR. BOWEN: It doesn't have any effect on the company back in Texas or off-shore Louisiana that's selling us the gas. He couldn't care less. He has sold his gas to this pipeline company. What we do with it, who we sell it to, is based on our contracts. And who they, in turn, sell it to, is based on the distribution company. He gets paid a certain amount whether it goes to A, B, C or D.

SENATOR ZANE: Has your company been in a position within the last year or two to offer additional gas to any of the suppliers that you supply in New Jersey - any of the utility companies?

MR. BOWEN: We have offered emergency gas that we were aware of that was available under the emergency legislation act to customer companies throughout our system. Gas was available for purchase at emergency prices under this Act that was passed by Congress last December, I believe. And we have offered that to our customer companies in New Jersey just exactly like we offered it to North Carolina or Brooklyn Union. You had your chance to take it.

SENATOR ZANE: Did all of the utility companies in New Jersey respond to that?

MR. BOWEN: I don't know, but maybe my associate knows. (Confers with associate.) They all participated.

SENATOR ZANE: They all bought the additional gas that was, in fact, offered to them?

MR. BOWEN: Yes. And there is gas available even today. The Emergency Gas Act terminated on July 31st, but in July there was gas available that is surplus to the needs of companies that have the gas under long-term contract in Texas. For instance, Houston Natural had gas bought, committed to the Texas market, but they could sell it to a company like Transco or to customers of Transco under the Emergency Natural Gas Act.

SENATOR ZANE: When will the Transco synthetic gas plant in Pennsylvania be producing?

MR. BOWEN: Well, I hope it is producing about two years from the first quarter of next year. We hope to start the plant, but we have been saying that for four or five years. We are having a difficult time marketing the gas. Some of the companies on our system built their own synthetic gas plants, like Public Service Electric and Gas. Others, like South Jersey, did not; and South Jersey proposes to participate with us in that plant if we can put together the market for it. The first thing we lost was the feed stock for the plant, due to the embargo. Now the feed stocks are in much better shape - much more expensive. But we would hope we could start building up the first quarter of next year and finish it in about two years. It takes about two years to build it.

SENATOR ZANE: After those two years, assuming it is then producing, how would you see that gas distributed?

MR. BOWEN: Well, that gas, the way we are proposing to sell it, if South Jersey wants, they can have as big a piece of it as they want. It will be theirs;

we will give them delivery of it at the plant. They will buy it at the plant and they will in turn tender the BTU's of methane to Transco and we will deliver the exact same number to them at the city gate where we make deliveries to South Jersey. So we are offering that now on our system and they can have as much of it as they want. It looks like about half the plant may be sold on our system. The other half, unfortunately, we are going to have to sell off-system to customers of another pipeline company.

SENATOR ZANE: Mr. Bowen, what would deregulation of natural gas have meant to the gas producers?

MR. BOWEN: Of course, gas is deregulated now onshore Texas. I am sure you are aware of that. So when you talk about deregulating the price of natural gas, if I were a producer in Texas, I would say, "What's new?" It is already deregulated. He is selling his gas in a free market. There is nobody telling him what price he is going to get for his gas, unless he sells it to an interstate company like Transco. That is why he does it.

Now, if it is deregulated for us, there is going to be a much stronger demand even in Texas than there is today for gas at an unregulated price. The gas price would go up. I don't know how much it would go up. There would be even more drilling because more drilling rigs would be built, I think, because you would have a greater incentive. It is going to take a very high price to get some of the gas to be found in Texas and Louisiana, at 25,000 feet deep, in very difficult areas to drill - super-pressured areas. As far as offshore goes, they are not proposing to deregulate that initially. But if it was deregulated, you would have a higher price offshore, something equivalent to the BTU price of crude oil, I'd say, which is probably \$2.00, \$2.15, \$2.25 a million BTU's.

SENATOR ZANE: Could you tell me whether the offshore drilling in the Baltimore Canyon would change New Jersey's position as far as gas? I just don't understand that.

MR. BOWEN: Well, I think it could be helpful to our system. If we bought gas -- let's say they found some big gas reserves offshore New Jersey. I hope very much they do - tremendous potential for oil and gas. It could be like that great, big, beautiful anticline off of Panama City, Florida, called the Destin Dome, which so far has proven dry, and over a billion dollars was spent by the industry. But, hopefully, that is not going to happen here.

Now, if we bought gas out there - and the gas we find, we will certainly sell to our pipeline -- but if we bought gas from other companies - and we are only a very small part of the bidding out there - it would come into our system, and it would go to New Jersey and New York on the basis of the curtailment plan and the contracts. You wouldn't get any more or any less than you should be entitled to on our system. But there are other pipelines too that are going to be trying to buy that gas. Some of them don't serve New Jersey. And they may be successful in buying a lot of that gas. We are going to do everything though we can to buy what gas is found out there. Since New Jersey is one of our principal markets, that share of the market will get that share of the gas. It will be system gas going to our over-all gas supply.

SENATOR ZANE: Clearly then it would not put us in a position as those people are today in Texas, Louisiana and Mississippi.

MR. BOWEN: That offshore gas in Louisiana is not going to Louisiana; it is

coming up here to New Jersey. Now, if you could find some gas onshore New Jersey, I would imagine that that gas would stay in New Jersey. But offshore gas, the gas that has been found off of Louisiana, is what kept this company alive. Seventy-five percent of our gas - and that is 75 percent of the gas that is coming into New Jersey out of our system - comes from the offshore Texas and Louisiana area. It is not stopping in Louisiana or Texas; it is going interstate. It is all interstate gas.

SENATOR ZANE: Can you tell me what the \$1.75 or thereabout rate that the President is proposing - what impact that might have on the residential consumers? Do you have any knowledge of that?

MR. BOWEN: Well, the rate now that we are able to pay is \$1.50, let's say, for new gas that is found offshore or onshore. The rate that you can pay in Texas for new gas and sell it in the City of Austin, Texas, is about \$2. Now this \$1.75 price applies to a purchaser in Texas that is going to consume the gas in Texas. So it is going to reduce that new gas that is destined for Austin. It is not going to effect the older gas.

As far as we are concerned, instead of paying \$1.50 for new gas, say, we can pay \$1.75; and we can compete for gas onshore again, at long last. Of course, offshore we can pay \$1.75.

Let's assume that we get very fortunate and let's say three years from now 20 percent of our gas is new natural gas that we have bought at \$1.75 instead of \$1.50 - 20 percent of our gas. So 20 percent of our gas would have a 25¢ increase over what we could pay today. I guess that is right. And 20 percent of 25¢ is about 5¢. So we would be paying on an overall weighted average base --- We are not deregulating the old gas now; that is staying under regulation and under contracts and those prices are subject to FPC regulation under the new Department of Energy. So the price would go up about 5¢. Our average sales price today in New Jersey is about \$1.25. Now the average residential price in New Jersey - I'm just guessing - maybe it is \$2.75 a million BTU. I doubt if you can find that nickle. You could look for it, but you might not find it. So it is not going to have much effect. The most important thing though, it's going to give us the ability to get some gas for New Jersey because we can compete again. That is why we had the shortage and the people in New Jersey knew that was why we had the shortage. But it has taken until this time to finally get the ability to buy gas onshore Texas and Louisiana again. I hope we get it in August or September.

SENATOR ZANE: Mr. Bowen, three of the four utility companies in this State have requested from the PUC permission to take on additional customers. I believe that they are residential users. I also believe that you testified that the first to be curtailed would be industrial users should there be a curtailment. Would it not be more advisable if, in fact, new users are going to be taken on or considered, that they be industrial or that that gas go for industrial as opposed to residential? Do you have a problem reconciling that in your mind? If industry is going to be hit first, shouldn't that gas that might, in fact, be available go to them?

MR. BOWEN: According to the figures that we see - and we have to look into the future - the best information that we have about the availability of gas on our system for residential and commercial, is there is going to be sufficient gas available there, plus high priority industrial, that you should be adding low.

I think you can add low to residential and commercial for new connections and not endanger curtailment of residential and commercial. And, according to the figures I have already given you, there will be gas available for high priority industrial uses. Now we are not talking about low priority industrial uses. But the projections that we have, which are the best that we can come up with, would indicate this. So you can get started in a small way with residential and commercial. You know, 2 percent a year doesn't sound like much, but that is a pretty good growth rate - or 3 percent - and you can add quite a number of customers.

You have been declining in the last five years on our system. We have had an annual rate of decline of residential and commercial of 2 percent a year. This is the average for the last five years. Well, a great part of that has got to be due to conservation. And the gas industry has been out in the forefront, just like the electric industry, telling homeowners and commercial users and industrial users how to use less gas and get the same amount of energy out of it. And it has been very significant.

SENATOR ZANE: Mr. Bowen, you testified earlier that your company supplies slightly less than 70 percent of all the gas to the State of New Jersey. We outlined at the beginning the intent of this Committee - the purpose. I have heard your testimony regarding the gas. Do you feel that your company can supply gas to this State, barring an abnormal winter, for the winter of '77-'78 without problems?

MR. BOWEN: Do you want to define a problem for me?

SENATOR ZANE: Yes, I want to define a problem: a man who has to put his heat at 50 degrees if he wants to stay open, a household where they have to turn down the heat, an industrial plant that has to close down, 43,000 people laid off and a \$10 million impact on loss of wages. That's a problem.

MR. BOWEN: Okay, I don't think that the industrial plants that do not have alternate fuel capability will have to shut down this winter.

SENATOR ZANE: That do not have?

MR. BOWEN: That do not. Now, if they have got some other fuel laying around, they may have to turn on this other fuel. They may have to turn on propane, they may have to turn on oil, for a short period of time if we have a very, very cold winter. He may have to do that, but that is why he has got it. That is why he has got alternate fuel capability. So he turns it on and he continues to operate his plant.

As far as the thermostats down to 50, I don't have a calculation on that. But if it gets very cold, people are going to have to be a little bit more careful in using gas. They are maybe going to have to wear a sweater for a certain period of time. But I don't think it is going to be any real hardship to the American people and I don't think it is going to be as difficult as last year. We think we are in better shape than last year. And, certainly, we do not anticipate the factory layoffs that we had last year. That is the first time we ever had that and we did have the coldest winter in a hundred years. We regret it very much, but there wasn't anything we could do about it. We were pushing all the gas we could get through our system and taking it all out of storage. That was the best we could do.

SENATOR ZANE: So what you are really saying is that the winter of '77 and '78, barring an abnormal winter, should have probably no industrial shutdowns, maybe moderate inconveniences to the people, and in looking at the curve, which I am told is known as the Bowen curve, the projections, we are probably at the bottom of that curve and, barring abnormal winters in the future, we should be coming up for additional gas supplies and should be, if you will, inversely peaking out on the real problems facing us with natural gas in this State.

MR. BOWEN: I agree with your statement - well spoken.

SENATOR ZANE: Is it also your statement?

MR. BOWEN: I said I agreed with it.

SENATOR ZANE: Okay.

MR. BOWEN: I agree with it. You said it better than I could.

SENATOR ZANE: I have one final question to ask you. Is the natural gas industry - suppliers, producers and what have you --- And originally I thought my target was the utility companies, but apparently they are not all that bad. We will find that out a little later. But is the gas industry really preparing us to recognize that there is gas, but we will have to pay a lot more money?

MR. BOWEN: I pointed out to you, I think, my estimate of the future in gas - and it is going to cost more money. It is going to cost so much to build a gasification plant out of coal. If you can find a way to do it cheaper than the industry, you have got a beautiful future. But it is just going to cost so much to do it. Liquefied natural gas - Algeria says, "We want this much," and the ships cost over \$100 million apiece, and it just costs a lot of money to land that natural gas in this country.

Drilling for gas - the bonuses paid to the federal government in the last sale were much higher than we had anticipated two years ago. That is going to mean higher gas costs. But when you go to a sale - this would be true offshore New Jersey or offshore Louisiana - you calculate what you think might be down there as a target. It is a very risky business. Then you say, "Well, let's assume there is this much gas there. What are we going to get for it?" Well, the FPC had raised the price from 56 cents to \$1.42 on new gas. If we would have calculated all that gas to be sold at 52 cents, we wouldn't have bought any tracts to drill for the benefit of New Jersey. We had to put the higher price in there. Who gets it? Well, the government gets it in the bonus, which goes back to the benefit of the taxpayers in this country, and also they get it in the higher price for their oils, I guess. It is going to cost you more. The day of cheap energy is over. But it is not a contrived shortage. It is a real shortage.

Remember I said we really don't have a shortage of resources in this country; you have got a shortage of available energy. But we have the technology and the financial muscle and the brain power and the energy to solve our own problems - and we ought to get on with it.

SENATOR ZANE: Mr. Bowen, I am reading a quote here from Robert Seymour, who is the Chairman of the American Gas Association. He stated: "We are not running out of gas, we are running out of cheap, readily available gas, and that is an important distinction."

MR. BOWEN: We have gas coming into our system right now and we are paying, I am sure 22 cents for it -- 22 cents a million BTU. And we are running

out of that gas. That is under long-term contracts and that is what the producer is getting for it. Twenty-two cents a million BTU is about \$1.30 a barrel of oil, equivalent. We are running out of that. I mean, gas fields are just like bottles down there. They have so much gas, they produce it all, and it is gone. All that older gas that we have that was found 5, 10, 15 years ago - it is gradually depleting. This is a perfectly simple, logical fact. It just happens that way in geology and in oil and gas reservoirs.

The new gas we are buying - I just told you what the producer bid on with the federal government in getting the lease in the first place. The wells cost three or four times as much as they did. The platforms have gone up two or three times. So it is going to cost more. You are drilling deeper now too. Most of the shallow gas has been found.

SENATOR ZANE: The money that is paid to the federal government by those that are exploring for natural gas, does that have much of an impact on the actual cost of gas?

MR. BOWEN: Well, I'd say this - I'm talking as a general rule of thumb - in the Louisiana offshore area, and that is the most mature area there is, there have been over 10,000 wells drilled out there. Of course, that is where about 60 percent of our gas comes from today, Louisiana offshore. Take a tract, an average tract, and let's say that the producer has \$50 million invested in this tract and it is ready to go on production. On an average, about half of that went in the form of the bonus he paid Uncle Sam in sealed bids, with the industry competing one against the other. It is a very competitive game. Twenty-five million dollars went to the federal government in the treasury - they love it. The other \$25 million, about 20 percent of that went for wildcat drilling, and about 80 percent went for the cost of the platform and the development wells and the production equipment that go in there. Now that's a pretty good rule of thumb, on an average. And some of those tracts cost \$2 million. Some of them cost \$100 million. It depends on the attractiveness of a particular tract.

SENATOR ZANE: The final question: Going back maybe ten years, whatever unit you are comfortable with of measurement, a billion cubic feet or whatever, are the figures available as to what the cost was ten years ago to produce that and what the costs are today to produce it? And are they in relationship to a - I don't know how many percent - 1000 percent increase in the cost of gas?

MR. BOWEN: The Federal Power Commission in their most recent order had a long involved hearing on the national area rate and that is when they came down for new gas at \$1.45. I believe that is \$1.42. And in that opinion, which is a very thick opinion, it goes into all sorts of facts and figures on the cost of exploration and developing new supplies of natural gas. I can refer you to that. This is public testimony. There were many witnesses as to what it cost.

SENATOR ZANE: Has the cost gone up 1000 percent?

MR. BOWEN: I don't think the cost has gone up 1000 percent. As far as the cost of a bonus, I know that we would pay for the same target today several times what we would have paid two or three years ago out in the offshore waters, just because there is a higher price for gas. The bonus is part of the cost of doing business out there. There is no way to get the government to give you a lease without getting paid for it.

SENATOR ZANE: Gas about ten years ago was selling for around 22 cents for a thousand cubic feet?

MR. BOWEN: That is about right. We are still buying some gas at 22 cents, I suppose.

SENATOR ZANE: And the emergency purchase price of gas within this past year was \$2.25?

MR. BOWEN: That's right.

SENATOR ZANE: --- which is a tenfold or 1000 percent increase. I want to get some feel ---

MR. BOWEN: I don't think the cost of gas, the finding it and developing it, has gone up tenfold. The price of gas went to the BTU equivalent of crude oil. That's where the price of gas went. It went to its competition. That is kind of true of America. It's an unregulated thing - well, the price is going to go to its competition - the law of supply and demand. So this gas in Texas was not regulated and they found gas and here is a company that could use oil or gas. So it was using oil and it is having to pay about \$2.15 a million BTU for its oil. So here is some gas available - it would rather have gas. It doesn't have any pollution problems. And the gas would be available out of a pipeline. The guy says, "Well, I want to sell you this gas." "How much will you charge me for it?" "Well, I want as much as you are paying for oil." What would you do? You'd say, no, I want to still buy the oil, when you'd rather the gas? You'd say, "I'd rather buy the gas." So the price went up to \$2 and that is the BTU equivalent. There are 6 million BTU's in a barrel of oil. That's why it went there as much as anything. It didn't cost that many more times as much more to drill. It wasn't our experience. Costs went up though. They went up a great deal - to drill wells, to buy pipe and valves, to get leases from producers, royalty costs went up. Everything went up.

SENATOR ZANE: Would you say that those costs, all included, are double or triple?

MR. BOWEN: I don't have an opinion on that to give you. I refer you to what the FPC had. They had a long hearing on it and there was all sorts of testimony put in there by people that really made a study of how much costs have gone up in the oil and gas exploration and development business.

SENATOR ZANE: Just as a statement - and you can rebut it if you want - I think then that you could safely conclude that if the cost has not gone up tenfold, but the price has, the profit picture has greatly improved for the producer.

MR. BOWEN: I think the profit picture has improved for the producer. And one real test of the profit picture for the producer is: Are all the drilling rigs busy? I have told you earlier today that there are more rigs active today than anytime in the last ten or twelve years and there is more gas being found right now than there has been for the last several years. You have to drill wells to find it.

SENATOR ZANE: Senator Vreeland.

SENATOR VREELAND: Just one question. I am a little confused, Mr. Bowen. The gas that is transported up to New Jersey in your company's pipes is sold, for example, to Public Service or to the South Jersey Gas Company, does the FPC regulate how much you get for that gas?

MR. BOWEN: Yes, sir.

SENATOR VREELAND: And was that increased appreciably during the period when we had the cold weather and there was so much more being used? Was there an increase then?

MR. BOWEN: There was no increase at that time that had anything to do with the weather. Six months before the cold weather, we had filed a rate increase that happened to be going into effect on February 1st, and we did have a rate increase that is subject to refund that went into effect on February 1, 1977, that had nothing to do with the weather. We filed it six months prior to that.

We get back from our customers our cost of service, which is penny for penny our cost of gas. Our pipeline makes no money out of the gas. We get back our general administrative costs. We get back depreciation on our pipeline. We get back our ad valorem and federal income taxes. And then we get a return.

SENATOR VREELAND: So, in other words.--- You know the retail price of gas advanced appreciably in the last year or two - considerably. So has electricity, as far as that goes. So your company would have nothing to do with that. It would be the distributor's cost then that caused that increase to the consumer.

MR. BOWEN: Last winter, most of the emergency gas that we bought - that was bought for our customers - was purchased by the customer companies, themselves, and we hauled the gas up here. I believe we hauled it free because we were already getting paid for operating our pipeline. We hauled it free at zero cost. Now their cost --they had to buy this gas in competition with companies from Chicago, Oklahoma, California, you name it, and the producer was going to get --- well, the pipeline, he bought it from intrastate pipelines, a lot of it, and they had already paid \$1.75 or \$2.00 for that gas. So they are not going to sell it for anything less than that. So they got back the \$2.15 or \$2.25. That went into your bill, I guess, fairly quickly, and the homeowner paid for it.

SENATOR VREELAND: Maybe I don't understand you. Did the gas come out of the pipeline? You said "hauled up here."

MR. BOWEN: It came out of our pipeline. It was purchased down in the Gulf Coast from some company that had bought the gas and it was surplus to their needs. And they sold the gas at \$2 or \$2.25 a million BTU's and tendered it to us. We took delivery of the gas, put it into our pipeline, and made delivery up here in New Jersey. And we charged nothing for doing it.

SENATOR VREELAND: But the cost of the gas though was increased because the cost was more ---

MR. BOWEN: New Jersey had bought the gas.

SENATOR VREELAND: Oh, I see.

MR. BOWEN: And they paid the producer for it.

SENATOR VREELAND: Okay. Thank you.

SENATOR ZANE: Any other questions?

I know, Mr. Bowen, you have been travelling all over the country and you have been bringing forth what has to be said from the pipeline. I certainly appreciate it. When we originally started off, we certainly wanted to have you here. We even thought we might have to subpoena you and didn't think really we had the power to do it. The spirit of cooperation, I think, that you have given us is very commendable. We are certainly pleased. I just can't thank you enough for

testifying before our Committee.

If there are any final comments that you would like to make, please feel free to do so.

MR. BOWEN: Well, I would just like to say that certainly you don't have to subpoena me. I am delighted to come up here and tell you what is going on in the gas industry. I think if you people knew more about it, we could do a better job. I have been talking to elected officials in Washington about it and, hopefully, that is going to improve down there for the benefit of you, since your State doesn't have any production of its own.

SENATOR ZANE: I think that is what you are helping us with.

MR. BOWEN: But I think the gas industry has a great future. I think it is the fuel of the future. I think it is the most economical fuel of the future and I think we have enormous resources to develop, which will still be the most economical form of energy for New Jersey. So I am very optimistic about it. And I will come up here anytime and talk to you about any aspect of our business. It's all there. We have nothing to hide and we are doing the best job we can.

SENATOR ZANE: Mr. Bowen, do I take that as an offer that if other questions come up that we would like to ask you about, we could contact you?

MR. BOWEN: Any time. And I would be delighted to have you and your Committee come down to Houston and find out more about the oil and gas exploration business and how we buy this gas and put it into our system. And, if you can tell us a better way to do it, we sure want to hear from you.

SENATOR ZANE: Thank you very much.

SENATOR ZANE: Our next witness is Mr. John Betz, the President of Public Service Electric and Gas Company.

(John Betz sworn)

J O H N B E T Z: Thank you. I would like to introduce the two gentlemen on my right. The first gentleman is John Gartman, who is Assistant Manager of Gas Supply and the other gentleman is Fred DeSanti, who is Vice President of Rates Load Management.

SENATOR ZANE: Mr. Betz, we have submitted to us - which I will ask to be made a part of the record - a statement. It is about eight or nine pages and it was submitted by you. If you would be more comfortable paraphrasing it, you may.

MR. BETZ: Well, let me see how I go along here on reading the statement. I will try to cut it short.

Of course, I want to thank you, really, for the opportunity to appear before you. We believe, as a company and the largest distributor in the State, that we share your concern, the Committee's concern, for the gas supply of this particular State.

There are many serious problems facing the State of New Jersey and the nation as a whole in this whole energy supply picture. As far as the gas supply in New Jersey is concerned, up to the point of the curtailment, I think that the prior witness has really covered that.

Let me skip to page 2 of this. Beginning in 1971, these curtailments of long-term supply contracts increased at a rather rapid rate through 1975 when the total contractual supply to PSE&G was curtailed by 27.3 percent. In 1976, the increasing rates began to moderate and in 1977 the overall curtailment is expected to be nearly the same as the 1976 level of 31 percent.

Let us look at the supply side of the picture. We have undertaken numerous programs since 1970, recognizing this situation which was developing over the past few years. We have refinery gas which we have contracted for from Bayway Refinery. We began to explore, through our wholly owned subsidiary, Energy Development Corporation. Through the end of June, 1977, in the same areas that Mr. Bowen was talking about, we have drilled 96 wells and 46 of them have been successful. That is Louisiana, Texas and offshore in the Gulf. Gas from three fields in that area, tying together a number of wells, is now flowing to New Jersey. Increased deliveries from additional discoveries is expected in the future, as you will see in the tabulation which is attached.

We have also constructed two SNG plants. The Harrison plant, which is the smaller of the two, was the first SNG plant built in the United States.

In addition, since 1972 we have been continually pursuing a project to import liquefied natural gas from Algiers. We are continuing these efforts today and in 1976 all of our supplementary supply efforts provided 18.2 billion cubic feet of gas to PSE&G. We ran those SNG plants during that severe curtailment period. We manufactured oil gas. We had everything going that we could and we were fortunate that we had the SNG plants.

In spite of all of this, however, the curtailments continued and there were finally some determinations made which I think were wise at the time, that new customers should not be attached with a picture that seemed to be rather bleak, continuing on into the future.

Conditions have changed in subsequent years. You have heard a lot

about that from Mr. Bowen. Actually, on two occasions - in April of '74 and in June of '76 - we were able to work out with the Public Utility Commission permission to supply a limited number of carefully controlled new connections. In this regard, the PUC has conducted a number of public hearings on this subject regarding the gas and limitation, as you well know.

At these hearings, the utilities customers and the general public have been afforded an opportunity to present - and have presented - a great deal of detailed information and we, of course, have updated our picture.

Our latest application to attach a very limited number of new customers was submitted on April 18, 1977. The Commission requested we submit detailed data concerning gas supplies and, subsequently, on June 6th and 14th there were public hearings in Newark and Camden. We have outlined our proposal rather thoroughly. An exhibit summarizing this evidence is the table that is attached to that statement. You may wish to refer to that later.

We proposed to commit a total of one hundred and fifty million cubic feet of gas per month to new customers, beginning with those on our waiting list. We have, incidentally, about 7,000 customers on our waiting list for gas. Some of them may not be there any more. They have waited quite a while.

On an annual basis, these attachments would be equivalent to only 1% of our total sales in 1976. Future conservation attrition by our customers is expected to completely offset this addition.

We also proposed that this level be flexible and subject to adjustment to meet any changing conditions in the future. This monthly allotment is what I am talking about.

PSE&G's program places an emphasis on the high priority use of gas and is intended to insure that gas is available for new industry where the use of natural gas is essential.

I would like to insert something here which I think may clarify some situations. If you took the State of New Jersey, right today, and cut the residential use in half and doubled the industrial - particularly boiler fuel type of industrial - the allocations - the curtailments from the pipelines - would increase dramatically. This is what Bowen was talking about. So, what is necessary for us to do, we feel, for two reasons, is, one, to retain our high priority customer list in the allocations and we want to increase the number of residential customers, which is the highest use. And, high priority industrial is good for the State in two ways: We retain the high priority allocation and, secondly, we are able, as a result, to do something for the building industry in this State because the quantities we are talking about would be something in the order of 700 homes a month, which would be connected.

Further, the amount that we are talking about - as I read a few minutes ago - is less than 1% of our total amount of sales, or distribution, last year. The fact is that the idea of conservation - or maybe the necessity for conservation - can be dramatized rather well by these numbers. Maybe you don't know, but a therm is a heating unit. A therm is 100,000 BTU's. With that in mind, I can give you this information. In 1973, the therm use per degree day was .392 to our customers. In 1976, it was .317. That is about a 20% reduction. So, if you just sit here and do absolutely nothing and continue to conserve, what you do is lose your high priority mix, which is a rather

important point in this whole subject.

Let me get on to our supplies. Current estimates indicate that PSE&G will have an annual supply reserve of 25 to 30 billion cubic feet with normal winter weather and 15 to 20 billion feet with a designed cold winter. What we had last winter was approximately a designed winter crammed into about 10 days because it moderated in February and consequently when you put the whole heating season together, it was a designed winter.

The problem that existed last year, which we hope will not happen again, was cold weather all over the United States and drastic draw-downs on the pipelines.

We forecast a bottoming out in Transco's supply in 1978 and a leveling off, or slight improvement, thereafter. The supply estimates that have been supplied by Transco indicate a somewhat improved supply position in '78 and a greatly improved situation in subsequent years. Transco has made massive commitments, as you have heard, to develop new supplies. These efforts have resulted in significant additions. If the future supply, forecasted by Transco, does come on line, as estimated, PSE&G supply estimates would be increased by approximately 8.7 billion in '78, 21.8 billion in '79, and 28.6 in '80. These supplies would be an addition to the more than adequate reserves that we have talked about in this paper.

What I am saying is, we have really discounted, to a degree, Transco's projections. We have done this not because we believe they are absolutely wrong or anything like that, but we want to be, as distributors with customers - homeowners and industry, this State is where we live - conservative. We have to be conservative and that is the posture we have taken. Even with that conservatism we see absolutely no problem with adding the moderate amount of customers we are talking about here.

I really don't think that it is necessary to go over the rest of this prepared statement. Possibly it would be better to move into questions, if you wish. (Written statement submitted by Mr. Betz can be found beginning on page 4X.)

SENATOR ZANE: Thank you, Mr. Betz. Mr. Betz, you have heard Transco - Mr. Bowen--?

MR. BETZ: Yes.

SENATOR ZANE: --and the projections and I think your statement was you just discounted it?

MR. BETZ: Yes, we have discounted. We are more pessimistic about what Transco tells us. We are somewhat pessimistic. It is on page 7. Our supply estimates are 8.7 billion cubic feet in '78 under what Transco has given us; 21.8 billion cubic feet in '79; and 28.6 billion cubic feet in '80. That is the amount under what--

SENATOR ZANE: What they projected?

MR. BETZ: What Bowen was talking about.

SENATOR ZANE: How do you reconcile the differences? How do you explain them?

MR. BETZ: Well--

SENATOR ZANE: How did you arrive at them? Maybe that is a better way to ask.

MR. BETZ: As I say, we have to be-- Remember, most of his remarks included a high-low range?

SENATOR ZANE: Yes.

MR. BETZ: We are much closer to the low range. We have to be more pessimistic; we have no guarantee.

SENATOR ZANE: Wouldn't you be substantially less than even his low range?

MR. BETZ: Oh, no, no.

SENATOR ZANE: You would not?

MR. BETZ: We are on the low side of his range. We are on the low.

SENATOR ZANE: The one hundred and fifty million, I think, cubic feet that you mentioned, which would represent the new customers, how many new customers is that?

MR. BETZ: What we are proposing is a tenth of a billion cubic feet per month for residential and small commercial. That is about 700 residences per month.

SENATOR ZANE: New ones?

MR. BETZ: New, yes.

SENATOR ZANE: What are those 700 doing right now since they don't have gas?

MR. BETZ: Well, I think this is one of the reasons why the building industry in this state is sort of flat on its back. Those that are building are obviously putting in oil. Obviously, also, with oil you would install a tank and some more equipment. It is new construction that we are talking about, right?

SENATOR ZANE: Yes.

MR. BETZ: Yes. We are not talking about changing over from some other supply to gas in existing buildings.

SENATOR ZANE: It is my understanding that construction in the State has picked up considerably.

MR. BETZ: Yes and they must be installing -- they are not installing gas heat, so they must be installing oil or electric.

SENATOR ZANE: Could you amplify what you mean by the supply reserves of 25 to 30 billion cubic feet with a normal winter and 15 to 20 for the designed cold. I know what you mean by the designed cold, but what are the supply reserves; what do they represent to customers?

MR. BETZ: Storage plus capability to produce. If you look at this table, on the back of the last sheet, you will notice -- go to the right hand year, 1980, for example, and in that year we are projecting a total requirement -- that is the total firm send-out -- of 171.9. Where does it come from? The supply is listed below. You will notice that manufactured gas, for instance, is 20.5 -- those are the SNG plants that I was talking about. We don't need -- And, if we run everything, we have 186. We don't need 186. We actually need 171.9. So, we have a reserve, in a normal winter, that year, of 25. That means we probably would run our SNG plants very little.

On the other hand, if you get into the designed winter, then we would have about a 15% reserve. So, we would run no more. On any specific day we have to determine just exactly how it is we are going to meet the load during a winter day -- say a very cold day. We have our pipeline supplies, which are pretty much static. Rather, they are a constant volume, except in these super emergencies. We have our exploration gas, which is coming in. That is also

pipeline and Transco transports it for us. We have refinery gas, as I said, from Exxon; that is across the fence in our pipe system. And, we have manufactured gas, which consists of SNG or oil gas.

SENATOR ZANE: Is Public Service Electric and Gas engaged in exploration for natural gas with Transco in a partnership or corporation?

MR. BETZ: We have bid with Transco in the Transco group for offshore leases.

SENATOR ZANE: Do you have any drillings, or holdings, in Texas, Louisiana, Mississippi with them at this time?

MR. BETZ: Yes, just offshore. We have one lease -- two lease sales we participated in -- we and a number of other companies.

SENATOR ZANE: Are they presently producing natural gas?

MR. BETZ: At the present time, no. We are drilling.

SENATOR ZANE: In other words, Public Service is not producing any natural gas as a producer, or source supplier?

MR. BETZ: In the Gulf?

SENATOR ZANE: Any place.

MR. BETZ: Oh, yes.

SENATOR ZANE: Other than synthetic.

MR. BETZ: No, we are. If you look down on that same tabulation you will see that in the year 1976 we brought into this State 2.1 billion cubic feet. That is the exploration gas. In '77 we project 3.4; '78, 5.8; and so on. That is natural gas brought in by -- from our energy development corporation.

SENATOR ZANE: Do you sell your natural gas to anyone else, other than within the company?

MR. BETZ: No.

SENATOR ZANE: It is all used within the company?

MR. BETZ: When you drill for gas -- let's say in Texas -- and now you are waiting for pipelines to be connected, you are waiting for your permits, some of that gas has been sold -- not very much -- in the local market. Our objective, after all, is only to bring gas into the State of New Jersey. There isn't any other objective.

SENATOR ZANE: Do you share the same general optimism? At least I certainly sensed optimism from Mr. Bowen as to the future, with his curve and the graphs that he showed us. Do you share that same optimism?

MR. BETZ: I think, actually, that we are bottoming out in this situation. I don't know whether I move up as rapidly on the curve as he does. Synthetic gas -- In this country, first, he sells gas and he is not going to talk very much about electricity. But, we only have two basic reserves here outside of gas. We have coal and uranium. If you can convert coal directly to gas -- and you can, experimentally, at this particular point -- what he is talking about is, ultimately this will be commercial. I think it will be. Then, this is a good use for coal because you don't have to haul it all over the country to generating stations -- the only other place where you are really going to use it.

We have tremendous resources in coal and it is an excellent use. If you were sitting on top of a coal mine, it is also a great place to build a generating station. So, coal has its role, very definitely, that way and I believe it is going to happen.

SENATOR ZANE: Did I-- Did you say earlier that by having additional residential users that somehow that also affects the allocations that you get and somehow in an inverse way improves industry's position?

MR. BETZ: Improves industry's position?

SENATOR ZANE: What you have been hearing from the prior witness is that he feels that there is sufficient gas for this winter so as to serve all industrials who do not have an alternate supply of fuel. That was not the situation in this past winter. What we call those customers who have an alternate supply of fuel is an interruptible customer. We have a class of customers like that. They were long since gone by the time we got to the 2,000 industrials that were not interrupted but curtailed, let's say, this past year.

So, he is reflecting an improved situation. I think there is improvement, yes.

SENATOR ZANE: Yes, but the question is, if you were granted to right to tie in these additional residential users that you have petitioned the PUC to be able to tie in, I thought you suggested that also improves the allocation to this state and, therefore, would also be beneficial to industry.

MR. BETZ: I think that is right. You can't hurt it, no.

You see, let's suppose that all you have in a State are residences and industrials using the gas as boiler fuel. That boiler fuel is one of the lowest priority uses. So, that is going to hurt you in the total mix for your State. If you improved the industrials into a higher category of process use - glass and so on - that does improve it. If you increase the number of residential customers and, therefore, the residential volumes, you are improving your mix of high priority customers.

So, I don't know whether I am answering you. But, it can't hurt to add residential customers.

SENATOR ZANE: But, if you add residential customers, does it improve the gas that is going to be available for industry?

MR. BETZ: I don't think it affects it.

SENATOR ZANE: Well, isn't it also true then if there is only a certain amount of gas coming and if it doesn't improve the allocation, that it would hurt industry?

MR. BETZ: No.

SENATOR ZANE: I don't understand that, Mr. Betz.

MR. BETZ: What did you say?

SENATOR ZANE: I just somehow fail to understand that. I see a certain amount of gas available for the State of New Jersey, available to your company; I see a certain amount available for residential users; I see Public Service Electric and Gas asking to take on additional residential users; I see the Federal Power Commission saying there is going to be a greater curtailment and that even if we have a mild winter, it is going to be worse than last year's situation and I wonder how that can do anything but be detrimental to industry since they are the first ones shut down.

MR. BETZ: All right. Let's go back then. First of all, we do not see increasing curtailments.

SENATOR ZANE: You disagree then with the Federal Power report?

MR. BETZ: That's right. Yes.

SENATOR ZANE: Can you document this?

MR. BETZ: Yes, I think we can document that. Our suppliers are going back to this same tabulation. You will find that the same thing is happening. In '78/'79 Transco is up. The Texas/Eastern is down. Tennessee is down slightly. Our reserves are up. But, what you have to look at is our particular situation - our customers - and they are, as I said before, using less than they were before, so we do not have an increased load to carry. And, when you add all of the supplies up and all of the loads that we can forecast we come up with a higher reserve in each of these years, as you see.

SENATOR ZANE: Which then puts you in disagreement with the Federal Power Commission. That is how you are explaining it?

MR. BETZ: Yes.

SENATOR ZANE: Assuming that they are correct, then what happens if you have additional residential users.

MR. BETZ: What Jack is telling me is this: The FPC report says the nation is in worse position but that our suppliers, who happen to be in New Jersey here, are better. So, we are really not in disagreement with the general statement, but just with the specifics relative to New Jersey, is that right?

SENATOR ZANE: The FPC report says that?

MR. GARTMAN: Yes, the FPC report indicates that both Texas Eastern and Transco show increased supply for this winter over last winter. However, the nationwide supply, as a whole, is less. But, what the nationwide supply is is not very germane to our particular situation here in New Jersey; it is what our supplier's situation is.

SENATOR ZANE: So, therefore, the reason and the justification, in your mind, for the additional users is because there is more gas available?

MR. BETZ: That's right and also we are forecasting less sales. In other words, actually, the use is going down so that the amount that we are asking permission to sell does not even equal the losses that we will foresee this year in '77 due to curtailments. We are not increasing our load. If you notice, at the top of the page there, the estimated normal weather send-out continues at 161 billion cubic feet through '77, '78, '79, and '80. This is with this additional mix of customers thrown in.

SENATOR ZANE: Mr. Betz, are you saying that with the additional customers, because of the reduced usage, that you still will not be using more than you have used before, is that correct?

MR. BETZ: Total volumewise, that's right. As a matter of fact, in '73 the average residential customer, with heating, consumed 184.3 million cubic feet - 1,000 cubic feet of gas. The estimated use for '77 is 151.7, which is 18% less than he used in '73. So, we don't look at this as any increase in volume at all. As a matter of fact, we might end up with a net decrease, even adding these customers.

SENATOR ZANE: I will ask you the same question I asked Mr. Bowen. Do you foresee that your company - Public Service - will be able to supply all of its customers, be they industrial, residential, or whatever, without the problems as I outlined before - and I will do again - in the winter of 1977 and '78, free of those problems?

MR. BETZ: I think that our capabilities are much better than they

were last year. If you get back to Mr. Bowen, the one in one hundred thing could possibly happen again, but we don't expect it.

SENATOR ZANE: Discounting an abnormal year?

MR. BETZ: Discounting that; right.

SENATOR ZANE: You feel that we will not have the problems we had last year?

MR. BETZ: Yes, you are right.

SENATOR ZANE: You feel that we will not have layoffs, we will not have industry curtailed, we will not have residential users told to cut back thermostats?

MR. BETZ: They, I think, now are going to cut back their thermostats anyway.

SENATOR ZANE: Well, voluntarily.

MR. BETZ: Yes, voluntarily.

SENATOR ZANE: As far as that type of a crisis that we had?

MR. BETZ: I don't foresee that again this year, no.

SENATOR ZANE: If we had a winter that bordered on last year's, the opposite would the answer, right? You would anticipate a problem with that - the abnormal winter?

MR. BETZ: Well, if we had that particular series of events again, I think we would still be in better shape. As a matter of fact, it is possible that we could have gotten through without the interruption. Now, the problem if you are in the gas business is this: One thing you don't want to do is interrupt the residential customers because once they are interrupted, it is a long time to get back. It is not just a simple switch to turn on and off. So, what you have to look at at the particular time that you are making your decision is, do you have enough reserves, do you have enough draw-down you can make from storage, do you have enough capacity in your SNG plants, and so on, to carry on for a month if it continues like this. If all you have is enough for two weeks, now you are getting awful, awful close to a situation where you will have dramatic problems unless you do something. That is the situation that you are in. That is the decision that you have to make. That is the decision we made, to interrupt.

SENATOR ZANE: Have you found that industries within the area that you serve have switched to alternate sources of power?

MR. BETZ: Fred, did you notice any of that?

MR. DE SANTI: Very few firm customers are putting in alternate sources right now.

SENATOR ZANE: Senator Vreeland?

SENATOR VREELAND: I don't think I have any questions, Mr. Chairman.

SENATOR ZANE: What are your reserves this year over last year?

MR. BETZ: What is that?

SENATOR ZANE: What are the reserves you have this year over last year?

MR. BETZ: Well, in 1977 we had 40.5 billion cubic feet and in '78 we will have 2.3 more billion cubic feet than that. So, we will have 42.8.

SENATOR ZANE: You are talking about storage capacity?

MR. BETZ: Storage, I believe that is the way I am interpreting you.

SENATOR ZANE: I would like to ask you a little bit about the contracts

because I also-- There are representatives here from South Jersey Gas who I think we are going to meet with at another time at their option. If they would like to testify today they may. If they would like it at another time, we can handle it then.

I would like to know something about the contracts that you have with Transco. I recognize that they are a matter of public record. You heard the testimony of Mr. Bowen that these contracts are entered into for multiple year terms - 20 years, and what have you. When you enter into a contract with them to supply you with gas, are you of the opinion that that gas at that time is, in fact, available?

MR. BETZ: Is available at the instant of the contract?

SENATOR ZANE: Did they know for a fact - you know, not guess work - that that gas is there?

MR. BETZ: I don't believe that they know, positively, that every cubic foot is available when they enter into the contract, do you?

MR. GARTMAN: When the Federal Power Commission certificated sales of gas in the late 1960's and in the '60's when the last additional contracts were entered into with Transco and our other suppliers, they required approximately about a twelve year reserve of gas to support a 20 year contract. So, the contract, obviously, envisioned the addition of some new supplies of gas before its termination period in order to fulfill it.

Now, the basic reason for the curtailments that we have seen is the fact that supplies of gas that were envisioned have not come on line for primarily the reasons which Mr. Bowen described to you - the pipelines inability to purchase sufficient supplies of new gas. So, the contracts that we did have were 20 year contracts, but at the time they were entered into there was not a 20 year supply reserve to support the contract.

SENATOR ZANE: Mr. Betz, what does the residential user pay for gas today?

MR. BETZ: Around \$3.00.

SENATOR ZANE: For 1,000 cubic feet, is that?

MR. BETZ: Yes.

SENATOR ZANE: With the President's proposal of going to \$1.75, Mr. Bowen has testified - he has testified anyhow, whether you agree or not - that this will increase the availability of gas. He said that in Newark when we met with Commissioner Jacobson and I believe he said it today. What do you feel will be the impact should that happen, as far as the actual price to the consumer is concerned?

MR. BETZ: Let's see, our mix at the present time is around \$1.29 - in other words, the mix of all of the pipeline gas. That is the 22¢ gas that Bowen was talking about and on up to the \$1.40, \$1.50, or \$1.29. Do you have an estimate of what that would mean to--? \$1.75 versus what is now about \$1.50, that is about 25¢ we are talking about.

MR. DE SANTI: It all depends upon the mix how our contracts range.

MR. BETZ: You see, we have some 20 in these long-term contracts. We have some of that very cheap gas and we have some of the -- Well, our EDC gas, which was just recently found, would be in the \$1.42 range. So, when you put them all together, it is \$1.29 and it is obvious that there is more of the higher priced gas in there. It can't be any more than 10.

(consults with Mr. Gartman)

Well, that is an approach. Let's supposing it is a 25¢ increase and it is only for the new gas, of course, and you add 10% of your total quantity of new gas the first year and 20% the second, and so on; you are stepping up very, very slowly on that quarter.

SENATOR ZANE: So, if it is two something now, what will it go to, do you have any idea?

MR. BETZ: Ultimately?

SENATOR ZANE: Yes.

MR. BETZ: I don't see why ultimately it would be any-- It can't be any more than \$1.75 as your price.

SENATOR ZANE: No, I am saying with the end user, would there be a substantial increase? Utility bills are out of sight today.

MR. BETZ: No. What you are talking about is 25¢ and that is the maximum you can increase in this if it happened instantly. But, in addition to that, if what you get as a result is increased incentive to drill and, therefore, increase gas, the net result, believe it or not, could be a reduction in the cost of gas to the consumer because these alternate gases - the SNG, for instance - is much more expensive than pipeline gas. Manufactured gas from oil gas runs around \$6.00 to \$7.00 a million BTU, versus the \$1.29 that I was talking about.

SENATOR ZANE: Mr. Betz, from your resources within your company, are you convinced that it costs that much more today to produce natural gas? I mean, is it that much more difficult or that much more costly to explore?

MR. BETZ: I have watched dramatic increases in the cost of construction over the last 10 years - tremendous increases - and I am not expert at all on the drilling industry, but if it is anything like that, I can see it tenfold.

SENATOR ZANE: It seems to be that the whole thing about natural gas being available is tied to the price.

MR. BETZ: Well, I think--

SENATOR ZANE: Which leads one to conclude that there is gas if you will pay for it.

MR. BETZ: Yes, but to go back over what Bowen said, let's supposing you have interstate gas regulated at 52¢ and here is the State of Texas and in the State of Texas there is no regulation. Now, I am a producer and I am sitting here on a well and I don't want to sell my gas to somebody who is going to pay me 52¢ for it. I would rather sell it in the open market right within the State where I am competing with all of the alternate fuels.

SENATOR ZANE: Do you feel that man in Texas should have that right?

MR. BETZ: Well, under the new situation, he won't. I mean the Carter Administration is moving in the direction of eliminating inter versus intrastate gas. This is why Bowen says that he can bid competitively in offshore. Offshore is considered interstate. You don't have the option of selling onshore at \$2.00 or \$3.00. He can bid competitively there. He can't bid quite as competitively right smack in the center of Texas because of this intrastate situation.

You will recall, he said he feels he will be in a much better position. The answer is, yes, I think it is going to improve the competitiveness. I think it will improve the supply to regions, such as ours.

SENATOR ZANE: The gas that you have, that you are involved in with

Transco, or whoever--

MR. BETZ: Yes.

SENATOR ZANE: --that you are drilling for, is the drilling completed and have you reached the gas?

MR. BETZ: Do you mean Energy Development Corporation - our subsidiary?

SENATOR ZANE: Yes.

MR. BETZ: Yes. We have been bringing up gas for the last several years. For instance, in 1974 it was one-tenth of a billion cubic feet, in '75 it was point three tenths, in '76 it was two point one.

SENATOR ZANE: Mr. Betz, could you be sending more gas than that?

MR. BETZ: Could we?

SENATOR ZANE: In other words, do you have the capability today of producing and delivering more than you are?

MR. BETZ: No, I don't believe we have the capability of exceeding what we are sending.

SENATOR ZANE: Do you hear the stories about wells that are capped?

MR. BETZ: Yes.

SENATOR ZANE: There are Federal reports that say they are and there are other Federal reports that say that they are not. Do you have any knowledge about that, either way?

MR. BETZ: No first hand knowledge. I honestly do not believe that there is any substantial amount of gas supply that is capped, so to speak.

SENATOR ZANE: Does that--

MR. BETZ: I wouldn't cap it. For instance, if I am that same producer in Texas, I am not going to cap it, I am going to sell it right there in Texas for \$2.00 to \$3.00 a million BTU. That really should be of a much greater concern to us here in New Jersey. And, if you eliminate the inter/intrastate situation, where that type of thing cannot happen, then you are moving towards a free market. And, actually, gas should be priced closer to oil than anything else. It is a cleaner fuel. This is why a great number of industries converted to it, rather than put in emission control equipment which costs money - capital dollars. They converted to gas to meet environmental standards.

SENATOR ZANE: Mr. Jacobson made a statement that the people supplied by South Jersey Gas - South Jersey will certainly have an opportunity to respond to this - were not in as good a shape as those supplied by Public Service Electric and Gas Company. He elaborated to some extent on that. Do you have any knowledge as to whether that is accurate or not - his statement?

MR. BETZ: I would rather speak-- First of all, we have, it so happens, built the SNG plants. We are exploring.

SENATOR ZANE: Is this your response to that question? This is your response?

MR. BETZ: Yes. We have built our SNG plants. We are exploring. We are trying to get some LNG into this country and into this State. We have a different mix in this allocation system than the other companies in New Jersey. To that extent, we can be different.

Elizabethtown, for instance, has a 10% ownership of our Linden SNG plant. But, to that extent we are different. And, I think you really ought to talk

with them with regard to the differences.

SENATOR ZANE: I would like you, if you would, to enumerate why your position was-- I know you are trying to keep away from answering for South Jersey and they are going to have ample opportunity to do so. But, would you indicate what your sources were?

MR. BETZ: We have exploration gas coming in from our Energy Development Corporation subsidiary. Those are the numbers I read to you before. Let's pick '77: 3.4 billion cubic feet. We have manufactured gas. What's that? That's 2 SNG plants, one in Harrison and one in Linden. We can make as much as 20 billion cubic feet with those, plus our oil gas. So, we have oil gas plants. We have the SNG plants. We have Energy Development Corporation. And, we have the refinery gas, where, I guess, we are different in that respect. We are close to Exxon, of course.

We have, as Jack is reminding me, three pipeline suppliers. We have-- We get 65% of our gas from Transco; 30% of our pipeline gas from Texas Eastern; and 5% from Tennessee. So, we do have three suppliers. From those things, I think you can arrive at the differences in our situations.

SENATOR ZANE: Senator Vreeland?

SENATOR VREELAND: I understand, from what your statement says, Mr. Betz, that there will be more gas available. You will have more; Transco will have more. Will there be any reduction in the price to the consumer?

MR. BETZ: I don't see any reduction in the price to the consumer.

SENATOR VREELAND: In other words, the cost will be the same to distribute it. Will there be an increase then?

MR. BETZ: I think over the long run, all sources of energy are going to continue to increase in cost, whether it be electricity, gas, oil, gasoline, whatever. I think the best thing that we can possibly do is try to make these increases as moderate as possible through using all of our resources. The cheapest thing you can do at the present time, still, is to drill for gas and distribute it by pipeline. Manufactured gas costs more money and always will.

SENATOR VREELAND: Well, then, in the foreseeable future you don't see any reduction in the consumer's energy cost, particularly in the area of natural gas. I think you made the statement that natural gas is the cleanest, the most efficient, non-pollutant for industry to use, is that right? How does that compare with - maybe this is not a good question for you, but how does natural gas compare for industry with, for example, soft coal? Let's say we are talking now about many of the industries converting if they are burning oil - take generating plants, or whatever they might be. Would the same thing apply if they were using gas? Would it be more economical to change those plants to soft coal, which we know is cheaper?

MR. BETZ: Well, actually, the thing you get into immediately when you do that is, you need one heck of a lot of capital. You have to build this coal burning plant. In addition to that, if you build it in the State of New Jersey and in many states in this country, you will discover you will have to put a scrubber on it because you have to get that sulfa out of it.

What Bowen was talking about - which makes a lot of sense to all of us in the industry - is, if, at the location where the coal is mined, you can at that particular point make it into a liquid, remove the sulfa, and convert it

into a gas, you now have something that you can pipeline around the country, without the added coal cars and so on.

SENATOR VREELAND: So, that would be the cheaper way of converting coal into energy, that is really what you are saying?

MR. BETZ: Yes. That's right. Unless you get to a situation-- Now we are talking about the electrical generation side. If you are on top of a mine, or very close to a mine, then you have a totally different animal. This is why in New Jersey we are not proposing to build any coal-burning electric generating plants. We are not close.

SENATOR VREELAND: Thank you.

SENATOR ZANE: Once more. One more shot at these new hookups, which still bother me. Can you tell me how you feel that is in the best interest of the people of this State? You have a tremendous responsibility, which I am sure you understand and recognize - jobs, health, what have you. How is it to the advantage of the people of the State of New Jersey?

MR. BETZ: Let me try it again. First of all, if we had had that small increment on our lines last year - if you just add that on top of all the customers we had at that time - it would not have made any difference at all in what happened. The same thing would have happened.

Secondly, we do not want to lose our proper mix place in this allocation system. We want to continue to keep our high priority customers in for the benefit of the State of New Jersey.

Thirdly, the total amount is less than what we forecast to be the attrition in our total requirements for the year, so that we will not increase our gas requirements as a result of this. And, most importantly - although last on my list - is the fact that this State, I think, needs jobs. We live here too and this is a way to help. The State of New Jersey has very high unemployment. If we actually build 700 homes a month, that is a lot more than most areas are now seeing.

On page 8 of my statement-- You understand this, I am sure, but I think it is worth adding to this pile of things. Let us suppose that you start out with 1,000 customers and as a result of attrition you go to 500 customers. You have the same fixed charges associated with all of the pipe in the ground, all of the SNG plants, and what happens as a result is, the rates must increase although the buyer is buying a lower volume of goods.

This particular thing, incidentally, is happening right now in California with the water situation. You know they are in the midst of a rather drastic situation because of lack of rain and their use is way, way, way down and they are now applying for rate increases that are in the order of -- What? You tell me. 30 or 40? Forty-five percent rate increase. Everybody is using less. What happens to the rates? They go up. So, there is another reason to keep this thing steady at least.

I think that we are quite conservative. In fact, I am sure we are quite conservative and it is one of the reasons that we don't want to have last year happen again either, believe me. No way does any utility wish ever to go through that.

SENATOR ZANE: Mr. Betz, I have to conclude that-- Not necessarily your company, but all of the companies in this state then thank be to God that there is a lower demand or we would have really been in trouble last year.

MR. BETZ: That is sort of, "When did you stop beating your wife?"

SENATOR ZANE: No, you don't even have to respond to that.

MR. BETZ: What?

SENATOR ZANE: You don't have to respond to that. That is just a statement that I think is an obvious conclusion. You know, we sit and we know what we went through in January and February and in April your company is before the PUC for more customers. I know damn right well that your customers as well were under the same regulations that the rest of us faced and had the curtailments and cutbacks and changing of thermostats and what have you. It is inconceivable to me that we could have that. It just doesn't make sense.

MR. BETZ: I am sure you don't want me to repeat the list of reasons.

SENATOR ZANE: No.

MR. BETZ: I still feel that what we have is a very, very conservative approach to this whole thing and that it is good for this State to move ahead on these.

SENATOR VREELAND: I think what you are saying, Mr. Betz-- I agree with you to the point that we need new housing, there is no question about that, and by having new housing it creates a great number of jobs in the building industry, in the supply, the materials; there is no question about that. I think it is a great thing to be able to do it. But, I think the other part that really disturbs me is the other part of the coin which is the industry. I would not want to see - and I know that Senator Zane wouldn't either - what happened last year when the glass industry, for example, had to close down and those people were out of jobs. What you are saying is, that won't happen again because of adding new customers - residential customers.

MR. BETZ: No, that's right.

SENATOR VREELAND: It wouldn't happen again. Primarily, residential is top priority, as you said and as Mr. Bowen said. He said residential is top priority. We will never cut them out of gas. So, what would be the ideal thing, it seems to me, is that we ought to say the same thing about industry - that we won't cut them out either. Because on the one hand you are doing a great service to the State of New Jersey by allowing new homes and new tie-ins with gas, then on the other hand, you ought to be doing the same thing for industry, it seems to me. Maybe the priorities-- That is not your concern, I guess that is the Federal Power Commission.

MR. BETZ: Of course, it is our concern but it is not our responsibility.

SENATOR VREELAND: It is your concern but you didn't make it that way.

MR. BETZ: No, sir.

SENATOR VREELAND: I think that is what I would say.

MR. BETZ: The thing that we have to remember, still, is that had we had that additional load last year, the same thing would have happened. In other words, we are not--

SENATOR VREELAND: It wouldn't have made any difference?

MR. BETZ: It wouldn't have made any difference and, actually, at the rate of either conservation or curtailment, whatever you want to call it, that we are experiencing, we don't expect to have one bit more load this next season than we had last season.

SENATOR VREELAND: Even if you increased the residential customers?

MR. BETZ: That's right. Yes. So, in most things what you really have to evaluate is what happened before and how would what you are proposing to do affect it? As I say, it wouldn't have affected it at all. The same thing would have happened, identically, except that this year we do feel we are in a better position and we have also experienced this amount of conservation.

I can't stress too much the fact that we did not arrive at this decision lightly. I think that we have common interest with you - almost identical. The last thing in the world that a utility whose total market is in this State - and anybody that moves out is no longer in our market - the last thing we want to do is have industry lose confidence in this State. No way do we want that.

So, we have tried our level best to examine this very carefully and very conservatively and for the reasons I stated before have come to the conclusion it is the right thing to do for all of us.

SENATOR VREELAND: Let me ask you this question: Let's say we had some new industry coming in - and I mean substantial - who would require gas hookups. How about that? Can they hook up now?

MR. BETZ: Now? No.

SENATOR VREELAND: They can't?

MR. BETZ: Now, nothing.

SENATOR VREELAND: All right, then let's say-- We are talking now about increasing residential hookups.

MR. BETZ: Oh, no. Our proposal is--

SENATOR VREELAND: Are you proposing industry too?

MR. BETZ: Yes.

SENATOR VREELAND: Oh. Okay. Well, I didn't understand.

MR. BETZ: In fact, it is 100 million cubic feet per month, per residential and small commercial combined and 50 million cubic feet per month for high priority industrials.

SENATOR VREELAND: Okay.

MR. BETZ: So, it is two-thirds/one-third.

SENATOR VREELAND: Yes.

SENATOR ZANE: Mr. Betz, I thank you for coming in and appearing before our committee. I know we are going to have four sessions and there may well be more questions. I would like to ask you the same thing I asked Mr. Bowen, if you would be willing at another time - if need be?

MR. BETZ: Absolutely.

SENATOR ZANE: Thank you very much for appearing.

MR. BETZ: Thank you.

**U.S. GAS SUPPLY/DEMAND BALANCE,
1976 ACTUAL AND 1986-90 PROJECTED
(Tcf)**

	1976	1986-90	
		Low	High
SUPPLY (Market Production)			
• DOMESTIC NATURAL GAS			
Lower 48 States	19.9	16.0	19.0
Alaska	-	1.0	1.5
Imports (Canada & Mexico)	1.0	1.0	1.5
<hr/> Total	<hr/> 20.9	<hr/> 18.0	<hr/> 22.0
• SUPPLEMENTAL GAS			
SNG (Liquid Hydrocarbons)	.3	.6	.7
SNG (Coal)	-	.4	.8
LNG Imports	-	1.0	1.5
<hr/> Total	<hr/> .3	<hr/> 2.0	<hr/> 3.0
<hr/> Total	<hr/> 21.2	<hr/> 20.0	<hr/> 25.0
DEMAND			
• RESIDENTIAL/COMMERCIAL	7.8	9.0	10.0
• INDUSTRIAL			
High Priority	6.2	7.0	8.0
Low Priority	2.5	1.5	3.1
<hr/> Total	<hr/> 8.7	<hr/> 8.5	<hr/> 11.1
• POWER GENERATION	3.0	1.0	2.0
• OTHER	1.7	1.5	1.9
<hr/> Total	<hr/> 21.2	<hr/> 20.0	<hr/> 25.0

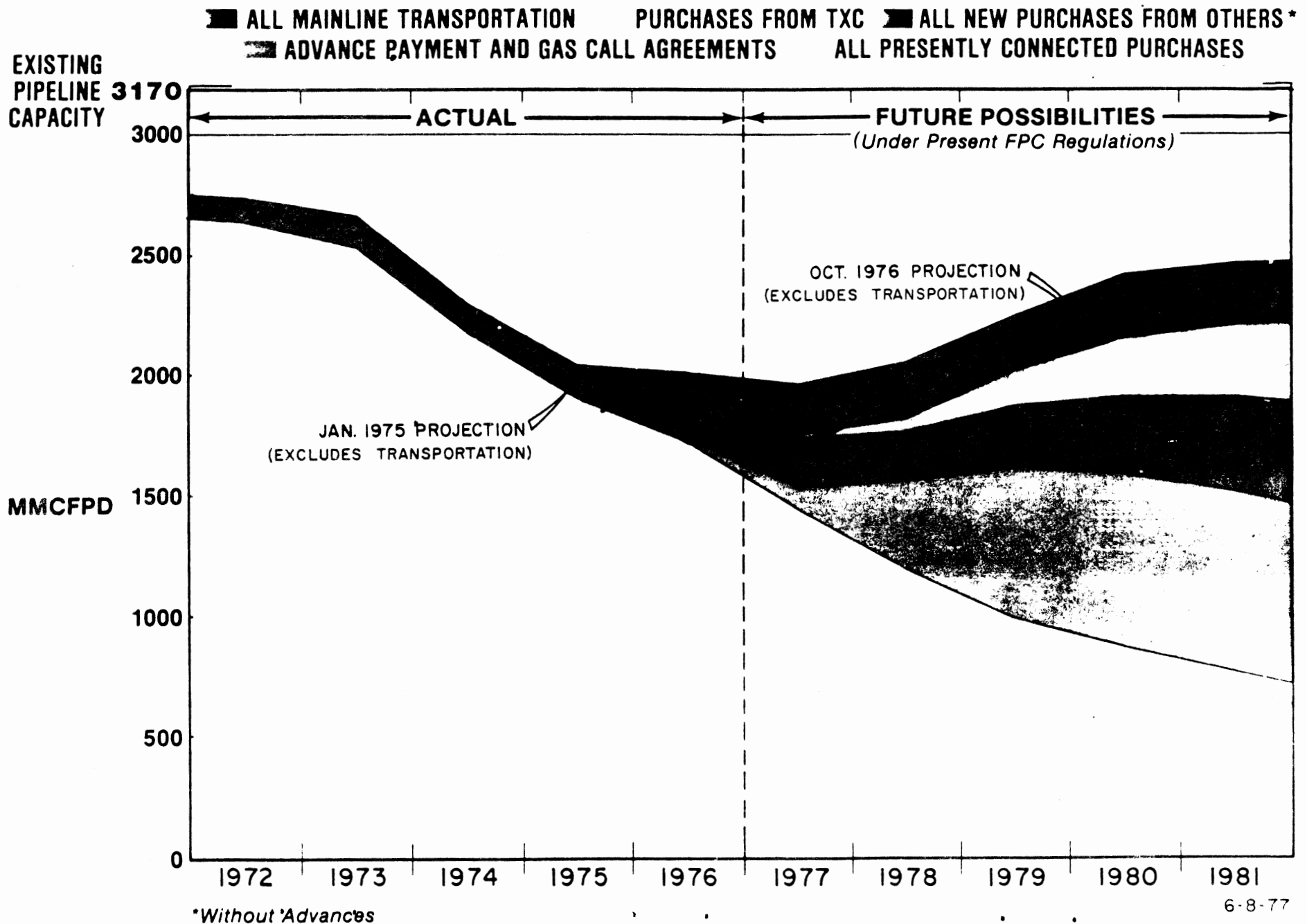
XI

SYSTEM GAS SUPPLY/DEMAND BALANCE 1976 ACTUAL AND 1986-90 PROJECTED (Bcf)

	1976	1986-90	
		Low	High
SUPPLY (Net of Fuel)			
• DOMESTIC NATURAL GAS			
Existing Reserves	632	150	150
New Reserves	-	500	660
Others (Mexico-Alaska)	-	50	100
Total	632	700	910
• SUPPLEMENTAL GAS			
SNG (Liquid Hydrocarbons)	-	35	35
SNG (Coal Gas)	-		45
LNG Imports	-	65	100
Total	-	100	180
Total	632	800	1090
DEMAND			
• RESIDENTIAL/COMMERCIAL	420	560 (2.4%)*	605 (3.1%)*
• INDUSTRIAL			
High Priority	181	205	275
Low Priority	-	-	165
Total	181	205	440
• POWER GENERATION	6	-	-
• OTHER	25	35	45
Total	632	800	1090

* Average Annual Growth Rate

10 YEAR CHART OF AVERAGE DAY DELIVERIES OF SALES AND TRANSPORTATION



DRAFT STATEMENT OF JOHN F. BETZ
BEFORE STATE LEGISLATIVE COMMITTEE
REGARDING SENATE RESOLUTION NO. 3004

Good morning. My name is John F. Betz and I am the President and Chief Operating Officer of Public Service Electric and Gas Company. I would like to thank the Committee for giving me the opportunity to appear today to provide information on PSE&G's gas supply situation and the reasons for our petition to the Public Utilities Commission to attach a limited number of new customers. After living with the problems associated with customer curtailments and gas availability last winter, I do appreciate the concern that has been expressed in the Senate Resolution establishing this Committee. I assure you that as the largest distributor of natural gas in the State, we share that concern.

The gas supply situation and the broader overall problem of energy supply are serious problems facing New Jersey and the nation as a whole. PSE&G has been faced with a gas supply problem since 1970. Prior to that time nearly all of our gas supply was purchased under long-term contracts from interstate pipeline companies that obtained gas from wells in the Southwest United States, primarily Texas, Louisiana and offshore in the Gulf of Mexico. Beginning in the late 1960's, these interstate pipeline companies were unable to provide the increased supplies required to meet the growing demand for gas in New Jersey. Beginning in 1971, the supplies of gas to these pipeline companies were not sufficient to even meet their existing long-term contracts and what

has commonly become known as "curtailments" began. Since their beginning in 1971, these curtailments of long-term supply contracts increased at a rather rapid rate through 1975 when the total contractual supply to PSE&G was curtailed by 27.3 percent. In 1976, the increasing rates of curtailment began to moderate and in 1977 the overall curtailment of pipeline supplies is expected to be nearly equal to the 1976 level of 31 percent.

With pipeline deliveries of natural gas steadily declining throughout the 1970's, PSE&G and the Public Utilities Commission have been continually faced with the need to take actions to maintain a reasonable balance between supply and demand.

First, I would like to address the supply side of the equation. Faced with an inadequate supply of pipeline gas, PSE&G has undertaken numerous programs since 1970 in an effort to develop new supplies of gas to meet the needs of its customers. In 1971, deliveries of refinery gas from Exxon's Bayway refinery in Linden began. In 1971, a wholly owned subsidiary, Energy Development Corporation, was formed to explore for and develop new supplies of natural gas. Through the end of June, 1977 a total of 96 wells have been drilled, 46 of which have been successful. Gas from three fields is currently flowing to New Jersey and increased deliveries from additional discoveries are expected in the future. PSE&G also constructed and operates two synthetic natural gas plants in Harrison and Linden.

The Harrison plant was the first SNG plant built in the United States. In addition, since 1972 PSE&G has continually pursued a project to import substantial quantities of liquefied natural gas from Algeria. These efforts are continuing in order to meet the future needs for gas in our service territory. In 1976, these supplemental supply efforts provided 18.2 billion cubic feet of gas to PSE&G. This is equivalent to 10.3 percent of the total requirements of all firm customers.

Despite these efforts to develop new supplies of gas, due to pipeline curtailments, the total supply has not been sufficient to meet the demand since the early 1970's. Accordingly, a variety of actions to limit or restrict the demand became necessary. Limitations on new customer attachments began as early as 1970. The extent of these limitations changed numerous times since then in an attempt to adapt to changing conditions and maintain a balance between supply and demand. In October, 1973, a complete restriction on all new customer attachments became effective. As conditions changed in subsequent years, this complete prohibition was modified on two occasions in April, 1974 and again in June, 1976 to permit a very limited and carefully controlled number of new connections. All along the way the gas supply and demand conditions were monitored by the PUC and all actions either restricting or expanding customer attachments were subject to regulation by the PUC. In this regard, the PUC has conducted a number of public hearings dating back to 1971, regarding the supply of gas and the limitation on new customer attachments. At these

hearings, the utilities, customers, and the general public have been afforded an opportunity to present and have presented a great deal of detailed information and data relevant to the particular action under consideration. In addition, PSE&G continues to submit numerous reports to the PUC on a routine basis in an effort to provide an up-to-date picture of the gas supply situation.

Our latest application to attach a very limited number of new customers was submitted to the Commission on April 18, 1977. The Commission requested that we submit detailed data concerning gas supplies and requirements and subsequently on June 6 and June 14 public hearings regarding this application were held in Newark and Camden. These hearings afforded all interested parties the opportunity to fully express their positions.

At the Newark and Camden hearings, PSE&G outlined its proposal to attach a very limited number of new customers and provided evidence as to the adequacy of supply to substantiate the proposal. An exhibit summarizing this evidence is attached to my statement. I would like to emphasize that our current proposal is not a request to attach an unlimited number of new customers. We propose to commit a total of 150 million cubic feet of gas per month to new customers beginning with those on our waiting list. On an annual basis, these attachments would be equivalent to only one percent of the Company's total sales of gas in 1976. Future conservation and attrition by our customers is expected to completely offset the new customer attachments, thereby resulting in a stable demand

for gas. PSE&G also proposes that this level be flexible and subject to adjustment to meet any changing conditions in the future. With today's changing energy situation, flexibility is essential.

PSE&G's program places an emphasis on high-priority industrial use of gas and is intended to insure that gas is available for new industry where the use of natural gas is essential. Hopefully, this policy will stimulate expanded industrial operations and job opportunities in New Jersey. In June, 1976, the PUC permitted PSE&G to commit a limited quantity of gas to new industrial customers. The availability of this gas was partially responsible for expanded industrial operations which will provide an estimated 1,000 additional jobs.

A number of factors have contributed to the limited availability of gas for new customers at this time. The most significant of these factors is the substantial reduction in gas usage by existing customers due to conservation efforts. Looking at historical data, total firm sales normalized for weather have declined 15.9 billion cubic feet or 9 percent from 1973 to 1976. An additional 5 percent reduction in 1977 is estimated. Total residential sales are expected to decline 12 percent from 1973 to 1977. These figures clearly show the results of the conservation efforts of our customers. Numerous programs promoting or mandating conservation are either currently in effect or under active

consideration. These programs, as well as the conservation ethic which is becoming increasingly more evident in our society will undoubtedly affect future gas consumption.

While the demand for gas by existing customers is substantially declining due to conservation, the supply of gas, which had been steadily decreasing for six years, has stabilized. The declining demand coupled with a stable supply has made gas available for a limited number of new customers. We do not anticipate that we will have any problems meeting the demands of all of our firm customers, should the application for new customer attachments be approved. Our current estimates indicate that PSE&G will have an annual supply reserve of 25 to 30 billion cubic feet with normal winter weather and 15 to 20 billion cubic feet with design cold weather. Our supply estimates are based on a conservative outlook regarding future pipeline deliveries. The future gas supply estimates of our major supplier, Transco have been discounted to a substantial degree. We have forecasted a bottoming out in Transco's supply in 1978 and a leveling off or slight improvement thereafter. The supply estimates that have been supplied by Transco indicate a somewhat improved supply position in 1978 and a greatly improved situation in subsequent years. Transco has made massive commitments to develop new supplies of gas in recent years through its advance payments program and through its own exploration efforts. These efforts have resulted in significant discoveries of new gas supplies,

primarily in the offshore area, and substantial quantities of gas from these discoveries should be brought on line over the next several years. If the future supply forecasted by Transco does come-on-line as estimated, PSE&G's supply estimates would increase by approximately 8.7 BCF in 1978, 21.8 BCF in 1979, and 28.6 BCF in 1980. These supplies would be in addition to the more than adequate reserves that I have previously indicated.

The supply situation of our second largest supplier, Texas Eastern, has already improved significantly. At the current time, we expect an 18 percent curtailment in 1977 compared to 26.2 percent in 1975 and 26.9 percent in 1976. If this improved supply situation continues in future years, our gas supply reserves will be even greater than previously indicated.

I look at our application to attach a limited number of new customers as a very cautious approach that will result in substantial benefits to the State of New Jersey as a whole. The availability of gas for new customers will encourage industrial expansion, will stimulate new construction, will provide new jobs and will work to the overall benefit of the economy of the State. Developing an overly cautious approach regarding gas supply adequacy, can lead to a false sense of security and can result in a number of undesirable side effects. The basic supply of natural gas to PSE&G is allocated by the Federal Power Commission based on the end-use priority of our customers. Over the last four years, our high-priority sales have declined significantly and these declines are continuing today. If these declines are

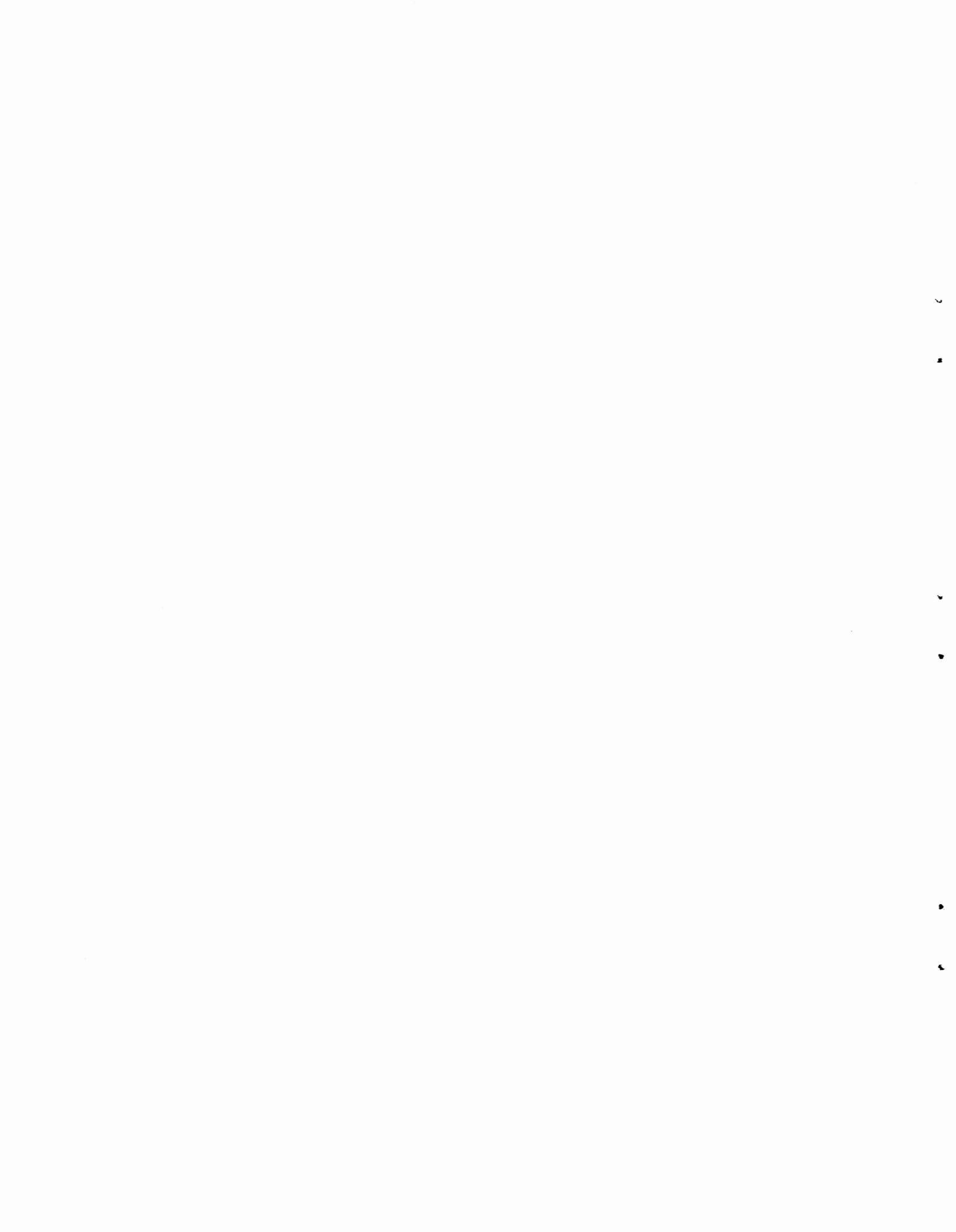
permitted to continue in the future, in all likelihood some of the needed gas supply for New Jersey will be allocated to another part of the country. It is my view that we should do our best to insure that the sacrifices of our customers in conserving gas and the efforts of the Company in securing new supplies of gas work to the ultimate benefit of New Jersey and not to those that have not taken similar self-help efforts.

A further undesirable by-product of the steady reduction in high priority sales of gas is the pressures for rate relief that are generated. The gas business is a high fixed-cost operation and, therefore, declining sales require that fixed costs be recovered over a smaller volume thereby increasing unit costs. This situation has been in existence for a number of years and if allowed to continue, will ultimately result in higher costs to the gas consumer.

Regarding the future, there is no absolute certainty that the experience of last winter will never be repeated. Under any given set of circumstances including very unusual weather, natural disaster or equipment failure, supply problems can materialize. However, based upon all information now in hand, it appears highly unlikely that we will face a repeat performance in the foreseeable future.

Our application for new customer attachments is a prudent measure which will not place existing customers in jeopardy, but will provide the many benefits that I have described.

I trust my remarks will be helpful to you and I will be pleased to answer any questions you might have.



JUN 27 1985



