FEDERAL TRADE COMMISSION

I N D E X

FACTORS THAT AFFECT PRICES OF REFINED PETROLEUM PRODUCTS

MATTER NO. P022105

For The Record, Inc.
Waldorf, Maryland
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FEDERAL TRADE COMMISSION

Public Conference:

FACTORS THAT AFFECT
PRICES OF REFINED PETROLEUM PRODUCTS

MAY 8, 2002

FEDERAL TRADE COMMISSION
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P R O C E E D I N G S

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MS. DeSANTI: Why don't we all get started. Please take a seat.

MR. MURIS: Good morning. Welcome to our second public conference on the factors that affect prices of refined petroleum products. I'm Tim Muris, and I'm certainly glad that you are here. This is an important topic and this conference could not be more timely. Gasoline prices have again been in the news and also the subject of congressional hearings. As prices at the pump rise and fall sharply with seemingly increasing regularity, consumers question the causes of price volatility. They also ask what drives the average level of gasoline prices.

Last August, the FTC began to study these products. Of course the Commission already has long-standing expertise and authority with respect to the oil and refined petroleum products industries. The FTC has reviewed and required substantial divestitures in several oil mergers over the last two years. Last year, for example, the FTC conducted two investigations into gasoline prices on the west coast and in a number of midwestern states. Starting last August, we have broadened our focus beyond law enforcement to analyze in

a more comprehensive way the central factors that affect the level and volatility of refined petroleum product prices.

The wealth of expertise during our law enforcement investigations has informed that work, and the information gathered and analysis that we are currently undertaking will further help our enforcement. Today I want to briefly outline the projects that we are undertaking. They fall into three categories: Research, reports, and review and monitoring.

I will discuss some of the questions we have been asking and a few of the observations that we have made thus far. We began our research by holding a public conference last August 2nd. We heard from businesses, consumer groups, trade associations, economists, government agencies, and other experts. They told us what they saw as important factors warranting further study, and in many cases, also gave us the benefit of their own experience.

Today's conference provides another opportunity to learn about the central issues. To give a few examples of issues to be discussed in the next day and a half, one paper asked to what extent and how quickly crude oil prices, both increases and decreases, are passed through to wholesale rack prices. This is an

important topic, given that crude oil represents about 40 percent of the retail cost of gasoline.

Another paper examines the extent to which the density of competitors surrounding the local station affects the elasticity of demand at individual gas stations. This is another important topic for those of us tasked with understanding local retail competition.

I look forward to a lively discussion of these and other papers during this conference. I want to thank each of you who have agreed to participate for sharing your time and expertise with us.

Of course our research goes beyond these public conferences. We receive public comments and we have reviewed literature and other data. EIA data and reports have been particularly helpful as have many other sources of information.

Let me note one recent news source: Last week, the Majority Staff of the Permanent Subcommittee on Investigations, Senate Committee on Government Affairs, released a report entitled Gas Prices: How Are They Really Set? Senator Levin chaired two days of hearings on this topic. I want to compliment the Senator and the majority staff on the completion of a very ambitious and important project. We wholeheartedly agree with Senator Levin about the importance of this topic to U.S.

consumers and to the U.S. economy.

The report has raised very important issues about the refining and marketing industries. It has pinpointed crucial facts that we, too, have identified in our research, such as the high rate of refinery utilization, the importance of inventory levels of refined products and the emergence of hypermarkets as a competitive force in retail gasoline sales. This report is a significant effort and we will be studying it closely as we proceed with our own work.

Let me share what we hope to produce from the FTC's research: We have begun working toward two reports, both to be issued later this year. The first will review merger and acquisition activity by major petroleum companies and structural changes in the industry, including changes in concentration at various levels, such as crude oil, refining and marketing. We have been examining data from 1985 through 2000. This report will basically update the FTC's previous oil merger reports of 1982 and 1989.

The second report will review more broadly the factors that affect prices of refined petroleum products. We do not expect to find any one true factor that determines gasoline prices - rather gasoline prices result from a complex interaction of factors. Research

teaches that the price of crude oil is the most important factor in determining the price of gasoline. EIA data consistently show that over time, prices of gasoline rise and fall with prices of crude oil.

Which of the other relevant factors are of most significance? As witnesses at the congressional hearings last week indicated, and as our research has shown, there is room for disagreement about this key question. There are often two or more sides to an issue. In antitrust, we face that fact daily, as our work requires us to consider not only possible anticompetitive effects, but also efficiencies that transactions or practices may create, thereby lowering costs to consumers.

For example, although vertical integration in certain contexts may cause anticompetitive effects, vertical integration also can creat significant cost savings that benefit consumers. It's important for us to consider both effects in evaluating competitive circumstances.

We are studying all sides of the issues surrounding price volatility and price levels for refined petroleum products. We hope that our report will contribute to a better understanding of which factors are most significant.

Finally, to complement this work, we are actively reviewing and monitoring gasoline prices. We have purchased data from the Oil Price Information Service on daily average retail prices for approximately 300 cities and data on daily average wholesale or rack prices for 20 key urban areas covering regions across the country. The retail prices are gathered from fleet card transactions at 60,000 to 80,000 gasoline stations representing about 40 percent of all gasoline stations in the United States.

This review will help to identify anomalous prices in specific cities or larger regional areas. FTC economists have developed a statistical model that uses historical gasoline prices to forecast the relationship between gasoline prices across urban areas. The basic methodology looks for instances when actual prices in some particular city or region deviates significantly from their historical relationship with other parts of the country.

This program will allow FTC staff to identify and track gasoline price spikes on a realtime basis and to identify the most likely contributing factors. Price spikes may be due to refinery or pipe line disruptions, changes in demand, a changeover in the types of gasoline being manufactured, a change in competition, or some

combination of these and other factors.

We are also watching for other circumstances that might contribute to higher gasoline prices. Through its advocacy program, FTC staff commented on proposed legislation in the Virginia legislature that would penalize some forms of price cutting likely to benefit consumers.

FTC staff noted the potential for the proposed legislation to harm consumers by raising the price of motor fuels. Our staff also commented on EPA's recent White Paper on boutique fuels, suggesting a more developed analytical framework for assessing the competitive effects associated with state and federal environmental mandates on particular fuels.

As you can see, we've been quite active in this area of gasoline prices over the last year. Besides enforcement actions, we've been conducting research in preparation for reports and developing more refined means for monitoring gasoline prices. We intend to continue our high level of activity. These issues are extremely important to U.S. consumers and to the U.S. economy, and they merit significant attention.

To return to the reason why we are here today, let us begin today's discussion of these issues and further enhance everyone's understanding of them.

Thank you very much.

(Applause.)

MS. DeSANTI: Thank you very much, Mr. Chairman. I think that those remarks frame some of the issues that we're going to be looking at today. My name is Susan DeSanti, I'm in the Office of General Counsel, I'm here with Michael Wroblewski, also in the Office of General Counsel, Jim Mongoven is farthest to my right on this side of the table, from the Bureau of Competition, and Lou Silvia, who makes sure that we all take accurate and full account of everything, from the Bureau of Economics.

We're very pleased to have four panelists this morning to look primarily at issues involving crude oil. As the chairman mentioned, crude oil accounts for about 40 percent of the price of the retail cost of gasoline. And so we thought we better start here, in looking at these factors. This is where we started last August as well.

We will have two presentations and then we will move into a panel discussion. I would like to introduce our participants first, and then we'll have the presentations.

David Montgomery is sitting over to my right. He is vice president of Charles River Associates and

co-head of CRA's energy and environment practice. He's been involved in energy policy making and analysis for over 25 years. As an assistant director of the U.S. Congressional Budget Office, as an official at the Department of Energy, and the Energy Information Administration. In these capacities, he has dealt with issues that include oil supply vulnerability, price instability, and the influence of regulatory programs on supply and price.

Over to my left in the same position is Dr. James Griffin, who is the Cullen Professor of Economics at Texas A&M University, and Director of the Bush School's Program in the Economics of Public Policy. Both his teaching and research interests center on regulatory economics, antitrust economics and natural resource, and his presentation today is focused on how changes in crude oil prices are passed through to regional gasoline wholesale prices.

Now we swing once again over to this table, and John Felmy is Chief Economist and Director of the American Petroleum Institute's Policy Analysis and Statistics Department. He was with us last August, and we very much appreciate having you back. His department is responsible for all statistical publications and economic analysis of API. We welcome him back today.

All right, and here from EIA, Joanne Shore was going to join us, but due to an emergency, she has not been able to, but fortunately we have Michael Burdette here to join us. He has served in a consulting capacity for the U.S. Energy Information Administration since 1986, specializing in analysis of domestic petroleum product markets. He has recently worked on the topic of retail gasoline price pass-through. And prior to his work with EIA, Mr. Burdette worked in the marketing department at a major U.S. oil company.

So, we're very fortunate to have all of you and we thank you very much for your participation. And with that, let's move to our first presentation, and that will be by David Montgomery.

MR. MONTGOMERY: Thank you, I appreciate your invitation, and it's a pleasure to be here.

As both of the previous speakers noted, one of the fundamental factors driving gasoline and heating oil price volatility is crude oil price volatility. So, I will open the conference with a discussion of crude oil issues and I will try to lead into the discussion that I expect Professor Griffin will be providing of relationships between crude and product prices.

Let me begin with some of just the fundamentals of crude oil. Crude oil has become a very typical

commodity market. The process which appears to underlie crude oil prices shows all of the characteristics of the classic mean reverting process with a very slight trend.

Now, I'm going to show a picture, because I'm visually oriented, even though several of my friends and colleagues suggested that I was going to need an inordinate amount of time to explain this, but in front of the audience of the FTC, I think we should be able to do this fairly efficiently.

This chart plots, first of all, spot prices from crude oil from January 1st, 1989 to almost literally the present. We can see that the prices are clearly volatile. We had price spikes in 1990, due actually to the Iraqi invasion of Kuwait. That price dropped rapidly back to the mid-twenties once the U.S. demonstrated that Saddham Hussein had no capacity to harm Saudi Arabia's oil fields. Prices then bounced around from a high of $40 to lows of about $15. They climbed again to about $25 a barrel in the mid-nineties. We had a tremendous collapse of prices to about $12 to $13 a barrel in '98 and '99. Since then, we've seen prices climb back to another peak about a year and a half ago, they dropped to another valley, actually at the end of last year and the beginning of this year and they've started to climb up again. So, the process is

clearly a volatile one.

The colored lines that you see here, the little pennants flying off the starboard, are plots of the futures prices. The plot starts at -- for the price -- the futures price for the next day closing, and then it runs out 36 months. And we can see those futures prices are confirming the same thing that we see looking at the averages of this volatile process, which is that whenever prices are above the low twenties, the futures markets expect them to return back down to the low twenties. Whenever prices are below the low twenties, the futures prices expect them to come back up to the low twenties.

And this is a classic pattern for a process which is basically bouncing around a low twenties level. But it's a very volatile process. The combination of short run inelasticity of demand for refined products, of capacity restraints that sometimes appear in the world market, and that frequently appear in the refining sector, and the time lags for basically getting around capacity restraints and for shifting oil from one place to another produce some large swings in prices. But I think the most important thing we note from here is that those price increases have been temporary, go back to these points, and more so when there is excess capacity.

This is particularly the case in 1990, when the world had about as much excess capacity as it has today. And immediately after fears of the Iraqi invasion went away, that excess capacity came online, and dropped prices back down to pretty much normal levels.

So, we often have a cushion in world oil markets that allows us to -- that makes it possible for temporary price spikes to go away.

Now, oil is an exhaustible resource. Many of us started our career as studying oil as something that is going to be depleted and whose price must therefore increase over time. How can we see this very long and steady process in which crude oil prices have pretty much remained in the low twenties.

The literature is almost unanimous on this and there have been three developments in technology that have kept costs of production down, despite exhaustion and the need to go to much more difficult and expensive territories. We have the development of 3-D seismic exploration technology, the development of horizontal drilling that makes drilling much cheaper and makes it possible to access resources with drilling fewer -- putting fewer holes in the ground and through a smaller footprint on the ground, and advances in deep water technology, which has basically thus far kept costs

falling -- unit costs have been falling at about the same rate as the depletion that we would have expected to push things up. The question for the future is which of those factors is going to win.

It has been hard for forecasters to become convinced that prices are not always going to rise. This is analysis of forecasters that has been provided by the Energy Information Administration in most of their annual forecasts. You can see that with a couple of exceptions back in the mid-eighties, which were forecasts I was responsible for producing, generally the forecasts were going up, but since about 1994, the forecasting is pretty much in line with the statistics of prices in the low twenties with, if anything, a gradual trend going upwards.

Now, I'll look a little bit at the institutions behind the crude oil pricing. The first basic part is the role of OPEC. The Organization of Petroleum Exporting Countries had about a 40 percent market share of global oil production in the beginning of 2001. The production cuts which it undertook at the beginning of this year have dropped that market share to about 37 percent. OPEC has efficiently targeted a price band of $22 to $28 per barrel, which OPEC would like to maintain.

One other comment about the current -- no, there is a huge amount of debate, which I will not go into at all, about the effectiveness of OPEC as a cartel. One observation I would have is that for the last 20 years, Saudi Arabia's behavior has been very consistent with its acting as a unilateral profit maximizer based on its market share and the residual demand elasticity it faces. And in particular I did some calculations a week ago.

It looks like currently Saudi Arabia's market share, given the production cuts it took, is less than 10 percent of the market. The elasticity of demand for crude oil based on demand elasticities for refined products in the very short run is almost certainly greater than 0.1, therefore the residual demand elasticity that Saudi Arabia faces is certainly around one or greater, which implies that Saudi Arabia has no incentive to drive prices up further through production cuts.

Now, OPEC actually engaged in production restraint at the end of last year. It announced late last year production cuts for January 1st, 2002 of 1.5 million barrels a day. Some non-OPEC countries, Norway and I think it was Mexico, also cut production by about 460 -- well, officially by 462,500 barrels, so that's

about two million barrels a day out of the world oil market that has caused prices to rise this year in crude markets, after they hit bottom in late November. But these production cuts also created significant excess capacity, something like 10 percent of the world oil production capacity. Most of it unfortunately is still in the Persian Gulf, but that capacity does provide a significant cushion against further -- against future disruptions.

Also, for the last 20 years, it's been very -- only for very rare and isolated periods have we seen the OPEC countries other than Saudi Arabia willing to produce below capacity. The temptation to cheat is simply too great, and so for long periods of that time we see all the rest of the OPEC countries producing pretty much all they can, whether or not it violates their quotas.

All of these things suggest to me that although price volatility will remain, further price increases from where they are today are unlikely without some worsening of the political situation.

Now, let me move from there to crude oil prices in the United States. This world oil market is what determines U.S. crude oil prices. There's a single world crude oil market. Crude oil is fungible, you can

buy and sell it, you can move it anywhere you please, it's substitutable at refineries on pretty well defined terms. Once it's on the ocean, you can move it anywhere that the ocean goes, at quite comparable costs. Cargos are frequently redirected on the high seas to go to wherever they're going to be returned the best price.

There are differences in crude oil prices that are quite systematic. They've changed over time, but they're due to quality and the needs of refiners for different kinds of quality. And they are to some extent due to transportation costs and transportation capacity. Especially when we look at markets that are somewhat more remote from ocean transportation.

Outside OPEC, I think that there's widespread agreement that there certainly are rents in crude oil production, some areas can produce oil more cheaply than others. Some areas have location advantages, some areas have quality advantages. So, there is a uniform price. There is nothing to resemble a uniform cost to production in different areas of the world. Overall, outside OPEC, the market has every evidence of being highly competitive.

Now, another thing that we observed is that crude oil prices move together very strongly around the world. I've plotted here or actually my colleague, John

Hayes, in a presentation he did somewhat earlier, plotted seven different types of crude oil. We see movements that are very, very highly correlated. The one interesting trend that we see here that I thought I would talk about for a few minutes is ANS crude, which is Alaskan North Slope crude oil delivered in California. Its price started out relatively low compared to the other crudes, and since the -- well, I would say since 1993, which is when I'm going to start talking about it, it's gradually crawled up to something close to parity with the other groups.

Why does that happen? Well, although the world crude oil market is in general tightly connected, and in general indicator crudes move together, changes in supply in narrower markets don't always affect prices. And therefore, and also in narrower markets, sometimes crude prices will move relative to other crudes. In the west coast market, where Alaskan ANS crude oil is now entirely consumed, what we call import arbitrage conditions determine crude oil prices. They actually create a price band. And the band is between the price that a producer could receive by exporting the crude oil, the netback of exporting the crude oil to the best market it can get to, and the price of imports which is the price that no one will pay anything -- no one will

pay anything above the price of imports for oil that's produced in Alaska or the west coast of the United States.

Since the mid-nineties, ANS crude has been up against one of these pricing constraints. It has not been the marginal source of crude oil for California, and therefore hasn't affected California refined products prices. This is an argument which actually my colleague, John Hayes, was planning on speaking here until a family emergency came up, and so I wanted to cover some of the topics, but I also wanted to credit him and his colleague Carl Shapiro, our other colleague Carl Shapiro with this analysis.

Before 1993, PADD V was a net exporter, and the price floor was the netback from the Gulf Coast, which was the best price to export crude oil to, and the price ceiling was in parity with imports. Around 1993, PADD V, Western United States, became a net importer of crude oil. At that point, ANS crude moved up the import parity, because the import arbitrage condition became binding, that is the marginal source of crude oil was imports, there was not enough ANS crude to supply the full market, therefore it was no longer determining the price.

Under these conditions, my colleagues also

concluded when they were working on the BP/ARCO merger that they'll compete with a change in ANS supply would have an impact on the price of ANS crude or on refined products pricing in California, and that particularly ARCO's production at the time of the merger did not exercise any discipline on the BP prices.

So, we can find some interesting issues that need to be analyzed in particular crude oil markets, in order to determine what's the marginal price or what's the marginal source of supply that's determining prices, and what is it that actually is influencing refined product prices.

So, let me show another chart. I tend to prefer visual correlations to others, and this chart is one which is actually taken from a very interesting EIA report, which I think one of our panelists may have been associated with, on price changes in gasoline markets. It shows that crude oil prices and spot gasoline prices clearly move together, that we see periods when crude price go up and gasoline prices don't, we see times when gasoline prices go up and crude prices don't, but that overall, we don't see, at least I don't see, any general pattern of divergence between crude and refined product prices.

However, there are circumstances in which crude

and refined product prices do become disconnected, because although crude prices are clearly a fundamental influence on gasoline price volatility, gasoline and other refined product markets have other factors that appear. Because you take crude oil, and you process it, in a refinery, that has a certain capacity, in a region that has a certain capacity in a country that has a certain capacity and then you sell those products.

So, there are other things that are going to jump up and confuse both our econometric analysis, and sometimes policy makers, about why gasoline prices are changing and why what's called the gross margin, the difference between at which price gasoline is sold to a refiner and crude oil is sold to a refiner might go up. That gross margin includes costs and it includes scarcity rents.

There have been a significant number of changes in processing costs both in the past and we could expect to see in the future. Some of the really important ones that have occurred in the last few years are the cost of producing reformulated gasoline, both California reformulated gasoline and the new federally reformulated gasoline, which was required a few years ago. Second, Unocal has successfully asserted patents on most ways of blending reformulated gasoline for which its claiming

royalties that have been reported from one to three and a half cents a gallon. That may be a transfer in economist's terms, but it's clearly a marginal cost to a refiner for actually producing RFG, and renewable fuels mandates or bans on MTBE will also raise refiners' costs. They will increase gross margins, drive and create again differences between product price improvements when they come into effect.

There are also scarcity rents. There have clearly been scarcity rents in refining and marketing a number of times in the past five to ten years. What I mean by scarcity rent is something which I kind of illustrate in the next chart, for economists, which is that to a first very crude approximation, we can think that the supply curve for refined products, the black line, is basically flat. Average cost equals marginal cost, up and to until you get close to, say, 95 percent of capacity for the refinery. Then costs begin to rise rapidly until you hit a wall, which is the capacity of the refinery. This is true for a geographic market as well as for an individual refiner.

What happens is, when prices are down -- when capacity is down in the range where the spike curve is flat, where average costs, where costs really -- unit costs don't change over a pretty wide range of output,

then increases in crude prices shift the supply curve upward, 100 percent of the crude oil price increase is reflected by product prices.

But we can also get to other situations where what I call the high demand market equilibrium, where we have a demand curve that is up at a level that cannot be reached by the refinery at the, you know -- well, where if the price were at average cost, there would be excess demand.

In this case, we see scarcity rents. The price is bid up to a level which is high enough to reduce demand to the available capacity. This is a normal -- a normal outcome in markets. Generally the refinery industry has been very rapid in creating more excess capacity so that they compete away all their profits, relatively quickly, but we see this happen occasionally. And the reason we see it happen is because of events like supply shocks, which move the capacity down.

The Commission has investigated several of these in the midwest, I've done some work on -- and EIA has had several investigations of these. Spike shocks are due to refinery outages, ruptured pipelines, or occasionally due to product import interruptions. We like to think that some of the reasons gasoline prices increase were due to interruptions of product imports

during the problems in the Venezuelan refining industry.

Demand shocks have also played a strong role. Cold weather contributes to both the demands for heating oil and combined with unusual electricity demands was probably responsible for a large part of the run-up of the heating oil prices in New England a couple of years ago. It was not the capacity to get the gasoline to New England.

Some precautionary demand, which again we may be seeing this year or we did up to a few weeks ago, as traders were worried about, you know, events in the Middle East and events in Venezuela. We saw refined product stocks get up to the very high end of the normal range. So, we may have seen some precautionary demand that was putting pressure on the system.

And finally looking forward a little bit, an MTBE ban would be a significant demand shock. MTBE is a component of gasoline. In reformulated gasoline, MTBE presents about 11 percent of the volume. It's produced from natural gas, not from crude oil, so its production actually diverts -- the use of MTBE actually supplements crude oil supplies and there are proposals in a number of states to ban MTBE at some point in the next several years because of its concerns about its effect on water.

If that happened, even if the MTBE was replaced

by ethanol, we would see a loss of about five to five and a half percent in our capacity to produce gasoline, which would be a significant supply shock in many parts of the country, and likely to disconnect gasoline prices from crude prices there.

Finally, the issue of boutique fuels, as the FTC staff has noted, regional fuel specifications can cause regional price spikes for refined products even in a market where there's plenty of product available nearby, but it can't be brought in because it doesn't meet the narrow specifications of the particular market, particularly a problem for ethanol in the midwest -- in the Milwaukee and Chicago area.

Let me finish, then, with the current situation. Since January, crude oil prices in the U.S. -- in Texas rose by about 21 cents a gallon, gasoline prices have risen by about 30 cents a gallon, leaving about nine cents unexplained by crude oil. There are a number of reasons for this. Chairman Muris mentioned some of them at the very start. Reformulated gasoline costs more to produce than nonreformulated gasoline. During the summer, we are in the transition process to summer RFG.

There may have been some precautionary building of stocks, which tightened markets. There is a normal swing in prices, to where a rise in gasoline prices

induces refiners to maximize gasoline yields. Perhaps even more important in the first quarter this year, refiners were in deep trouble. The refinery industry experienced long periods of depressed profitability in the eighties and the nineties. It got some temporary relief in 2000 and 2001, but that was followed by really an abnormally low price in the margins in late 2001 and early 2002.

So, about a ninety cent increase in refinery margins in many ways is moving towards -- is moving net margins toward a more normal level that same time it's probably some significant increases in cost and is certainly associated with tightening of the markets.

A final comment, there's nothing unusual that I can see in any of these developments. They're all the normal consequences of the operation of supply and demand in a fundamentally commodity-based industry with inelastic demand, tight capacity constraints at times, and a lot of uncertain events that can create both demand and supply shocks.

Thank you.

(Applause.)

MS. DeSANTI: Thank you, David. Now we'll move to our next presentation by Dr. Jim Griffin.

MR. GRIFFIN: Thank you, it's a pleasure to be

here.

Today I want to talk -- I'm afraid I may bore you with a lot of academic things that academics worry about, and a lot of you policy folks could care less, but the two subjects do interact.

I'm presenting a paper that I've done with a graduate student of mine who is just finishing this year, Lance Bachmeier, and the question is Rockets and Feathers or Efficient Markets? Evidence From Gasoline Markets.

Now, I'm particularly concerned about the issue of the relationship between shocks in crude prices and how they affect gasoline prices. And the rockets and feathers paradigm was first set forth by Robert Bacon in a paper in 1991 looking at UK data on how gasoline prices in the UK responded to crude price shocks. And the way the story goes is that when crude oil prices spiked upward, gasoline prices shoot up like a rocket. And then when crude oil prices tank, gasoline prices drift downward like a feather in the wind.

And if any of you have ever been out to west Texas, where George W. is from, where the wind blows really strong, that feather may never reach the ground. So, and so this immediately has raised the question, well what are the policy implications, if this rockets

and feathers paradigm is really true, about gasoline prices as the explanation oligopolist behavior? Of course that seems to be the fashion in Washington these days.

If you look, though, at some of the economics literature, there's an inventory adjustment story that would argue that this can happen under normal competitive market conditions. But the other thing that I would like to say is that if this paradigm is false and gasoline price responses are rapid and symmetric, underline rapid and symmetric, this is support for a very efficient market story.

And so, the question is, if we're going to look at asymmetry, we need to think about the various levels at which asymmetry can manifest itself. And if you think about a crude price shock, then affecting spot gasoline markets, like in Houston or New York or major wholesale markets, and then they're translated to individual city terminals, and then that shock could go through to the dealer tank wagon, and all the way to the retail pump. And the question is, well, asymmetries can potentially manifest themselves at all of these levels.

What I'm going to talk with you about today is this linkage here between the refiner and the spot gasoline market. And in large part that's dictated by

the fact that the data are so much better in analyzing that particular level.

There's been a variety of studies that have looked at asymmetries. And it's sort of disappointing for a policy type to look at all this and say, gosh, it's just a matter of you pick your -- you pick your report and you can get any answer you want. It's sort of a sad state of affairs.

The best paper of the lot is by Borenstein, Cameron and Gilbert that appeared in QJE '97. They used weekly U.S. data, they -- the model they used was based on first differencing the data. I'm going to argue to you that that's very important. They found that there was asymmetry particularly at two levels. They found that there was significant asymmetry in this linkage here. Then given that asymmetry, the transmission from this market to this market showed symmetric responses, and then the other asymmetry they noted was down at this level, at the retail level. And they -- their paper is, I think, a very excellent paper, probably I would urge you if you're interest at all in the issue, you should read their QJE paper.

Another paper was by Robert Bacon, I mentioned, he was the first one to look at this data. He used a -- an econometric specification using price levels, and

there's a fundamental problem with using price levels, when the -- when you're trying to test for asymmetries where prices are changing, and apparently this is kind of slipped him by, but it really doesn't -- there's some real methodological problems with doing that.

And I'll note that the Borenstein, Cameron and Gilbert used first differences, which is the correct way to approach the problem. But Bacon found that there was slight evidence of rockets and feathers.

Another paper by Balke, Brown and Yucel, Federal Reserve Board out of Dallas, close to my home in College Station, they said well, you can kind of pick -- you can pick whatever data source you want and get whatever results you want. And they used levels data and claimed the market was symmetric, and then they used first difference and they found asymmetry. Well, if that's true, and levels is not the way to go, then their results using first differences agrees with Borenstein, Cameron and Gilbert.

Finally the EIA did a study, they used first difference data, and at the level -- now, let me say this: They found symmetry in looking at this -- at this level, at the transmission between the crude price shock and the regional spot, they found asymmetries there at the last stage, at the gasoline pump.

Well, you say, well, how am I going to advance the state of knowledge? Is this just going to be the fifth paper we list and you say, well, Griffin came up with yet another result, and unfortunately, we tend to just do our econometrics and we never ask, well, why are our results different than theirs, and we usually start it like to say well, it's just due to the data, we used a little different data set, because Borenstein, Cameron and Gilbert used weekly data from, oh, I think it was '85 to '92, our data set was used daily data from 1985 through 1999 -- '98, I'm sorry.

The basic -- what we've done is we use what's called an error correction model. And the idea is this: That if we observe a change in -- we want to look at the observed change in gasoline prices. As a response to an initial shock in time period T, what is the shock that -- and this is the initial impact, if, for example, price of crude rises by a dollar, beta here, if beta was 0.8, that would say that gasoline prices would rise initially by 80 cents. And then you have this parameter here that basically measures an adjustment process, and that's where the name error correction model.

The idea is that there exists a long relationship between gasoline and crude prices. And of course we're holding constant issues like capacity

utilization, inventory levels and so forth. But the idea is that when gasoline prices get up above -- significantly above crude prices, that's going to set in motion -- this data is a negative term, that it will tend to reduce gasoline prices back down to the desired level.

The asymmetric version of this model is very simple, you simply have different beta and a different theta for periods where prices are increasing, and then when they're decreasing. And the issue obviously is are these statistically different.

Now, let me grab a little water. Excuse me. Okay.

Well, what happens when you adopt this error correction model, and we look at first of all we estimated this thing allowing for different betas and different thetas to see what the difference in the response was. We're using daily data, and that's very important, because ours is the first study that's used daily data.

And what we found was very surprising. At least compared to these other studies. That the black line here shows the impact of a dollar crude price shock, an increase of a dollar. And this is saying that about 77 cents occurs in the very same day that you observe the

crude -- that crude prices shoot upward, you're going to get a 77 cent adjustment in gasoline prices in that same day.

And then the theta term then sets in motion an adjustment -- a subsequent adjustment, and you can see that it adjusts upward here and is on the order of about 90 cents out there. At the far end. These lines here are the two -- the two standard deviations, confidence intervals. Don't worry about them for now.

Now, that -- until the black line is a crude price increase, now let's look at a crude price decrease. And let's play like this is minus 80 cents, minus 60 cents, minus a dollar, and let's let crude prices go down by a dollar, and what do we get? We're going to get actually a slightly higher, not statistically different, but about an 80 cent reduction in that very same day, and then the adjustment process is a little slower, but ultimately the two will converge, okay?

So, but the difference, the differences here, I mean we're talking about, you know, a nickel on a one dollar crude price shock. So, these are very, very small differences. And certainly when you map the two standard deviation confidence intervals, they're not statistically different.

Well, there was a bothersome result. And the question is, well, that it's just completely alien to what Borenstein, Cameron and Gilbert got, and so the question is, well, why? And so the first thing we wanted to do was, well, let's get their data, which was weekly data, and let's estimate -- let's try to replicate using their data, let's use their model the way they estimated it, and let's use -- and let's -- and when you do that, sure enough, this is the Borenstein and Cameron result, and it's very similar to what -- this is estimated by OLS, theirs was two stage lead squares, but this was the same result that they got in their QJE paper.

So, there's your price spike up, and in fact, it actually shoots up by more than a dollar. It shoots up to about a $1.30, and then gradually works its way down. On the other hand, here is the negative shock, you know, there's your -- there's certainly your feather.

And so looking at this why difference, you can see how they got the result of the symmetry. And so, you know, having replicated what they found, the question is, well, is this -- they did something a little different, though. And this -- probably no one in this audience will appreciate this, but when you're estimating, and only time series aficionados, this is

important to them, but, you know, if Engle and Granger were here, they would tell us that if you want to estimate this model here, you should -- you should first go and estimate this relationship separately, determine what is the long-run co-integrating relationship between crude oil and gasoline.

And the reason is these are integrated to order one, and these variables here are integrated to order zero. And when you mix and mesh them, you get all kinds of statistical problems. And the correct econometric method is to first estimate this relationship and then if you want to go out and test for these differences, do so.

They didn't do that in their QJE paper, and the referee didn't catch it. Okay? I still like their paper, incidentally. I mean, it's great. They wrote this paper in '97, and here I am in 2002 saying that I can do better. Well, you ought to be able -- any paper that's been written, you ought to be able to do better five years later.

But if you -- if you impose in the first stage estimating this long-run relationship correctly, what you get is here's the spike up, here's the spike down, and look how we've compressed the differences. And they basically go away. Very quickly.

So, a major problem with their analysis is the way they estimated the relationship. Another thing that ought to tell you there's something funny about their results, look at -- look at the long-run effect here. Do we really believe that if crude prices rise or fall by a dollar, that gasoline prices in the long run are only going to change by 60 cents? I don't think so. You know, where's the other 40 cents going to come from, unless those other product prices are going to rise more than proportionally and gasoline is good for half of that barrel.

So, and on the other hand, look what you get from this relationship, and it's right on the dollar. Okay? Which is what theory would tell us.

So, problem number one from what they've done is you've got to estimate the thing correctly. And now this is using weekly data. The other thing we did is that we used daily data. And the question is, well, what effect does using daily data have? And so what we did, using again the same time period, but now using the daily data over that period, we estimated -- I decided I'll standardize on their -- the way they estimated their model, so I'm going to -- even though it's not -- Engle and Granger would say no, but I'm going to use their approach, and of course you can see, they're both

converging down to 60 cents, okay, which is -- which doesn't make any sense, but look what happens when you go to daily data.

Here's your daily data differences, which are a lot smaller than if you just -- if you just took weekly data, took observations at five-day trading intervals, now what's the intuition, why is it that -- that you've got these -- these kind of responses here at five-day intervals? Basically when you're drawing data over a five-day interval, you don't know when crude prices spike upward whether they adjust completely in day one, you know, or whether they adjust evenly over five days, or whether they wait until just the eve of the fifth day, and then they adjust all at one time.

And so this illustrates, I think, pretty convincingly that -- that daily data is just a whole lot richer, and of course if you use daily data and then you use the correct specification, these differences just shrink to very little, and it's not really statistically important.

So, what are the conclusions that I would leave you with, in terms of policy implications? First of all, I think this is the important picture to remember, and this is saying that for a dollar increase or a dollar decrease, you're going to get about 80 cents in

that very same day. And the subsequent adjustment on up to that -- it's going to get very close very quickly to that -- that long-run adjustment, okay?

And this tells me that, you know, what's the big deal? This market is behaving exactly the way we would expect a competitive market would exist. We know that -- that if this very active spot market for gasoline, don't you think that if crude prices spiked upward and gasoline prices didn't adjust, don't you think that we could all make a little money? Arbitraging these differences away. And in fact, you know, that's the -- that's exactly what we're seeing here.

So, if we're worried about -- if we're worried about asymmetries, let's -- I don't think we need to worry about them between crude oil and the -- these wholesale book spot sales. There may be some asymmetries that show up at the retail level. And I -- I don't know whether to believe Borenstein, Cameron and Gilbert's results or not, after what I've been through here.

You know, my whole frame of reference is gasoline prices in College Station and Waco, Texas where I go through on my way to the ranch and I always kind of see which market adjusts faster than the other. Waco

for some reason adjusts faster than Bryan/College Station. I don't know that in -- and I don't know the explanation for that. I don't know that that's a critical public policy issue anyway, but, you know, there may well be -- at different markets, there may be certain rigidities, there may be certain -- the competitive nature of the market can vary somewhat from one area to the next.

But I do think that this issue -- I think this issue of asymmetry is probably not nearly as important as the kinds of issues that you're going to be coming to grips with later in that these boutique fuels, and different gasoline standards, quality standards, where they're different all over the country, that can really introduce some rigidities in the system, because you -- you've got a complex system where these refineries have been built, they've been optimized to produce the certain types of gasoline.

They have associated with that mix a whole set of processing units that have all been in place, capital investments made, environmental standards met, and now, you know, you come along and you -- and every little change by itself probably, you know, by itself, really, okay, this refinery can make that adjustment, and provide that type of gasoline for New York City, or

whatever. But when you keep -- keep adding different layers of these constraints one on top of the other, then little things like one particular refinery going down that happened to produce one of these boutique -- a large fraction of a particular boutique fuel, that can really create big price spikes.

And this -- I don't know the answer to it, I just think that the American consumer needs to know that if we're going to keep adding more and more of these boutique fuels, they should expect price spikes and other types of disruptions, and they're going to occur.

And I did a study, doctoral dissertation many years ago, I would hate to tell you how many, but one of the things I looked at was how to measure capacity in a petroleum refinery. And what I found was that -- that as you approach 100 percent of distillation capacity, in fact, even before you get there, you start maxing out on individual processes within the refinery. And in fact, the marginal cost curve starts to rise, and I think it's even when you went above 90 percent of distillation capacity, it started to rise, and as you approach 100 percent, it just becomes vertical.

And so, we need to keep that in mind, because we're operating in a world where capacity utilization is very high, and then we've got these fuel specs that are

adding additional complexity.

Okay.

(Applause.)

MS. DeSANTI: Thank you both for very interesting presentations. I would like to start by seeing whether our other panelists have some comments that they want to make or questions to ask, and I also want to put out on the table for discussion -- a question about the relationship between the development of futures markets, since the 1980s. And the extent of inventory holdings and whether the development of the futures market has affected inventory holdings and then any connections between that and retail prices. So, but first if there are other comments or questions that you want to raise in response to the presentations, please go ahead.

MR. BURDETTE: I just have a brief question for Dr. Griffin, in that I did participate in the EIA study that you referred to, and I am not an econometrician, so don't worry, I am not going to take issue with any of that. But a curious question, not having read all the details of your study, when you compared crude -- spot crude to spot gasoline prices, how broadly did you define the spot gasoline prices? Did you limit yourself to, say, the Gulf Coast?

MR. GRIFFIN: We in this particular study, yeah, we did, we used the Gulf Coast, but we looked at -- we looked at a couple of other markets and saw that the results were going to be very similar.

MR. BURDETTE: Because I know that in our work, one of the interesting aspects of it and one of the more difficult aspects was the differential movement of spot gasoline prices at a given time, particularly, say, the west coast versus the rest of the country where world crude oil prices were certainly moving together, if we assume that they are -- as well correlated as both speakers showed that they are, and yet different supply/demand issues going on, say in a west coast market versus the rest, it's difficult to filter out that noise from the type of analysis that you're doing, isn't it?

MR. GRIFFIN: Well, the west coast is geographically isolated from the other -- from the rest of the country. And refinery -- if you have a refinery shut down or some such on the west coast, it's not going to have any impact at all in the other districts east of the Rockies, but it can -- it can have a big effect there. And, you know, I would say that the estimates of those long-run co-integrating relationships would be different probably for California than they would --

than they would be for the east of the Rockies, but I -- I'm totally convinced that -- that this kind of analysis could equally be applied on the west coast. I haven't looked at it, I don't know whether it's symmetric or asymmetric, but it would be easy to determine.

MR. BURDETTE: That's the next paper, right?

MR. GRIFFIN: No, no, this is it. I've got to move on to other things.

MR. BURDETTE: Thank you.

MS. DeSANTI: John?

MR. FELMY: Yeah, I would like to start by thanking the FTC for holding this conference. I think it's very important to get this information out to the public, to discuss what really does drive gasoline markets, and we especially appreciate being invited to present our views this week, because last week unfortunately we weren't able to.

I think these two papers by Dr. Griffin and Dr. Montgomery really articulate something that we've been saying for a long time, and that's gasoline prices are determined fundamentally by crude oil prices as the most important component and that it's a function of the normally functioning market, as disturbed by a number of regulatory changes that Dr. Montgomery pointed to in terms of the investments we've had to make on both

investing in upgrading refineries for emissions, and also for producing new fuels.

I have a chart back there that unfortunately I don't think I can get the easel to work, but it shows all the different types of boutique fuels we face. Basically there's 18 that are required, either directly as a result of the Clean Air Act or as state implementations, and then one generic product, conventional gasoline. And this really brings it home to everyone who doesn't know that these exist.

What a difficult problem it creates for the petroleum industry, where you have situations where Maryland has three types of gasoline, it's a relatively small state. Texas has, what, four I guess, and so on.

These presentations also show that the symmetry is in the market, that you have -- that you don't have the rocket and feather assertions that you typically see that, and if you look at daily price data for gasoline, just as going to the retail level, you see that over the past -- the past year, and I can provide this graph to anyone, the price increases and price decreases were perfectly symmetric. You can fit a parabola next to them and it's a perfect fit in terms of the increases and the decreases.

But it's also important that we've seen this

year price increases in gasoline, that as David mentioned, were substantial. Crude oil prices went up by over 50 percent, over 55 percent, gasoline prices are up over 25 percent, and that's not surprising. We've also had strong demand this year for petroleum, it's running according to EIA estimates I guess year to date so far around two percent, and so when you've got strong demand, we've got also record levels of production for gasoline this year. It shouldn't be a surprise to see what's happening. Prices ran up to in the $1.42 range by the middle of April and basically flat four months as crude oil prices have been flat over that period.

So, I want to compliment the presenters for putting forth an articulate position on what has happened in markets so far.

MS. DeSANTI: Okay, thank you. Let me go back to one of the questions that I would like to get to, which is the role of the futures market. We would typically think about futures markets as providing some kind of insurance against price volatility. But as your data seems to indicate, crude oil price volatility continues. So, I'm wondering, do you have views on the role of the futures markets and its relationship to spot market prices?

David?

MR. MONTGOMERY: Yes. I think -- I don't think there is a direct connection between futures markets and the volatility that we see in oil markets. That is kind of two statements. One, I don't think that the -- it does not appear that the introduction of futures markets has changed the kind of large low frequency volatility that we've seen in futures markets, and I wouldn't expect it to, because I see futures markets as something that have certainly contributed to the efficiency of oil markets. They have provided opportunities for hedging that were probably much more costly and difficult to arrange, therefore probably to some extent, made it possible to reduce some of the risk that traders see in the market, but futures markets do not create or destroy oil. Therefore, they are not going to be able to change the fundamentals of when there's a war in the Persian Gulf, there's less crude oil in the market and the price is going to go up.

Also, I think the linkage between futures markets and inventory behavior is really important. That's one of the things that futures markets allows them to do is to lock in the arbitrage gain on inventories. I buy if I see the futures pricing going up and I buy additional oil for inventory and I know that I've locked in a price for it. Therefore to some

extent you might say that oil -- that futures markets -- you know, futures markets probably have many partial effects.

One partial effect I think is to encourage more inventory building when there's an expectation that prices might go up. Therefore they would tend to moderate price increases, because if the market sees that inventories are being built in the expectation that futures prices are going up, well, then, rising -- rapidly rising futures prices will not be in equilibrium, because there is enough stockpiling going on in the current market to offset them in the future.

The third factor that I think certainly matters is whether the expectation of future problems, that is, for example, this year, the concerns that the war in the Middle East is going to become worse, that Iraq's kind of, you know, public relations gesture actually meant something about cutting production by a million barrels, that the Saudis might restrain production further, all that led to worries about the markets, that this all might fall apart. Those were future events, if the futures market goes up, that's going to have a consequence for current behavior.

It's not clear to me that the futures market is doing anything more than providing a better way of

centralizing the market's guesses about what's happening, and then we see people, you know, responding to those in incentives with changes in inventory behavior, which can have a real effect on the current pricing.

But all along I thought that the real and the -- there's a real market and there's a financial market, the two of them are tightly connected to each other, the financial market is not going to be able to do anything in the long run, or even the moderately short run, that's different from what the underlying fundamentals -- physical fundamentals dictate, but it provides for much more efficient ways of risk bearing and price recovery than we've seen otherwise.

MS. DeSANTI: Other observations? Michael?

MR. GRIFFIN: Well, I basically agree with David's analysis. I think the one thing that I would add is that, you know, prior to the existence of these futures markets, companies implicitly make its calculations in terms of their decision to add inventory or fundamentally sell at today's prices and so forth, but the good thing about these spot markets and these futures markets is it gives us a -- it gives us transparency that we didn't have, and I think that's terribly critical in that it allows -- it allows parties

other than major integrated oil companies to come in and take financial positions, and, you know, and the ability of arbitragers to come in, I think makes these markets a lot more efficient than they would have been otherwise.

So, I think it's been a -- it's been a good thing. Even though in terms of David -- David's fundamental point is that if we have a major supply disruption out in the Middle East, you know, Wall Street has never -- or the NYMEX have never produced a barrel of oil that's going to help us with any problems. So, we're still subject to the vagaries of very inelastic supply, we've got a cartel out there that makes decisions not only on what's profit maximizing, but what achieves their political goals at any point in time, and in addition to that, we have a very inelastic short-run demand for petroleum products, and that's just a formula for price volatility. And it's been here forever, you can go back and look at the data all the way back to the 1920s and it's -- that's just the world we live in.

MS. DeSANTI: Michael?

MR. BURDETTE: Well, building on what Dr. Griffin was saying, I was going to make the same point about the transparency. I think it's very valuable from the standpoint of the consumer who questions what's going on with gasoline prices that at least at the spot

and futures price level, you might question what goes on in the cushy spot market because it's relatively been these days on a global scale. You might question, you know, the handful of refiners in a given product's spot market, but when you look at the NYMEX and the numbers of contracts that are traded on any given day, and the presence in that market of both the commercials, the producers and the refiners, say, buyers and sellers of crude oil, and the fact that speculators can participate in that market, you have a very broad coverage there, and the consumer and the political spectrum and everyone else can be assured that there's full participation, full and open participation in that market, and that whatever influences there are being passed through.

The second thing is, too, and I think Dr. Griffin touched on this in his presentation, that when you look at the pass-through from crude oil to, say, spot gasoline prices, spot prices trading very closely with futures, the fact that there is the availability to arbitrage between -- just by a track spread trading -- between crude oil and gasoline prices, say on the NYMEX, means that that pass-through is going to be almost instantaneous, the same way the pass-through as he pointed out, because you don't have to be a refiner, you don't have to build a terminal, to participate in that

market. Anyone with the money can go into the NYMEX and via futures or options arbitrage between crude oil and product markets. And that just assures that it's going to be passed through quickly.

MS. DeSANTI: Thank you.

MR. FELMY: If I could add a couple of more of just comments. I've looked over time at the inventory holdings of course, from the data, you saw inventories of oil products and crude peak in the late seventies, and going into the eighties, you saw a decline. That's coincident somewhat with the futures markets, and so if you just look at it at that level, that would suggest it. But there's also several other things going on.

First of all, you had introduction to computers in that period, where people could manage their inventories much better so you could keep track of it, you didn't need to have excess inventories and so on.

Second of all, in the recent past, my perspective on inventory holding is more a function of two things. It's cost of inventory holding, and if you look at the relation between what the price levels are and inventory levels, you see an inverse relationship, and the more expensive it is, the more expensive inventory is to hold, and so as a consequence you hold lower inventory.

But also, because we do have a refined product area, we have capacity constraints. We're really on a treadmill where the past several years we've been unable to build inventories because we're running flat out. In addition the boutique fuel problem complicates it because you can't import product to supplement that as easily because of the product specifications.

MS. DeSANTI: Can we clarify? Are you talking about refined product inventories or crude inventories?

MR. FELMY: The latter discussion is on refined product, but if you look in the former, if you look at crude, I think the management of it in terms of using computer control systems and so on.

MS. DeSANTI: So, would you say that over the last ten years, that inventory levels have tended to decline on average because of the introduction of just in time inventory methods through computers?

MR. FELMY: I think it occurred before ten years for the inventory controls. Over the last -- you saw going into the seventies and the eighties you had a sharp decline, I think it was something like, for example, gasoline was in like 260 million barrels of inventory in the late seventies and now it's roughly 200 or so. But that down ratcheting occurred more of the middle to the end of the eighties, so I think we've

experienced for the last ten years those improvements already.

MS. DeSANTI: And would you say the same is true for refined petroleum products, then, that that's the time period during which those changes and typical inventory levels occurs?

MR. FELMY: Yes, they're the same.

MR. MONTGOMERY: If I could just add to that, I am actually having a memory of this, because I was in the Energy Information Administration through the late seventies through the late eighties, and through that entire period, every season we discovered that inventory levels were below what we held was the minimum practical level, the previous season, and we got through it without any difficulty at all.

So, the technology change clearly started in the late seventies, because we were seeing, like I said, every year we went below what we thought was the minimum level at which the system would start to be disrupted. And I think it's probably -- John is right about computer technology management, it may have had to do with the rationalization of the refining industry as, you know, small refiner buys went away, we had more efficient, larger operations, a lot about the logistics and I'm not sure we do have a full understanding of, but

it clearly was starting in the late seventies and early eighties that we began to watch the necessary inventories decline dramatically.

MS. DeSANTI: Do you have any questions? If you have something, go ahead.

MR. SILVIA: Yes, I wanted to shift the focus a little bit and ask a broad question, which I think is of general interest to people looking at this industry. I think both presenters today made reference to the industry being competitive. Mr. Montgomery used a supply and demand diagram, for instance, which is what an economist typically uses to represent a very competitive market. Dr. Griffin also saw a competitive explanation for the price behavior he was examining.

My general question is this: Some people looking at this debate perhaps see a bit of a disconnect from this kind of evidence -- characterization of everything as driven by supply and demand -- and other kinds of evidence that tends to surface now and then. Perhaps in antitrust, we see this more often because we are able to look at the internal workings of major competitors in the industry.

And specifically, I would ask the panel, if they have any reaction to the following kinds of evidence or stories that emerge where we see that individual firms

clearly are not behaving as price takers in markets. That there seem to be some instances at least where firms move product around with the expectation that if they're going to have some impact on price through that decision. And that kind of debate came up, for instance, in the BP/ARCO case, at the Commission level, where there was this examination of BP's practices of shipping crude oil to the Far East and having some impact on ANS prices.

So, I would ask the panel if they have any general reactions of how does one square these kind of views of firms seemingly departing from pure price taking behavior with characterizing the industry as working very competitively?

MR. FELMY: Well, I could start. First of all, that's in terms of price taking behavior versus your moving product around, that's the duty of every business. In a competitive economy, you have to manage your business, the oil business is no different.

If an auto company overproduces vehicles, they cut down on production. Just as if you've got too much product as a company, you will cut your production, if you're losing money on them. So, that's -- that is not indicative of anything other than proper business manager moving his business.

The important thing is it is without collusion. And if it's the individual actions on recognizing that you have a market and that may be oversupplied, then you reduce your supply.

MR. MONTGOMERY: Actually, some of my colleagues, as you know, worked on some of the cases that you talked about, so I don't want to generalize too much. I think that in seeing -- I guess sort of offer three observations.

One is that seeing that firms -- seeing that someone has written a memo within a firm, talking about influencing a market does not mean that they accurately perceive the market or that they are correct that they could succeed in doing that. It's simply expressing a perception. They need to actually look at the market itself to ask whether, in fact, the company in which, you know, in which someone was expressing that desire or belief or wish did, in fact, have the power to affect the market.

The second one is, if we define our temporal market narrowly enough, we will always get to the Marshallian very shortly. Back when I was in graduate school, you know, Alfred Marshall talked about the fish market, and when we get to 5:00 in the afternoon at the fish market, supply is inelastic, demand is inelastic

and the price is going to go to whatever it takes to get rid of the fish before they spoil.

Therefore, anybody who has some fish on that market can probably have a significant influence on the price in the very short run. That does not imply, and what that might mean is there is one fisherman who still has a load of fish that he hasn't sold and that fisherman is going to have substantial influence on the price by deciding whether to try unload all of them or fry them.

That does not change the fact that a market in which 100 fishermen arrive in the morning every day is a competitive market. And I think that's probably what we saw in many of the cases that we're concerned in the transaction you're talking about that sure, it may well have been that one cargo, if it went to one place on one particular day, you could see that it would affect the price on that particular day, but that's the wrong time period and the wrong market to look at in asking about competition, you know, overall levels of competition in refining.

MR. SILVIA: Okay.

MR. GRIFFIN: I think there probably are instances where -- where a particular crude oil, because of its availability and because of its unique

characteristics, a company may very well decide that maybe I should sell it in market A as opposed to B. I think that the important point, though, is that if you look at the long-run relationship among different crudes, those differences are very, very small, and even though ANS crude, you know, even if you accept that there might be some small market price effect, that price effect has got to be so small, just because of the existence of other crudes of similar quality that can be brought in.

So, what I'm saying is, yeah, there's -- there's margins where a company does have some power over their price, but the relevant question is how big is that margin, over what range can they exercise discretion, and it's got to be small.

Now, one thing that concerns me from a competitive point of view is I guess if I was here on behalf of the petroleum refiners, I would probably be saying, right on, EPA, keep on -- we want even more boutique fuel types. In fact, we want one for every city in America. Because, you know, the effect of this, you talk about creating little margins and little market niches for certain refiners that you can actually confer little pockets of monopoly power on certain refiners because they happen to be right there, they've got a

refinery that's configured to make this particular flavor of gasoline and they'll -- they will exercise market power in that kind of world.

And I think that the -- so, you have a combination -- you've got a combination of things that are at work here. You've got regulations can actually create little pockets of market power. And we ought to recognize that that's one of the side effects of doing so.

You've also got -- you've got markets that -- that are already operating at a high level of capacity utilization. So, and those are precisely the markets where an individual refiner, they don't have to be -- they don't have to be colluding. If you're in the fish market and you're the only guy with fish left, you can decide whether you want to sell half a load of fish or the whole load, and I'll bet they make a calculation and figure out which one would yield the most money.

And so, what we're doing is when we get into periods of tight capacity utilization, combined with these boutique fuels, it really does create some rigidities in the system where the market doesn't work particularly well. But I think the important thing you've got to remember, I guess because I go back and tell consumers in general, is that if the refining

business is such a great industry, why have the returns been so terrible? You know, in terms of the long-run return on -- in petroleum refining and marketing, it's been a lousy industry to have invested in. I still wonder why the majors are still out there doing this, but they do.

MS. DeSANTI: All right. Well, we were supposed to end at 11:30, but I am curious about one point, David, that I would like to follow up on from your presentation, which is I believe that you said that if MTBE, if the MTBE requirement were eliminated, that would be a significant demand shock that could cause the loss of five to five and a half percent of capacity, even if it's replaced with an ethanol mandate, and I'm wondering if you could tell us sort of more about the data on which -- on the basis of which you're saying that, because obviously this is a current topic, and so I think we would like to know a little bit more about it.

MR. MONTGOMERY: Thank you. Yes, let me just walk through the calculation in about four steps. First, this applies directly -- the calculation I am going to do applies directly to reformulated gasoline. It applies to some extent to other kinds of gasoline, but I've done it for reformulated gasoline, which

constitutes about, what, 60 percent of total gasoline, 50, 40?

MR. FELMY: About 30.

MR. MONTGOMERY: About 30, okay. So, for about a third of the gasoline, there is an oxygenate requirement, that the gasoline must contain two percent by weight of oxygen. That requirement is satisfied today by MTBE, by blending in approximately 11 percent MTBE in order to get to that two percent oxygen. The reason why I'm saying I'm doing this on reformulated gasoline areas, in reformulated gasoline areas, there's maximum oxygenate content that's also specified.

Ethanol -- so, if we simply ban MTBE and refiners don't put in any oxygenate at all, we would lose that full 11 percent of the volume of gasoline, and you would be -- it would have to be replaced by something to make up the volume, and by particularly expensive components, alkylates, to make up the octane and the other good characteristics that MTBE has for making a cleaner brand of gasoline.

If we combined the ban on MTBE with either maintenance of the two percent oxygenate requirement or with a mandate for a renewable fuels mandate, which ends up essentially requiring ethanol, ethanol contains about twice as much oxygen by weight as MTBE. So, to replace

the same amount of oxygen, you only need half as much ethanol. We also have limits on kind of ethanol capacity and how much ethanol could be produced to substitute for MTBE.

But just doing the straight calculation, it's two percent oxygen requires 5.7 percent by volume of ethanol, requires 11 percent by volume of MTBE, the difference between the 11 percent and the 5.7 percent is what I should have calculated at 5.3 percent. So, it would be a 5.3 percent loss of volume on at least the 30 percent of gasoline in which MTBE is required before oxygen, but in large -- but MTBE is used in a large remaining fraction of the gasoline pool and there would also be a loss in volume there, too.

MS. DeSANTI: Thank you very much. Any final comments from our panelists? Particular points we should be paying attention to?

MR. BURDETTE: Well, I was just going to throw in one, and it's fuzzy compared to the econometrics and calculations we've talked about here, but I think one big concern in talking about the drivers behind gasoline prices, particularly with regard to companies behavior, is that it's really in the eye of the beholder whether a certain behavior by a crude oil seller or a gasoline seller is rational corporate behavior or unreasonable

greed.

And I think it's necessary to tone down the rhetoric a little bit and look at what the refiners say, refiners and producers say, what they are doing, as well as how it looks to the regulators and consumers in terms of what happens to gasoline prices. It is a much more complicated calculation than simply do I sell that next barrel, do I make that next barrel based on what the price is.

For instance, there was a situation that was highlighted in the FTC's midwest investigation and repeated in the one done recently by Senator Levin's staff about were there those who held back extra product in the midwest at a time of shortage, and I think the important thing to look at there is just briefly, if you have extra product in a market like that, does it make sense to you as a corporate actor to dump that product into a tight market, not merely for the impact that you get from selling that, but the impact it has on the price of all the rest of the product that you're selling.

And there are things that might make great sense from a consumer's standpoint that make no sense from a stockholder's standpoint. And so one just has to understand that there's a spectrum of interests that

work there, and there's not one solution that equally benefits everyone in the market.

MS. DeSANTI: Thank you.

MR. FELMY: If I could just add a couple of points. I would like to thank you again for having this hearing, because it's a marked contrast to what we heard last week where the four points were from the Levin hearings and study were that we have high concentration, so we have a lack of competition in the industry and I think anyone who looks at that knows that that's not necessarily true. Concentration does not mean a lack of competition and you use the Intel/AMT decision as an example of that. There were a lot of discussions about price movements together by gasoline stations as somehow being conspiratorial when, in fact, we know that's the workings of a free market, that you're going to compete with your competitor across the street, and I think today's discussion reflected all of that.

So, I would like to thank you for holding this hearing, I think it's good to bring all of these other issues out, and of course Mike's comment on the eye of the beholder is very important in all of these.

MS. DeSANTI: Thank you. Well, I appreciate the contributions you all have made, we are indeed taking a look at all of the different factors, including the

Levin report and all of the other sources that are out there on this, but I think this has been very helpful this morning.

We will start again this afternoon at 1:00 to talk primarily about refining issues.

Thank you.

(Whereupon, at 11:45 a.m., a lunch recess was taken.)

AFTERNOON SESSION

(1:00 p.m.)

MR. WROBLEWSKI: Why don't we go ahead and get started so we can end around 4:00 this afternoon.

Good afternoon and welcome back to the FTC's second public conference on factors that affect the prices of refined petroleum products.

My name is Michael Wroblewski, and I'm with the General Counsel's Office here at the FTC.

This afternoon's panel will concentrate on refining, bulk supply and transportation issues. Similar to the format we used this morning, we will start with four presentations that will provide a foundation for the discussion of issues to follow. The presentations will be on the fuel requirements of the Clean Air Act of 1990, price variability and volatility in wholesale gasoline markets and perspectives on the refining and pipeline industries.

Before we begin with the presentations, I would like to introduce my co-moderators. To my right is Nick Franczyk. He is an attorney in our Midwest Regional Office who was instrumental in pulling together the FTC's Midwest Gas Report last year.

And then Jay Creswell, who is actually doing a quick little duty in getting a name tag for our first

speaker, Jay is an economist in the Bureau of Economics, and he's played a key role in the review of several of the recent mergers in the industry.

Susan DeSanti, who was moderating this morning, will also be joining us a little bit later.

Before we start with the presentations, let me go around and I will introduce each of the panelists first, and then we will start with the presentations.

The first presentation will be given by Mr. Robert Larson, the Acting Director of the Environmental Protection Agency's Transportation and Regional Programs Division. In that role, he is responsible for assessing transportation's role in conformity and state implementation plans, reducing air pollution and implementation of programs aimed at reducing the impact of motor vehicle fuels and fuel additives on air pollution and toxic emissions. We are pleased to have Mr. Larson with us this afternoon, and we look forward to his presentation.

The second presentation will be by Dr. Thomas Hogarty. Dr. Hogarty is an oil industry consultant and Adjunct Economics Professor at Virginia Tech. Prior to his academic and consulting career, Dr. Hogarty was a senior economist and research manager at the American Petroleum Institute for over 18 years. Dr. Hogarty will

be discussing some general trends in volatility and variability in wholesale gasoline markets.

In the third presentation we will hear from Robert Slaughter, president -- recent president, congratulations -- of the National Petroleum and Refiners Association, the national trade association composed of those who own or operate 98 percent of U.S. petroleum refining capacity and petrochemical manufacturers with processes similar to refining.

As I said, Mr. Slaughter was recently elected president of NPRA after serving as its General Counsel and Director of Federal Relations. Mr. Slaughter will discuss the most pressing issues facing the refining industry as it moves forward to meet the demand for refined petroleum products.

The last major presentation we will have will be from Steve Jacobs, who is team leader for Business Development and Optimization at Colonial Pipeline Company. In this capacity, he is responsible for development and enhancement of Colonial's core businesses. He will provide a perspective of the challenges facing the pipeline industry in a world of varied refined petroleum gasoline products.

We have two panelists that will be acting as discussants. First we have Mary Morgan, Vice President

for Kinder Morgan's liquid petroleum operations since 2000. She's responsible for business development, customer service, scheduling, control center operations, regulatory planning and compliance for the pipelines and terminals associated with Kinder Morgan's West Coast and Pacific pipelines and its Plantation Pipeline.

Prior to the discussion, Ms. Morgan will provide a brief overview of Kinder Morgan's operations so that we have a better grasp of its operations here in the U.S.

Also joining us as a discussant will be Dr. Edward Murphy, Downstream General Manager for the American Petroleum Institute. The downstream segment includes the refining, marketing and transportation of petroleum products, including the delivery of these products to service stations across the U.S. We thank Dr. Murphy for agreeing to participate again on behalf of API, as he participated in the first conference we held last August.

One other quick housekeeping note, we have had a number of people ask about the presentations that were presented this morning and the ones that we will hear this afternoon, as well as the two papers that the Chairman referenced in his opening remarks earlier today. All of the materials are on the Commission's web

site. It's a little bit complicated to get there, but if you're on the homepage, there's a button that says "Formal Actions, Opinions and Activities." Click on that and you'll see another button that says "Public Conferences," and the first public conference listed is today's, and all of the presentations will be listed there.

So, on with the presentations. Dr. Larson, if you would like to go first? Thank you.

MR. LARSON: Thank you, Michael. Thank you for the introduction and turning the screen on, sometimes the most difficult job.

As Michael mentioned, I'm going to be giving a little background on fuel from the Clean Air Act perspective, but first a little bit of background on the mobile source sector and why we think it's an important sector to look at.

First of all, we're interested in trying to do our best to reduce mobile source emissions, and the mobile source sector is a very significant contributor to air pollution, representing over 50 percent of the Nox inventory; 42 percent of the VOC, volatile organic carbon, inventory -- these are the two constituents, primary constituents that go into ground-level smog -- 25 percent of the PM-10 inventory and 80 percent of the

carbon monoxide.

As some background from the Clean Air Act, the 1990 Clean Air Act amendments were very instrumental in establishing the fuel programs that we have today. It put in place both the reformulated gasoline program, which was initiated in 1995 after a very lengthy stakeholder and rulemaking process, as well as authorizing state fuel programs, which I will speak to in a couple minutes.

The Clean Air Act established that the 10 dirtiest metropolitan areas in the United States were required to have RFG, and it also allowed other areas that had significant air quality problems to opt in to RFG. Approximately 30 percent of the gasoline consumed is this cleaner burning reformulated gasoline, and as a result -- these are very major metropolitan areas -- an estimated 75 million Americans are breathing cleaner air as a result of the RFG program. The emissions impact of RFG in just these areas is estimated to be equivalent to removing about 16 million passenger vehicles from our roads.

This is a slide depicting the federal mandated RFG programs, the opt-in programs. California's is designated separately. And then there's a small area there where -- to designate the Phoenix area

clean-burning gasoline program.

The Clean Air Act mandated that reformulated gasoline contain 2 percent oxygen. This has been achieved through -- primarily, at least -- through the use of MTBE, methyl tertiary butyl ether, and ethanol, with MTBE being a very large portion of the oxygenate used right now.

However, there's growing concerns with the water contamination from MTBE, both real and potential, and as a result, a number of states have already banned or are considering banning the use of MTBE in their state from the water quality perspective. And the pending Senate energy legislation would eliminate the use of MTBE.

In addition to that, the amendments would remove the oxygen mandate for RFG and replace it with an ethanol usage.

We have estimated the cost of RFG compared to conventional gasoline for summertime use and have used these numbers over -- in many forms and over a number of years and really haven't had them significantly challenged, so the cost of producing a gallon of reformulated gasoline is estimated to be in the range of 4 to 8 cents per gallon compared to the production cost of conventional gasoline. Four to 8 cents is intended to reflect the range of refiners as well as the

particular fuels that -- or oils that they're starting with.

When you look at just the summertime gasoline, however, there's also RFG requirements for winter grade gasoline. If you look at the difference between the winter grade RFG and the summer grade RFG requirement, the difference is not that large, and it drops to about 2 to 3 cents per gallon. This is the increment that we would expect from a refinery cost perspective as you transition from winter grade to summer grade RFG.

The states are preempted from adopting their own fuel programs, but they are allowed to do so if it's necessary to meet their national ambient air quality standards in their areas, and a number of states and localities have received EPA's approval to adopt their own state fuel programs other than RFG, primarily looking at reducing the gasoline volatility.

It's notable from our perspective that in adopting the state fuel programs, the states go through not only a public process but we think pretty much it's common practice for them to consult closely with the refining industry during the development of those state fuel programs and pretty much uniformly are receiving the strong support of the refining industry as they adopt those state-specific fuel programs.

The National Energy Policy Development Group about a year ago came out with recommendations that directed EPA to study the issue of state and local, and what was coined at that time, boutique gasoline fuel programs, you know, a specialized fuel requirement that might be unique to a relatively small geographic area. The goal was to look for ways to maintain and improve the environmental benefit that you would get from the variety of programs, but in doing so, to look at ways to improve the flexibility in the fuel distribution system so that there would be a greater availability of fuel and which I guess would have the potential impact of improving the price picture for fuel. It certainly would help address issues of lack of fuel availability in times of crisis when there's a pipeline or refinery disruption.

There are a range of existing fuel programs with conventional gasoline having a 9 RVP nationwide, but there's a southern tier of states that use a 7.8 RVP. There are similar difference and requirements between the northern and southern RFG programs, then also whether or not you're using ethanol or MTBE as the oxygenate.

State fuel programs, again, largely focus on reducing the read vapor pressure of the fuel, and as you

can see, there's a range of requirements there, from 8 down to 7 psi, and at least in one case looking at lower sulfur as well.

We did a boutique fuels study. We consulted with the -- all of the stakeholders that we could get a hold of, including many of the refiners represented and associations represented here today, to look at just what was the state of the boutique fuels out there and what could be alternatives available to improve the fungibility of fuel.

It focused on the summertime fuel. We -- following the mandate from the NEPD, we are looking at ways to improve not only the fungibility of the fuel but also the opportunity for improving the air quality benefits.

We understood that as the states look at their water quality problems, there's a growing trend for MTBE bans. We also understand that as states are looking for improvements to air quality, especially as they look forward to the eight-hour ozone PM standards, that their fuels will -- the specialized fuels will again be prominent, I think, in their efforts to reduce emissions.

One of the conclusions that we did get from the refiners was that the oxygen mandate is a primary driver

of some of these boutique fuels. In order to avoid the mandate, they will go with a lower RVP alternative in a number of areas.

Is there a problem with boutique fuels? Well, it certainly has the air quality benefits, so from that perspective there is not a problem. In establishing the boutique fuel programs at the state level, state and local level, as I mentioned earlier, there was an extensive consultation with all the stakeholders, including the refinery industry, which generally supported the establishment of those programs.

So, they are all put in place with a lot of forethought of what the supply -- you know, anticipating that there will be good supply available of the boutique fuel, and that system works well as long as, as pointed out here, there is not something that will cause a disruption in the fuel.

However, we have experienced some disruptions, and when that happens, then the primary issue is how do you get that boutique fuel? Sometimes there's not a local refinery that's able to feed that area with its unique fuel requirements, and that has caused some ongoing concern of the availability of fuel.

We also looked at the winter to summer transition, and a lot of other people have as well. We

did so because we recognized over the last few years that there's a consistent, seemingly, price spike that occurs in the springtime. We proposed a range of options to try to address that winter-to-summer transition. Reformulated gas here we're speaking about, just that one segment of the fuel market.

After reviewing the comments and the information that we gained through that process, we finalized three sets of changes allowing the upgrading of conventional gasoline to reformulated gasoline. We eliminated some blendstock accounting regulations that we deemed were unnecessary and burdensome, and we allowed greater use of a testing tolerance during the transition from summer to winter.

It's our understanding that a number of refineries or terminals, I guess is a better designation, have been able to take advantage of this test tolerance improvement and flexibility during this past transition period.

So, in conclusion, we think that there have been tremendous improvements in U.S. air pollution, even though vehicles are still a major source of pollution. The number of cars and trucks on the road are increasing and the number of vehicle miles traveled continues to increase for that population. So, the mobile source

segment of air pollution continues to be a concern, and because of that, we think that clean fuel programs, just as they have in the past, will play a significant role in helping keep our communities' air clean.

Thank you. I think that does it. That's it.

(Applause.)

MR. WROBLEWSKI: Thank you very much.

Dr. Hogarty, please go ahead.

DR. HOGARTY: It's good to be with you. My presentation, written presentation, is rather long, and it's on the FTC website. Today I'd just like to make an observation and then get on to three points.

I think the best way to start is I'll just run through the observation and the three points and then talk about each of the three starting from the first.

The observation is that bulk prices of gasoline are notoriously volatile and geographically variable. And then the three points:

First, the causes of the volatility and the variability are not really the problem. The problem really is low profitability in the refining marketing segment.

The second point, modest increases in refining marketing price margins would mitigate that wholesale price volatility but might make consumers worse off.

The third point, consolidation among the biggest refiners and new competition from other refiners have both contributed to lower but more volatile and variable gasoline prices.

Okay, back to the first point. The proximate causes of volatility or variability really are not the problem. As just mentioned, occasionally there are price spikes, and sometimes those price spikes are directly attributable to an accident. In California in 1999, there were a couple of refinery fires, and there was a pipeline explosion. You can go back into the historical record and you can trace a good part of the price spike problem in California at that time to those refinery shut-downs and the pipeline shut-down, clearly had a specific accident or accidents, and those were causes for the event, the price spikes.

At other times, including in California in 1999, fuel mandates have at least been implicated in the price spike. Now, while the accidents in California were the specific cause, this price spike was greatly aggravated, made much, much worse, by the fact of a unique California blend.

Similarly, in the Midwest in 2000 and at other places and times, special fuels have greatly contributed to the observed price spike regardless of what may have

happened to the physical structure.

Another possible cause, a general cause of price spikes, would be the low price elasticity of demand for petroleum products, especially gasoline. In the very short run, a matter of days, the price elasticity is a very small number. Similarly with the supply elasticity, so if there is some mishap, it's hard to compensate.

Now, the FTC, in its Midwest Gasoline Price Investigation, clearly identified I think a fundamental cause, and that is the chronically scarce refining capacity. Throughout the U.S. and especially in certain areas, refining capacity is very scarce, and that scarcity makes the whole system or parts of the system highly vulnerable to these price spikes. Almost any small interruption is liable to lead to a sharp run-up in prices at the pump.

Lately I understand Energy Secretary Abraham has concurred in that assessment, at least going forward, saying that in the future we have to be more attentive to the rising capacity utilization in refining, and it may present a problem. I understand the American Petroleum Institute also is somewhat concerned about the future availability of capacity and whether or not high and rising capacity utilization rates might make the

U.S. more vulnerable in the future.

But my contention is that the underlying problem is low profitability. Low profitability undercuts the incentive to invest, and the lack of incentive to invest means a chronic scarcity in capacity. In turn, the chronic scarcity of capacity means that some areas are especially vulnerable to accidents, and lastly, the chronic scarcity of capacity in turn caused by low profitability makes any price spike much worse. It makes a boutique fuel problem worse than it might otherwise be.

Well, how bad is the profitability in the refining market? It's really terrible. Over the last 20 or so years, in a typical year, the rate of return in refining marketing has been 5 percent. Now, think about that, 5 percent over a 20, maybe longer, year period. That low rate of profitability is just not enough to actually induce the investment that consumers say they would want, and certainly it's not enough to induce the investment that would prevent price spikes.

Now, why have profits been so low? A couple of reasons. One is that a significant fraction of the investment in the refining marketing sector has been directed toward pollution abatement and the production of cleaner fuels. These are worthy goals. As social

goals, they may be among the highest, but unfortunately, they don't exactly comport with what consumers are willing to pay. The tendency for consumers is to seek the cheapest fuel, and generally refiners have had trouble recovering their investments in cleaner fuels.

In addition, refiners face a difficult problem of making costly investments with long lead times that depend on relative pricing, the relative price of crude relative to products and prices among crude oils and among different products. For example, a refiner might invest in facilities to process low grade crude oil based on historic price differentials between high grade and low grade crude oils. By the time that investment comes to fruition, the relative prices may have changed, so the expected profits are not realized.

Similarly, a refiner might invest in a capacity to produce higher octane gasolines. By the time that investment begins to generate the higher octane gasoline, the demand may have fallen. In fact, that has happened. And indeed, to some extent, car manufacturers have been reducing the octane requirements of the cars they manufacture. So, again, the refiner finds himself making an investment well in advance of anticipated events that do not materialize.

One of the biggest reasons for the low

profitability in my opinion, at least, is refiners face an all-or-nothing choice. Under the EPA rules, refiners face a choice of either produce the reformulated fuels and make the pollution abatement expenditures required to comply with the law, or shut down. Most refiners most of the time have elected not to shut down. That means that they've been required to make these expensive investments, which as I said, generally have not paid off.

Over time, the cumulative impact of these increased investments adds up. So, you find from the historical record that refiners or the refining marketing sector has been increasing capacity slightly and investing more than has been depreciated and certainly investing more than they've earned in profits. A result has been sort of a capacity creep.

Well, there is a little bit of good news in the recent record. Profits of refining and marketing went up quite a bit in the late eighties. For a couple years, there were a couple good years, and recently, '98 -- pardon me, '99, 2000 haven't been too bad. So, occasionally the profits do go up, and when these profits go up, there usually is a pretty strong response in terms of investment. I say that's encouraging because it's indicative of the hypothesis or possibility

that if refining and marketing profits are much higher, much higher than they are now or have been, that the end result would be a great increase in investment, which would alleviate that problem of chronic underlying capacity -- low capacity.

Which brings me to the question raised by the second point. The second point is that if you had modest increases in the refining marketing margin, the rate of return would rise, and investment would increase, and capacity utilization -- capacity would rise, prices would tend to stabilize, all for the good, but consumers might be a little worse off.

I did a very crude calculation. I observed that the net refined margin as computed by DOE recently for the last 20 years has been on the order of 2 cents a gallon. Associated with that 2-cent-a-gallon profit margin is a rate of return of 5 percent. My back-of-the-envelope calculations -- and I emphasize "back of the envelope," they may be wrong -- are to get a 15 percent rate of return, which I would call adequate to induce the investment to help stabilize prices, the refined margin would have to rise from, say, 2 cents up to 7 or 8 cents per gallon.

Now, that's a tripling or a quadrupling in the refined product margin, but in terms of the per gallon

impact, it's probably not too bad.

The upshot seems to be that based on my rough calculations, an increase of a nickel or perhaps a dime in the average gasoline price would induce investment sufficient to greatly stabilize prices, raising the question, well, what good does that do? Actually, that probably would make the refining marketing sector better off, but it might make consumers worse off.

As I said in my August 2001 written presentation, it's my opinion or judgment that consumers are better off with unstable prices, as they have been. Unstable prices as they have been have been prices that fluctuate around a declining average. In general, gasoline prices at the pump have been declining, and I think that's worked to the benefit of the consumers, and to a large extent that decline can be attributable to these occasional fluctuations.

Last, the third point. Consolidation among the biggest refiners and new competition from other refiners have contributed to lower but more volatile and variable prices. In the last five years especially, there's been a tremendous consolidation of refining capacity, and the biggest refiners today are bigger than the biggest ones ten years ago.

What is interesting is that much of this has

occurred through the merger and acquisition process, and furthermore, the companies that have succeeded in the consolidations have less capacity than those entering into it. That is demonstrated, as far as I can determine, in that the combined firm ExxonMobil has less capacity than Exxon and Mobil did beforehand. Generally I believe that the biggest mergers have reduced the capacity in the hands of the biggest firms, and what has happened is that a lot of the refining capacity has wound up in the hands of what I might call independent or merchant refiners.

Formerly, independent refiners like Tosco and now Phillips-Tosco and I'm told now Conoco-Phillips-Tosco have become extremely big, but Exxon, Mobil and Chevron, the big ones from five or ten years ago, are relatively smaller. Similarly, Valero, a refinery that was relatively small a few years ago, is now one of the biggest, Valero-plus perhaps I should call it.

Along with this consolidation of refining capacity has come a new distribution channel, and a new distribution channel principally comprises the hypermarkets, and that's really a topic for tomorrow, but it concerns today in this sense, that the hypermarkets like Wal-Mart offer a new distribution channel previously unavailable, and the significance is

that refiners like Murphy, Tesoro and many others that previously lacked access to retail customers now have it through the hypermarkets.

It's my belief that in the long run this will encourage entry into refining and enhance the competition that can be brought to bear by these independent and merchant refiners. Very simply stated, I think that Murphy Oil Company is a much more formidable competitor to all the other companies when it hooks up with Wal-Mart than when it has to go out on its own. Murphy, in effect, by joining with Wal-Mart is eliminating -- is preventing -- is saved the necessity of trying to recruit its own dealers and entice marketers to sell its brand.

So, in sum, I would want to leave you with the most important point, I think, of those I made, which is at least in my judgment that low profitability is the cause of the chronic underlying scarce capacity, and in turn, this aggravates the problem of fuel spikes caused by fuel mandates and aggravates the general problem of accidents themselves leading to price spikes.

Thank you very much.

(Applause.)

MR. WROBLEWSKI: Thank you.

Mr. Slaughter?

MR. SLAUGHTER: Thank you very much. I wanted to thank the Commission for the invitation to come back and talk a little bit about refining issues. I'm Bob Slaughter, National Petrochemical and Refiners, and we have a broad membership across the refining industry, as Michael mentioned.

I'd like to say just at the outset of this, I'm going to move relatively quickly through a bunch of slides, and a lot of people have seen much of this information before, and through a few key points I want to make and focus on.

One of the things I want to say, and Tom has really set the table for this pretty nicely by talking about the low profitability in the refining industry. We have a lot of problems in the refining industry. One of my chairmen told me that he appreciated the fact that my constant message is how tough a business the refining industry is, because he thinks it is, too. He's an integrated. So, he sees all the different parts of the business, and he thinks that refining is the toughest, and it is.

But I would like to say one thing, that even though it is a tough business and we have lots of challenges ahead of us, that the refining industry is really incredibly diverse today. We have a very diverse

refining industry. We have some of the largest companies in the world that are participating in the American refining industry in very significant ways, ExxonMobil, Shell, BP, ExxonTexaco.

We have other integrateds that are not quite that big, like Marathon/Ashland, that are participating, Phillips. We have strong independent companies like Valero, which has been mentioned, Sunoco, Tesoro and others. We have more regional refiners like Sinclair and Frontier. We have a really diverse industry, and one of the things that I think people should take note of is that fact and also that it's very important I think to maintain the diversity of the refining industry.

There are some things that could be better for our industry, but there are some good things about it, too, if it is getting the participation of so many different kinds of companies. So, I think we ought to kind of adopt as a policy goal going forward that we should try to maintain the participation of all those kinds of players in this business, because it results in a healthier business and is better for American consumers.

These are facts that I think pretty much everybody knows, basically the basic stats on what is

produced and what is -- what the demand currently is. I point to the bottom of this page, the EIA forecast, is that petroleum demand will increase by 1.5 percent per year to 2020. As I remember, they see an increase in crude plus product imports going from 10 million barrels a day to 15 million barrels a day by 2020. Sixty-five percent of the growth in imports is in refined products, not in crude, and I think that's very significant, because it shows you where the future of the country is headed under, you know, kind of a steady-state policy.

It means significant increases in refined product imports, where essentially if things are not done, we will be talking about how did the number of refined product imports get so high a few years from now and what was it that we didn't do? So, this is a very important stat that at this point hasn't gotten I think quite as much attention as it should.

Again, this is a chart that really shows that the capacity of the average refiner has gone up; however, the number of refineries is significantly down over what it was in particularly the 1980 period. There are roughly 149 refineries operating now. We're losing one, the Hartford refinery, in Illinois in August. We're down a few refineries over the last several years.

Again, typical petroleum products, just pointing

out far and away on the average the largest volume product is gasoline. Still, that's only half the output of refineries.

Refinery production and petroleum product demand, just showing something that I think everybody knows now, that even now we are producing -- we are reliant on some imports, because demand for petroleum products is higher than the domestic industry's ability to produce, and as I've just indicated, EIA at least for one and I think many others believes that we're going to see a significant bump up in the dark blue line in years to come unless something's done to counteract that.

Again, here is petroleum product imports. Gasoline, I think we usually run at about 400,000 barrels, sometimes peak months 800,000. I think total imports are something in the neighborhood of 2 million barrels a day.

Capacity and utilization, as you'll see, we utilize our refining capacity at near total utilization figures. I think we're currently in the area of 94 percent. Last spring, we got up to 99 percent in the run-up to the summer months. We never get lower than 86-ish. This in any other industry would be considered full utilization, and, you know, the only way you get by with steadily increasing demand, significant increasing

demand and fewer refineries is you have to use the refineries that you have full tilt all the time, and that puts a lot of stress on the systems, and it means that sometimes there are outages, and then there are some supply implications with that.

The new regulations we face are many and varied. As you can see here, the projected investment requirements for several of them are quite significant. The potential cost for these programs approaches $21 billion in this current decade that we're in. Many folks in the industry who have looked at the overall investment requirements for the industry feel that we're going to need more than $30 billion of investment in the refining segment in this decade, this amount of money in environmentally related investments, the rest of the investment necessary to maintain current capacity and hopefully to increase it.

This is what we call the blizzard chart, which just shows cumulative regulatory impacts on refineries, 2000-2008. It shows the various programs that we're facing, gasoline sulfur, on-road diesel, very demanding programs, $8 billion for Tier II gasoline sulfur, on the same order of $8 billion for the on-road diesel rule, and more to come. There are a lot of investment requirements here.

Just the on-road diesel sulfur rule is extremely challenging. It's a very deep reduction. The industry is going to have to make -- on top of the gasoline sulfur rule by the middle of 2006, the investments have to be made, and there are separate investments on top of the gasoline sulfur investments. We had urged the previous Administration to postpone the effective date to get us out of doing two different investments in programs in the same time frame, and that really was not done, and one of the problems there, which was highlighted by a National Petroleum Council report, is the improper sequencing of these rules really puts a tremendous burden for capital investment on the refining industry, and it will result in refinery closures and further concentration in the industry.

As a matter of fact, the Premcor Corporation, in announcing the closure of its Blue Island facility last year and the closing of its Hartford facility this year, said basically it could not justify the gasoline and diesel sulfur investments in those facilities. So, we're already seeing some impacts.

We think there's still time for a better highway diesel rule. We litigated this along with several others as petitioners. We lost that suit last Friday. There is going to be a review under FACA, under the

Clean Air Advisory Council at EPA of this rule. I know API has already written a letter to that group urging them to take a number of serious considerations into account as they go forward. We're wanting to work with that group to see what we can do to smooth the implementation of this very challenging rule.

Mobile source air toxics I wanted to mention. There is a problem in this rule, which is essentially established to prevent a back-sliding in air toxics achievements in reformulated gasoline and conventional gasoline. The problem is that refiners, regardless of -- well, the refiners were left with their own baseline as to what they were doing in terms of toxics in 1999 and 2000 gasoline. They may have a very challenging baseline, for instance, the stat -- the spec on reformulated gasoline benzene content is 0.095. Some of them were actually at 0.048, and their baseline holds them there.

You know, the benefit of over-achieving in the environmental area is being held to continue to over-achieve and spend extra money. This is potentially a very serious problem, particularly if MTBE disappears, because if you lose MTBE as a blendstock, it's going to be very difficult for refineries to produce this gasoline and maintain these low baseline levels.

We're unfortunately reduced to going in on a case-by-case basis to EPA on this to ask for relief if and when this happens, and NPRA for one has been talking about this with the Agency for a while, and we are concerned that particularly if we lose MTBE, there's a problem with gasoline producibility.

The other thing is this puts various kinds of gasoline in different boxes. For instance, it limits your ability to switch back and forth in your production between RFG and conventional gasoline, because they have separate baseline requirements. Essentially it created a boutique fuels program right here within the MSAT rule, because it's very difficult to make different kinds of gasoline, because if you affect your toxics emission on one of the pools, you're out of compliance, so you can't switch back and forth as easily as you might because of supply requirements, outages, whatever. Anyway, this is something that bears watching.

New source review reform we think is extremely important. We tell everyone that there really is -- this is the single most important thing that can be done to protect the vitality and diversity of the American refining industry. The current NSR program we believe has been re-interpreted. We think it is misdirected. As currently interpreted, it can require permits for

almost anything you do, including routine maintenance at refineries and other industrial facilities.

We think we're very much in need of further clarification of what these requirements are. We believe that we need additional market-oriented flexibility, like plant-wide applicability limits, the ability to go to those if we want to, which is basically a capping mechanism that takes you out of some of the elements of the NSR program.

We need to have a better understanding of what constitutes routine maintenance and repair. The Administration has initiated a study of this program. We've participated, as have many others. We had a meeting with 12 of our refining members. We gave the Administration 32 instances in which we felt this program had hindered our ability to increase supply. We are hoping that we will get some proposed changes on this situation.

In the meantime, there are enforcement activities taking place under the re-interpretation of the rule. We're very concerned about those, and they are an additional investment requirement on an already beleaguered industry. The settlements that have been announced of those who have had enforcement actions against them which they have settled constitute already

over a billion dollars in additional investment in capital plant within those refineries covered by those agreements over the next several years, and that's an additional investment required in the domestic industry that we feel in many cases is just not required by law.

At a time when we have to make all the other investments in our plant, it's very bad to have to basically do things that are unnecessary and counter-productive to settle NSR actions that we think are really inappropriately brought. We're hoping that the Administration recommendations to clarify this situation and hopefully improve it will be out soon.

On boutique fuels, a lot has already been said about this. Frankly, you know, a lot of this comes from the colored maps that we took up to explain to Congress what was going on in the Midwest in 2000, and to some extent they've been misinterpreted, because we were trying to show people what the problems were in moving supply around the country and, you know, how many different requirements there were in individual areas.

It's the industry's job and expertise to optimize whatever the requirements are, and it does I think a fine job of optimizing them, and as pointed out in the EPA slides, I mean, when we have a disruption, there is a problem, but generally, we are able to take

care of the boutique fuel situations, and they are largely a reaction in our opinion to the 2 percent requirement for oxygenation in RFG, which some areas chose not to adopt for various reasons and decided to go to their own particular recipe.

Also, because of federalism, we understand also it is fairly difficult to turn a state or locality down if they have a fairly well-reasoned claim that they want one of these fuels. So, one of our concerns is that we don't want the existence of the boutique fuel program to result in the creation of additional gasoline specification changes at this time when we have so many other things to do that require investment.

Refineries just don't need another fuel change, and the fact of the matter is that if there are two gasoline specifications and you're going to go to one, you're going to go to the most stringent one of the two environmentally, and it's going to require the most investment and probably also have a supply impact as well. So, we've urged people to look at the boutique fuel situation, and that's being done.

EPA has done some of that. I think both the House and the Senate bill talk about boutique fuel studies, but we do think that the people who look at it should bear in mind that they should do no harm, because

the industry doesn't really need additional investment requirements at this time.

Just a couple things on the Senate Energy Bill, I was asked to talk about that. It contains an MTBE ban and ethanol mandate, 5 billion gallons by 2012. There's a small refinery exemption. The RFG oxygenate requirement essentially goes away, it's waived immediately in California and everywhere in nine months.

NPRA opposes mandates and bans, and we're worried about the supply impact of this provision. So, we're not supporting it. There is another industry point of view on that, and I'll defer to Ed Murphy for that during the discussion section. We do have supply concerns about this, and, you know, we're hopeful that we can get some changes, particularly in the Senate provision.

A couple things, there is a credit trading program. It makes things a little better, but we're not sure that it makes things enough better. We're still worried, again, that just because somebody can buy ethanol credits, it doesn't replace the volume. It gives them a paper electronic credit. It doesn't replace the volume foregone when you've lost 10 percent of your supply in places on the East Coast and West Coast by losing MTBE. So, we have some concerns there.

Again, I was talking to Mary earlier, that we always have problems with all of our transitions, and we always underestimate the problems that we're going to have with transitions, and politicians are in the business of being always optimistic about the chance of other people doing what they've asked them to do. That means we need to be cautious, I think, going forward with a big change like this, and I'm not sure that we have up to this point really been cautious in looking at what we're going to have to do over the next four years.

This is a little more on the MTBE ban. I've just gone over this. There are future and potential costs from losing MTBE. We basically at NPRA have favored elimination of the 2 percent. We're not opposed to a phase-down of MTBE, but we are concerned about a ban, as I mentioned earlier.

The House bill doesn't address MTBE usage or the ethanol mandate, and we'll see what the conference comes up with.

There are some regional concerns on it. California just brought this up, but the governor, of course, extended the time for the California ban for one year because of concern about some of the necessary facilities to implement that and the impact on gasoline.

The Northwest also seems to prefer gasoline

without either MTBE or ethanol, and air toxics reductions achieved with MTBE are hard to replicate with ethanol or with no oxygenate, and that was a point I was making earlier. You have important problems if you lose MTBE there.

Just, again, noting what our position is. I'm sure Ed will have some more to say about that.

The Unocal patent, I just wanted to mention, we have problems with the Unocal patent. We have urged the Patent Office and have actually urged the FTC as well to take a look at these patents for their impact on supply. We appreciate the fact that both those entities are currently looking at these patents. We think they don't add anything except costs, and they're counter-productive.

The future outlook is this -- I wanted to say something for just a second about the Subcommittee hearing last week on gasoline prices. The recommendations that came out of those hearings basically is that FTC should be more cautious about mergers. I have referred everybody to Former Chairman Pitofsky's statement before the Commerce Committee in April of 2001 in which he details how careful the FTC has been with mergers and how painstaking, and I think anyone who thinks that they take merger proposals

lightly here should take a look at that testimony and also the track record of the current Commission over the last year. We don't think there's any reason for any merger moratorium, which was discussed by some of the witnesses there.

Also, for changing the law in cases of parallel pricing, one of the economists who appeared the second day pointed out that there was some disagreement as to what parallel pricing is and also what it indicates. Shifting the burden this way, the problem that you have is, as suggested by the Chairman in the Subcommittee hearing, could be you significantly increase the cost of doing business. You've increased your litigation costs, and that's not going to do anything but increase the costs to consumers and also concentrate the industry further as the cost of participating in the industry goes up. It's not something that we think is at all a positive change, putting aside the fact that we think it's unfair.

The other is to require oil companies to maintain inventory to avoid shortages. That also adds costs. It's not economic to maintain all of that inventory or the companies would be maintaining it, and several of the witnesses pointed out the very substantial cost of maintaining inventory and

recommended strongly against this particular recommendation.

And, you know, basically I've just gone over these. You know, one of the things that is of concern to me, I've been around here since 1970, like some other people in the room. People seem to be reverting to a desire for some kind of administered pricing system for gasoline, which was nothing but a disaster when we tried it in the seventies. The problem is that the prices tend to be stabilized, as Tom I think and others have mentioned, at too high a level, and you get a lot of inefficiencies and extra costs built into the system, and you lose the volatility, but people end up paying more in terms of higher prices, plus also shortages, things like gas lines.

Santana said, "Those who don't remember the past are condemned to repeat it." I think there aren't enough people around who remember the seventies or sat in those gas lines or this type of thinking I think would not be occurring.

Not really much more here that I haven't already said. I just pointed out that, you know, just one thing I'll leave you with is there's a lot of discussion about environmental investment costs. As Tom pointed out, those are for a very good cause, but again, the

environmental investments need to be made cost efficiently. They're a very significant burden on the industry. They're not free. And we're hoping that we can find a better balance between our energy and environmental policies, regulatory policies and everything else.

We think that will be one of the most positive things that can be done for the refining industry going forward, and again, to maintain that healthy and also diverse industry that I think we still have now.

So, thank you very much.

(Applause.)

MR. WROBLEWSKI: Thank you. Can I ask you one quick question before Steve starts? You turned off the graph, but you had one graph up there that was a -- it was earlier on, and it had light blue bars and the dark blue line, and it talked about capacity and utilization.

MR. SLAUGHTER: Right.

MR. WROBLEWSKI: And it had capacity, I think, as the bars and the utilization was the line that was above, and between 1992 and 1997, the utilization was -- there was a big gap between the utilization and the capacity, and I didn't understand that. I would have thought it would have maybe been the other way.

MR. SLAUGHTER: You know, you're right.

UNIDENTIFIED SPEAKER: I don't understand the question.

MR. WROBLEWSKI: If it's just a production error, that's fine, I just wanted to --

MR. SLAUGHTER: I think it's a production error, because I think the blue line should be up near the top --

MR. WROBLEWSKI: The bars should be up higher?

MR. SLAUGHTER: Should be up higher.

MR. WROBLEWSKI: I was thinking, I didn't know if there was another explanation that -- okay.

UNIDENTIFIED SPEAKER: No, I think it's just the way the axis on the left is, you know, goes from 14 to 17, where a different axis on the left was used by going from 14 to 17 and it went from 1 to 17, that's the difference. That's all it is.

MR. WROBLEWSKI: Okay, thank you.

Steve Jacobs will talk about transportation issues.

MR. JACOBS: Good afternoon. If we have any production errors in this presentation, you can blame me, because I was the one that put it together, so I will take full and complete responsibility.

The first thing I'd like to do is apologize, apologize because the message you're going to hear from

me is going to be a repeat of what you heard in earlier presentations. There's a common theme to these presentations, and I ask that a repeated message gets remembered.

In this presentation, first I'm going to talk about pipelines in general. I'm going to give a very crude -- my very crude estimate of economic theory as applied to pipelines. I'll discuss factors affecting the pipeline supply of gasoline, and I will close with several recommendations.

This is a map of the United States showing product pipelines in general. There are approximately 80,000 miles of product pipelines in the United States delivering 75 percent of refined products. When I say refined products, I mean gasoline, diesel and jet fuel.

Pipelines deliver the product from refining centers to population centers. You can see on this map the largest refinery center is in the Gulf Coast, in Corpus Christi, through Houston, Baton Rouge and New Orleans, and therefore, many pipelines originate from this region.

In this map, Colonial Pipeline is shown in blue, which travels from Houston to New York City. Colonial transports product from these refineries to the Gulf Coast to the Southeast, Mid-Atlantic region up to the

Northeast. We also ship product from several refineries within the Northeast in the New York Harbor area. We operate from 13 states and indirectly serve the Midwest and New England by delivering products to other pipelines and barges.

Colonial delivers approximately 2.2 million barrels per day of finished product or 90 million gallons daily to customers in these and in adjoining markets. We ship product for approximately 80 customers, from 30 refineries, to more than 250 marketing terminals. Twenty percent of the product in the United States that is shipped on pipelines ships on Colonial.

As you can see from this slide, for long distance transport, pipelines are generally the lowest cost mode available. Pipeline costs are a very small part of the final cost of gasoline to the consumer.

This slide shows that it costs about 2 cents a gallon to move a gallon of gasoline a thousand miles by pipeline. This is the same as it costs for a local truck delivery from a terminal to a service station within approximately a 30-mile radius.

This is a simple graph of supply and demand that shows that demand increases as price drops, and supply increases as price goes up, conventional economics. The

degree to which supply and demand respond to price changes is referred to as elasticity. From a pipeline perspective, the factors that affect elasticity are listed here. The availability of substitutes; if there is interruption of supply to a market, the price will react different depending if gasoline from adjacent markets can be substituted as an alternative supply.

The second factor is the time required for substitutes to enter the market. Can a pipeline deliver it in one day or in one week? The price reaction in the market will be very different if a city will be without a significant portion of its gasoline supply for an extended period of time.

The third factor is how important the product is in a typical consumer's budget. Although we all complain about high gasoline prices, most U.S. citizens continue to drive the same vehicles the same amount if gas is priced at $1.50 than it was when it was only $1 a gallon.

In this slide, I show the same supply/demand graphs but now add a new supply curve. In this case, it assumes supply is reduced due to an interruption in operation or product availability. As the supply is reduced, the supply curve shifts to the left. This is the new bright green line. If you assume no substitutes

are available in the immediate market area, the actual supply curve will shift to the left, and the market will be willing to pay a higher price to prevent running out of gasoline.

It is only appropriate that I mention in my own defense that as the price increases, pipelines do not realize any different fee. The tariff is the same whether the gasoline is priced at $1 a gallon or $2 a gallon.

Since pipelines do not have a very noticeable effect on demand, the balance of this presentation will focus on what causes changes in supply. With the rest of this presentation, I will get out of theory and talk about pipeline reality.

This is one graph that summarizes my entire presentation. So, if you need to leave, wait until I'm done with this slide. This is what consumers saw in Chicago in the summer of 2000. This graph is the differential in gasoline price between Chicago and the Gulf Coast for the calendar years 1999 and 2000.

The black line shows that in the summer of 1999, Chicago prices were in the 3 to 5 cent range above the Gulf Coast, about the cost of pipeline transportation from Houston to Chicago, a steady-state condition.

However, in 2000, prices spiked 40 cents a

gallon higher than normal. This was caused by several factors. The industry was delivering a new reformulated grade of gasoline in Chicago. Inventory levels were low, as suppliers were managing the transition from winter gasoline and heating oil production to summer gasoline. Pipelines were at or near capacity. Then, one of the main pipelines supplying this region had a leak, and it was forced to lower its operating pressure and consequently lower its supply to this market.

Now, where I live in Atlanta, we have been lucky not to have had a similar experience. This is because of several factors. The Southeast region receives gasoline, as I mentioned, from more than 30 refineries. The region has more than 80 suppliers delivering through more than 250 terminals. The region is not only served by Colonial Pipeline but also Plantation Pipeline. The combination of these two systems include five main lines capable of delivering more than 3 million barrels a day of refined product.

This does not mean we are completely insulated from this kind of price volatility, however. In fact, Atlanta has the type of gasoline that is unique to anywhere in the United States, and not many refineries can make it without significant change. Therefore, the cost of substitution is expensive. Maybe we have just

been lucky in Atlanta.

This slide lists several factors that affect pipeline supply, and I will walk through them point by point in the next few slides.

First, safety is number one with every pipeline operator in the United States. The public and regulators are requiring increased vigilance from pipeline operators. Leak-free and error-free is the objective of every pipeline operator.

However, operations can be interrupted for a variety of reasons. The instance that makes the front page news is when leaks occur. The factor causing the most leaks in pipelines in the United States is from third-party damage, from others digging near a pipeline and causing an accidental rupture. As supply is reduced, the marketplace reacts quickly with increasing price. Speculation grows about additional shortages and prolonged outages. The greater the outage or loss of supply, the greater the price response will be. The worse the fact or the worse the rumor, the higher the price will go.

Pipelines react quickly to return to operation after meeting all of the safety requirements. DOT, Department of Transportation, recently passed an integrity management plan for all pipelines to further

reduce the risk of leaks. It is in the interests of all pipeline operators to prevent leaks, because the direct and indirect costs from a leak can be substantial.

Another factor affecting the pipeline's ability to supply all the product to the market is the number of different products required. The more different types of unique fuel that are required in a region, the less substitutes can be available to help fill the supply shortfall. Also, a pipeline loses effective capacity the more grades it must handle. If you spend a lot of time switching between grades rather than run a steady-state, common operation with one type of gasoline, you lose capacity.

The next page shows the explosive growth in number of products that Colonial Pipeline ships. These are actual numbers of grades that Colonial Pipeline has shipped over the last 30 years. Life was good back in the seventies. There were six different types of gasoline, two types of jet fuel and kerosene and three types of diesel. This existed for several decades prior to this, and this is what most product pipelines were designed to handle.

The eighties brought the phase-in of unleaded gasoline. In the 1990s, the industry began having more different grades of gasoline to meet industry

regulations. The different types of gasoline generally had a different volatility as measured by read vapor pressure. These specifications varied by market area and by season. Reformulated gasolines were introduced in several metropolitan areas that did not meet EPA's clean air requirements.

Also in this time period, several regions introduced special blends of gasoline as boutique fuels, as we've heard earlier today. For example, Atlanta, Georgia and Birmingham gasoline each require gasoline that is different than anywhere else in the country and different from each other.

The future looks even worse as we continue to see rapid growth in the number of specialty products, unless we get some form of regional or national standardization. More changes are on the horizon as we've seen localized banning of MTBE in certain cities and states and not others. Cities and states adopt more boutique fuels. Atlanta gas in 2003 will be different than in 2002, and additional counties in Georgia will be required to burn this new, special gasoline.

Other states expanding areas for boutique fuels is North Carolina will have a unique grade of gasoline in 2004. Ultra low sulfur diesel is scheduled to be phased in between 2006 and 2010, and EPA is considering

adding a new grade of off-road diesel.

The next factor is we have lower days supply of inventory at pipelines and terminals as companies try to improve their financial return on capital since extra inventory generates zero return. Also, demand has been increasing without building additional tanks because of the low economic return of investment in tankage.

Gasoline that is shipped on a pipeline has different quality characteristics that vary throughout the year. This is done primarily to lower the vapor emissions in the summer's warm weather, as we heard earlier. Therefore, gasoline sold on May 1st is required to be different than the gasoline requirements sold the prior day on April 30th. This causes companies to completely drain their inventory of one product and replace it with a more expensive, appropriate grade for the summer season. Therefore, whatever inventory safety stock may have existed may no longer be present.

Supply interruptions during this transition period, as we saw in the Chicago price graph earlier, can have a significant effect when there's insufficient substitutes in the marketplace.

The last factor I'll address on supply is that many pipelines or segments of pipelines in the United States are reaching capacity. It is increasingly

difficult to build a new pipeline, and therefore many systems are reaching their limit. This causes supply to be tight in certain markets as demand continues to increase. Also, less spare capacity is available for make-up capacity or make-up supply in the event of interruption.

We are fortunate in the Southeast and Mid-Atlantic region that our main lines are not full, although we are spending significant money as we expand our lateral lines to adjacent markets.

I mentioned it's difficult to build a new pipeline. There are many issues that need to be dealt with in this assessment. I will list them here and then elaborate on the next few slides.

The first is will it be allowed to be built? This speaks to the myriad of steps that must be successfully negotiated in permitting a new cross-country pipeline.

The next is the amount of risk the business must be willing to absorb in trying to build a new line. This includes the time, effort and financial risks that may not have a high success ratio. The costs continue to climb, and many pipelines are not able to recover them with the FERC index method of tariff setting.

This page lists a portion of the many agencies

required to be involved for building a new cross-country pipeline. This is a 225-mile line we were building across Alabama to supply additional product into Nashville, Tennessee. Although the process is going as well as can be expected, we will have spent four years and more than $50 million before we turn over the first shovel of dirt and begin construction.

This is a good example of what is not adequately compensated for in the current tariffs. The methodology used today does not compensate for the risk inherent in building a new line. This is one of the reasons you have not seen significant money invested in new pipeline construction. The struggles of Long Horn Pipeline serve only to discourage other possible investors.

I mentioned tariffs earlier. The tariffs we charge are indexed per methodology developed by the Federal Energy Regulatory Commission. This method allows for a rate increase or decrease equal to the producer price index for finished goods minus 1 percent. Our actual tariff is shown in the blue line.

As you can see over the last eight years, since this index methodology has been in effect, the tariff charged by Colonial to ship a barrel of gasoline from Houston to Atlanta has increased in some years and gone down in others. Overall, the rate increase from 73.6

cents to 76.2 cents or 2.6 cents per barrel, six/one-hundredths of a penny per gallon total increase in eight years, six/one-hundredths of a penny. I want to repeat that, that's a little number. This increase has averaged less than a half a percent per year.

Also shown on this plot is the change in Consumer Price Index for urban markets. This shows what the underlying costs have done, and their increases have averaged almost five times this amount or 2.6 percent per year. Our actual tariff is 13 percent less than if indexed with the CPI.

To close, let me summarize and suggest some actions to improve the future prospects for safe, reliable, adequate and cost-effective fuel distribution. More use of tariffs that are based on market dynamics and not on out-of-date index methodology. Establish multi-use right of way corridors for utilities and pipelines. A streamlined permitting process that is coordinated at the Federal and State level. Standardization of fuel specifications at the Federal and regional levels to reduce the number of product types and maximize the capacity of our fuel distribution system. We believe the pipeline industry needs to exceed the requirements of the public for safe operation. We operate because they allow us to.

With these or similar changes, we as an industry will be able to grow our vast network of pipelines to support the growing needs of the American consumer.

Thank you.

(Applause.)

MR. JACOBS: This is -- you're not supposed to see this one.

MR. WROBLEWSKI: Thank you, Steve.

Mary, do you want to go and give a quick overview of Kinder Morgan, and then we will take a ten-minute break, and then we will start into the discussion.

MS. MORGAN: Sure.

Good afternoon. I'm Mary Morgan with Kinder Morgan. I want to thank the Commission for the opportunity to be here and everyone in the audience. I'm going to hopefully very briefly just show you some of the maps to give you an idea of some of the assets that Kinder Morgan operates. Obviously many of the things said in the previous presentations apply to us also. There's just a few minor differences that I'll point out.

Just a quick overview of our system. We have over 10,000 miles of pipelines, and we transport slightly over 2 million barrels of product a day.

Again, refined products, I think everyone's mentioned that before, break down between gasoline, diesel and jet, and that will give you some idea of how our breakdown is. We also operate some NGL pipelines and move petrochemical feedstocks.

Some of this is kind of marketing information that you may not be interested in, but a lot of our pipelines serve some of the high growth markets throughout the United States.

We also operate terminals. Some terminals are associated directly with the pipelines, others are terminals that serve marine areas, and we also have trans-mix processing. Trans-mix is a phenomenon of pipeline transportation where the interface between gasoline and distillate has to be separated out of the pipeline and then again it has to be processed or blended in order to return it to a usable product.

Just a quick overview, I have more detailed maps to come of some of the areas in the country where, again, this is Kinder Morgan's product pipelines. Kinder Morgan also operates networks of natural gas pipelines, but that's not included in my presentation today.

You can see we have operations out on the West Coast, as Steve mentioned, from the Gulf Coast to

Washington, D.C. area with Plantation Pipeline. We have Central Florida Pipeline that goes from Tampa to Orlando and then some NGL lines up in the midcontinent and then also a products line in the midcontinent that you'll see as I go forward.

First of all, the Pacific operations of Kinder Morgan comprise the former Santa Fe Pacific Pipelines as well as the Calmed Pipelines. In this area, you can see we have a pipeline in Oregon where we receive product either from the Cochin Pipeline or from terminals in the Portland area that can also receive product by water.

We serve the main refining centers in Northern California around the San Francisco Bay area and then again in Southern California around the Los Angeles area, and we also move product from El Paso, Texas area, where there are refineries in the general area as well as product being brought in by other pipelines.

Again, on the West Coast, we transport a little over a million barrels per day. Again, you can see kind of the general breakdown, how it's averaged between the different types of product grades. Some of this other stuff, again, about the shippers and everything.

One thing that I do want to mention about the Pacific that's a little bit different from some of the other pipelines, we've had the opportunity to experience

many of these changes that Steve and some of the other presenters talked about out in California. They seem to be over time very proactive about trying things, perhaps sometimes a little bit ahead of the rest of the country as far as fuels changes for both gasoline and diesel, things you've heard about, other things that we've experienced out in California that have been quite a challenge.

Last year's electrical energy crisis had a very significant potential impact on the distribution system and being able to move product through the region. Again, out on the West Coast, the availability of pipeline supply to states such as Nevada and Arizona, our pipeline is the only refined products pipeline moving these products into the area, whereas as Steve mentioned, in places like the Southeast and up through the midcontinent, usually there's more than one pipeline supplying these areas. So, the potential for disruptions is certainly a factor there and of great concern to the states that rely strictly on pipeline transportation. They don't have any refineries in the state.

Another thing that I wanted to mention that we are starting to experience is the MTBE phase-out and perhaps the introduction of more ethanol blending in the

state. Again, regulatory uncertainty certainly for us and the pipeline and terminal business is a continuing challenge. There was a mandate in place by the state that, you know, was supposed to have happened at the end of December of this year. A lot of uncertainty about that happening.

Then, of course, the governor has delayed the mandatory date on that, but at the same time, we had the energy bill going through Congress that could create even more uncertainty due to the renewable fuels standard.

Again, here particularly on the West Coast, Kinder Morgan is a common carrier pipeline. We don't buy and sell product. We don't market it. We simply make money on the transportation, where none of these pipelines that are not owned by refiner or marketer. So, we're just there to provide transportation. So, again, the uncertainty of what's going to happen, we're here to serve the customers, but again, we don't know what's going to happen or what their plans are going to be as we go forward.

So, the potential change-over to ethanol has received an awful lot of press out in California and a lot of confusing press about the role that the distribution system plays in going forward.

Some other items that I think are not specific to the West Coast, I think Steve mentioned them, that the challenges of permitting and building any new pipelines or tankage, and I know they're very difficult throughout the country.

In California, they are very difficult as well. We did build 13 miles of new pipeline that we finished in 1999, again, that took about five years from conception to execution, and the cost for that 13 miles was approximately $33 million to build that pipeline. So, it's become very challenging, something that we work at all the time. Certainly we are not willing to give up our efforts to expand where our customers see a need.

Also, you have probably heard of different studies going in California regarding strategic oil reserve, regarding bringing other pipelines into the area. I can answer some questions about those if we get to those, but also, when we talk about imports coming into the region, one of the big challenges we face is working with the port authorities, particularly in the Port of Los Angeles and the Port of Long Beach. They are under extreme political pressure also, and so the whole issue of infrastructure for things coming in from the port is another very difficult issue out on the West Coast.

Then on the East Coast, Plantation Pipeline, as Steve mentioned, originates in the Louisiana/ Mississippi area, moving on up to Washington, D.C., serving many of the same markets as Colonial and delivering to many terminals along the pipeline. Plantation does not own or operate any terminals. We deliver to third-party terminals. Again, you can see the breakdown of the different types of products moved.

In this particular pipeline, Kinder Morgan is not 100 percent owner. We own 51 percent of Plantation, and ExxonMobil owns the other 49 percent. Originally this pipeline was built and owned by Chevron, Shell and Exxon, and as different companies have merged and have different business plans, they've divested. Obviously we bought Shell and Chevron's interest in Plantation Pipeline, and today Kinder Morgan is the operator of Plantation Pipeline. The employees that operate this pipeline are Kinder Morgan employees.

Also we have our pipeline from Tampa to Orlando down in Central Florida. There the product comes in over the water, through our terminal in Tampa, as well as some other majors have terminals in the area, and then the product is pumped well over a hundred miles to Orlando, where we have a truck-loading terminal.

On the North system, again, we have -- it's

mostly NGL pipelines, moving NGLs and refinery blendstocks. We also have there a JV with Conoco in the Heartland Pipeline that does transport refined products. We're 50 percent owner of Heartland.

Then the Cochin Pipeline, again, we have 45 percent ownership in Cochin, and it's an NGL pipeline transporting from Canada into -- you can see where it goes down through the Midwest.

So, again, I just wanted to give you a real quick overview of where some of our assets are in case that generates questions during the discussion period, if you have any questions about what's going on in California and so on.

Thank you.

(Applause.)

MR. WROBLEWSKI: Thank you, Mary.

Why don't we take a ten-minute break, start at 2:45, and then we'll be able to start with the discussion. Thanks.

(A brief recess was taken.)

MR. WROBLEWSKI: Why don't we go ahead and get started. Well, let's wait for one more minute for our two additional panelists to come back.

Actually, why don't we just go ahead and get started. I'm first going to ask for, before we get into

kind of the bulk of the discussion that we're going to have, and I'd like that discussion really to focus on the five general areas that we heard this afternoon in terms of refinery issues, the effect of differing fuel specifications, inventories of refined products, the impact of recent mergers and acquisitions, and the transportation issues, but before we get into those kind of five main topic discussion areas, I'd like to see if Ed Murphy or if Dr. Griffin, who presented this morning, had any comments on -- since we hadn't allowed you to speak yet -- if you all had any comments that you wanted to make based on the presentations that we saw in the last hour or so.

MR. MURPHY: Okay.

MR. WROBLEWSKI: You can stay seated and be a little more informal if you like, or you can stand up and be more formal. I'll leave it to you.

MR. MURPHY: A couple of points, I just made some notes as I went through, and Mr. Larson from EPA talked about the costs, costs of wintertime RFG and the costs of summertime time RFG, and we read a lot about those costs in recent years, particularly in the Midwest when the costs got very high.

I'd like to make two points, frankly points we made at the time to Carol Browner, who didn't understand

them or if she did understand them she didn't articulate them.

First of all, those costs are average costs. That is the average cost of producing RFG or the average cost of producing summertime RFG. As we know from basic economics, and Steve gave us a nice lesson on that here, average costs are not what determines pricing. It is competitive costs that determine price. So, if you look at average costs and expect that prices will respond to average costs, you are going to be surprised, and you are going to find out that, in fact, it's incremental, the most expensive provider of the gasoline in this case, that, in fact, determines the price. So, the average cost is a very, very misleading indicator of the impact on consumers, point number one.

The second point, in a shortage environment such as we have where you can't get supply, such as we had in the situation in the Midwest, costs, manufacturing costs are largely irrelevant. It really doesn't matter how much it costs you to produce the RFG on the Gulf Coast, for instance, if it's needed in Chicago and you can't get it to Chicago. Costs then are irrelevant.

And so in a shortage environment, it is access to supply that determines the price, not what the manufacturing costs are. So, those are two issues there

on costs which when you start to look at a shortage situation become extremely important to keep in mind.

The two comments I guess on Tom Hogarty's presentation, the first is one of the factors that Tom didn't mention is the fact that there's been discrimination for largely political reasons now for quite some time about the depreciation period allowed for refinery investment, going back I guess about 10 or 15 years ago. That is one of the things that's in the tax bill, to reduce the depreciation period to seven years, which was closer to what it is for similar equipment in other industries, and that would help to increase the rate of return.

The second issue, and I don't differ with Tom that low profitability has contributed to an underinvestment of refinery capacity, but it's not the only issue. I don't think that there's anybody in this country who really believes that regardless of profitability it is possible now to build a new grass roots refinery, assuming the incentive was there to do that, but the environmental, the permitting restrictions, the issues and everything else essentially make that extremely difficult.

It's extremely difficult for the same reason to add pipeline capacity, even when the incentive is there

to do it. One of the problems, of course, is again, with the previous Administration, the assumption is that refiners, in this case refiners, are going to make the investments regardless of whether or not there are returns on those investments, and if you are facing a situation, for instance, of whether or not you're going to make major investments to produce low-sulfur diesel fuel and compete with refiners in Europe, in Central America, in the Caribbean, who can produce a slower volume, some of the diesel streams at a much, much lower cost than you can domestically, you are going to think long and hard about whether you are going to be able to do that.

Some of those discussions, some of those thoughts are going to result in an unwillingness to make investments that you are not going to be able to recover -- the costs for which you are not going to be able to recover because of the competition you are facing from foreign refiners, who face much, much lower costs. So, that is, has been and I think continues to be a major contributing factor in refinery capacity expansion.

Bob, what do I say? The most bitter fights are ones from closest friends, I guess. We have a dramatically different impression of this energy

legislation. It starts with we are committed to trying to follow the EPA blue ribbon panel recommendations that essentially called for a phase-down of MTBE. Regardless of whether or not or how we feel about that, MTBE is being banned. It's banned right now, will be banned in 14 states.

If this energy legislation is not enacted, the remaining states are also going to ban MTBE. So, to try and suggest that a cost of this legislation is the cost of banning MTBE is, in fact, I think somewhat misleading.

The real issue is, is it more effective and more cost-efficient for states acting on their own to ban MTBE at different time periods over the next four, five or six years than it is to have a federal phase-down with one phase-down throughout the country? And as Bob suggested, MTBE bans at the state level are going to substantially exacerbate the boutique fuels problem, and they will, in fact, make the Midwest price increases of a couple years ago look relatively minor.

So, when we look at this bill, the real issue is does it achieve the objective of phasing down the use of MTBE at reasonable costs relative to the alternative, and we think yes, it does. In fact, we think it achieves that cost much more efficiently, much more

effectively. Consumers will benefit by a federal phase-down at a predictable level over a four-year period.

The ethanol mandate, the ethanol part of that, EPA -- I'm sorry, EIA, Energy Information Administration, estimates that the incremental cost to that is something less than one-half to 1 cent a gallon. They describe that as the upper bound of the cost estimate, because they aren't able to model the credit and trading provisions within the bill. So, we're talking about something that is a very, very small, minor cost, I think likely to be overwhelmed by the efficiency gains of a federal phase-down as opposed to individual state bans of MTBE.

Bob's right, the credit and trading system doesn't produce supply, but again, that is confusing the issue. Credit and trading system applies to the use of ethanol. It helps in compensating for the loss of MTBE, but we are going to be losing MTBE in any case, and so again, the issue is how do we most effectively address the loss of those volumes, not whether or not they're going to be lost.

So, we are -- and I have been extremely supportive, have obviously worked with other stakeholders in trying to put together this agreement

that's now part of legislation, so that we think that consumers are going to be substantially better off, competition is likely to be enhanced, the boutique fuels problem is likely to be reduced if this legislation passes.

And I guess on Steve's -- one point on Steve's comments, which has to do with the inventories issue, I think you can probably say that whatever the shortage occurs, whenever it occurs, if inventories were higher, the shortage would be less. I think that's sort of definitionally the case. I question whether or not that really is the issue, because the benefit to consumers of the lower inventories, which we've seen over the last ten years or so, is, in fact, lower costs and lower prices.

One of the possible downsides of that is that the prices tend to be more volatile. Consumers, individually with some difficulty, but certainly consumer customers and the industry have a way of accommodating that, which the market has not rewarded. You could accommodate that by holding higher inventories, and you can, for instance, as with heating oil on the East Coast, pull those higher inventories and give consumers a fixed price for their product. By and large, they do not want that. By and large, consumers

would prefer to have average prices substantially lower, given the risk that occasionally there is going to be some increased price volatility, but overall, there's going to be substantial consumer savings.

So, for us to say that consumers are wrong in this case and that we should mandate higher costs, higher prices on a regular and ongoing basis in order to prevent the occasional price run-up and shortage I think is incorrect, and I think, in fact, it will lead to substantially higher prices.

The additional problem coming out of the Levin hearing last week, if inventories were higher if you had to have two, three, five days, whatever the minimum inventory level is, who's going to say when that minimum inventory level needs to be changed? Who's going to make the judgment that, well, today is the day we release those inventories, because I don't know how long this problem is going to last, and I don't know if this shortage is going to exist for another two weeks, and if I'm the bureaucrat that's required to do it, whether I'm going to have to go up and answer to an investigator, why did I release these inventories as soon as I did and cause a greater shortage a week or two weeks from now?

So, I'm very, very skeptical of the value, if you will, of the market value, of the consumer value to

any sort of mandated increase in inventory levels.

Thank you.

MR. WROBLEWSKI: Thank you.

Dr. Griffin?

MR. GRIFFIN: I just have a couple of --

MR. WROBLEWSKI: Could you move the microphone over a little closer so we can get it on the record? Thank you.

MR. GRIFFIN: I've just got a couple of questions for Bob Larson. You know, I always, when I teach economics to my students back in the Bush School of Government and they want to know how policies get made and so forth, and I was interested in, you know, your estimates of the additional cost of reformulated gasolines.

Have there been any studies done to show that the benefits might exceed -- that the benefits actually exceed these costs? I know you're not required by law to do cost-benefit analysis, but does anybody in the Agency ever sit down to ask the question of what all these boutique fuels are really buying us?

MR. LARSON: I don't think we've ever looked at the cost-benefit of boutique fuels. I'm not aware of that analysis at least. I will point out, though, that in general we have looked at cost-benefit for our

regulations, which include fuel regulations, and some of our recent rules where we have been phasing down sulfur and what are the costs of the rule, as well as the technology that goes on vehicles to meet Tier II standards, for example, and those combined costs versus the health benefits that are derived from them, it's a very favorable ratio with the health benefits far exceeding the costs.

MR. GRIFFIN: Sulfur on gasoline and diesel or are you talking about sulfur on heavy fuel oil?

MR. LARSON: Well, we just recently adopted regulations that are called Tier II regulations for passenger car size vehicles that run on gasoline, and as part of that, there's technology costs that the auto industry's incurring, and part of that also includes fuel costs that go through the refining industry as they control sulfur in the gasoline, and we looked at that. I don't have the numbers here, but the health benefits far exceeded the costs of that reduction.

MR. GRIFFIN: Do you think that sort of to prevent all these states from running off and making their own standards on gasoline, what about legislation that would require, if a state were to deviate from a national standard that the EPA proposes, they would have to somehow justify it by some cost-benefit analysis?

MR. LARSON: Well, that's not a requirement right now --

MR. GRIFFIN: Well, I know --

MR. LARSON: -- under the Clean Air Act.

MR. GRIFFIN: -- I know that, but I'm trying to think of some innovative ideas, because this strikes me as a real problem where we have got the states marching off in different directions.

MR. LARSON: I think when the states look at what they need to do to meet ambient air quality standards, they look at a range of options and evaluate the costs to their constituents as part of that. Now, some of the costs may not be as easily quantified as fuel costs, when they are looking at boutique fuel, but they try to come up with a package that's most acceptable I think for their community.

MR. WROBLEWSKI: Can I redirect that question, Dr. Griffin, that you had in terms of if a state adopts a differing fuel requirement from whatever the standard is? I'll redirect that question to Bob Slaughter.

What would you say about that in terms of the cost-benefit analysis?

MR. SLAUGHTER: Well, one of the problems is that the states are running away from a federally proscribed program that is not cost-effective. If the

RFG program basically did not contain a politically oriented prescription or recipe, which includes an oxygenation component, which has generally been found to be both ineffective currently from an environmental point of view and very expensive, most of them wouldn't be adopting that.

So, you know, they are running away from the effect of federal policy, voting with their feet, as you would have it, for a more cost-efficient recipe, and I think it would be a shame to penalize them and make them come back to the federal program which in and of itself is not cost-effective.

Now, you know, one of the things we'll look for is if and when the energy bill passes, whether or not with the elimination of the 2 percent requirement would have an impact on this in RFG if that goes forward. One of our concerns is that -- and I should just mention this, that also coming down the pike is the new eight-hour standard on ozone, which is going to basically throw a number of counties into nonattainment, a large number, with this new standard. They are all going to be looking at additional gasoline specs.

So, you know, that simplification may be overwhelmed -- you know, getting rid of the 2 percent may be overwhelmed as these people look for new formulas

again, and politically, of course, it's very difficult to tell, because of federalism, to tell states and localities that they can't do something that they want to do if they seem to have a good reason for doing it.

MR. WROBLEWSKI: Can you explain just for the record, when you say that the 2 percent oxygenate is not cost-effective, what do you mean by that?

MR. SLAUGHTER: Well, there was a huge debate as to whether or not oxygenation was required when the RFG program -- should be required when the RFG program was set up.

MR. WROBLEWSKI: Right, 12 years ago.

MR. SLAUGHTER: Twelve years ago, in approximately 1990, the RFG program was essentially set up because of a Senate amendment by Senator Daschle that establishes an RFG program in the worst ozone areas, and it was proscribed that although there would be a recipe, some elements of it would be rateable on a performance basis but not the oxygenation requirement. It was contended at the time that there was no reason to require this oxygenation component throughout the year in RFG.

A political decision was made to do it. I would say that I believe it was done because it was hoped that ethanol would be the major beneficiary of it. It didn't

turn out that way.

But there have been studies done since that time. For instance, the CO problem that it was designed to address was being taken care of because of advances in automotive technology, and studies have been done, for instance, by the National Research Council about I think three years ago at this point that basically said this oxygenation requirement is ineffective. Currently there is no net benefit due to this 2 percent requirement, yet it is extremely expensive, and with the concerns about MTBE contamination in the water, there's an additional incentive for people who otherwise might adopt this RFG program federally not to, so they have gone to boutique fuels.

Was that what you were looking for?

MR. WROBLEWSKI: Yes, thank you.

Again, I was going to start with refining issues, but since we went into differing fuel specifications, I'll stay there, then go back to refining issues. I am going to direct this question to Bob Larson or anyone else who wants to jump on in.

Is there anything right now that EPA could do in terms of -- I mean, you know, we're talking about eliminating the 2 percent ban, and that's actually -- that's not in our hands right now, but is there anything

that EPA could do right now to ensure that the boutique fuel problem doesn't become any worse than it is right now?

You hear the refiners saying that a number of the industry participants have gone hand in hand with the states to ask for different -- you know, a new fuel standard. Is there anything that EPA can do now to say, hey, we're not going to let the situation get any worse. We realize it's not ideal right now, but the system is somewhat optimized, which we've heard from many participants. Is there anything EPA can do now to stop making it get any worse?

A simple yes or no, and then we can move on.

MR. LARSON: And the question was it's already optimized, so --

MR. WROBLEWSKI: Well, that's what we've heard from many folks, is that they've optimized, from the transportation folks and from the refining folks, saying that it's optimized, so in my mind, it sounds like there isn't as big of a problem. So, I was just wondering, is there anything that EPA could do to make sure that it doesn't get any worse?

MR. LARSON: Well, I think Bob Slaughter mentioned, perhaps it was mentioned earlier as well, that one of the things that we're seeing coming along is

not just the phase-out of MTBE, which is causing some boutique issues, but also looking forward to the eight-hour NOX standards, and we're anticipating that there will be additional areas that will be required to do emission reductions, and one of the tools available for them, and I submit because it is a very effective and perhaps not too costly -- I don't know if that means it's cost-effective -- but not too costly alternative is to look for fuel improvements.

I think we will find that a lot of the counties that are being added under the NOX will be adjacent counties to areas that already have some boutique fuel requirement, so maybe the problem won't be quite so bad. It won't be creating new spots, but it will -- there is certainly potential for that.

MR. WROBLEWSKI: There will be new markets.

MR. LARSON: It will certainly be expanding the market for those boutique fuels. Now, I'm not sure whether a larger market for the existing boutique fuels is a good or a bad thing. Larger market areas I guess have some advantage.

MR. WROBLEWSKI: Right, sure.

MR. LARSON: I'm not sure how that impacts the supply for those markets.

MR. WROBLEWSKI: Okay, thank you.

Mary, did you want to add something?

MS. MORGAN: Just one comment about whether or not if you were just adding on some additional counties around the surrounding area, there can be an impact on the distribution system, because again, while we're -- pipes, you know, can move things, but you're limited in most cases by tankage and how many tanks you have, and suddenly if there's a change in -- you know, if you're storing five or six different types of gasoline and suddenly those have to switch around, the proportions can make -- if you have to make changes, you know, particularly on the terminal side of the business, it can be very costly.

So, I mean, that is a constant problem, and that's one of the big problems with the uncertainty about going to ethanol now, is what proportion of your gasoline is going to be what type, and when it changes all the time, it's very hard to make those changes quick enough, because you can't do the construction in the time frame that people want to make their economic decisions.

MR. WROBLEWSKI: Okay, thank you.

Did anyone want to add anything else? And then I'll change gears and go back and start with refining issues.

MR. SLAUGHTER: Could I just mention one other thing?

MR. WROBLEWSKI: Sure.

MR. SLAUGHTER: It's just one of our concerns about the ethanol mandate, on top of the new eight-hour ozone standards, is that we're going to see, we're afraid, less reliance on the current RVP waiver. You know, we have problems using ethanol in the summer because of its increased volatility, which is -- and you have ozone precursors in nonattainment areas. One of the ways that that has been addressed is to require a lower RVP blendstock that is mixed with the ethanol so you come out with the same number.

We're afraid that with the increased use of ethanol pursuant to the mandate that we'll see more areas that will be requiring this special blend, which we call RBOB, that the ethanol has to be blended into and that there will be additional problems in the infrastructure as well as with production of this differing blendstock. So, we have concerns there, and I think Ed may have a more sanguine outlook on that, but --

MR. MURPHY: I don't know that we have a more sanguine outlook, but the analysis that's been done is to see that the major driver in ethanol use is to

replace the volume in octane use from MTBE, that the ethanol mandate has limited, if any, impact, and as you know, when you look at the conventional gasoline market in the Midwest, even under an eight-hour standard, there is more than adequate absorptive capacity, even of the total 5 million gallons in the Midwest.

So, the volumes that move out of the Midwest are going to move out of the Midwest because of the MTBE phase-down, not because of the ethanol mandate, and it's important, again, to distinguish what's driving that. Yes, DOE thinks there's going to be a large -- more than actually we believe is going to be the case -- but they believe there is going to be a large volume of ethanol excused in certain areas, but again, that is because of the environment of both MSAT, for instance, as well as for octane.

MR. WROBLEWSKI: Okay, thank you. Michael?

MR. JACOBS: Yes, I want to comment on the boutique fuel issue. One of the slides I showed showed the bar charts of the number of grades of product that Colonial has, and the headline said, "The future looks even worse," therefore the impression may be that I think boutique fuel is bad, and that's not true.

To James' question, I think the states have done cost-benefit analysis of how to meet the requirements,

and the issue, as Bob Slaughter mentioned, the question is do we go with the federal reformulated or do we adopt a different blend that helps our air quality and may not have some of the other factors associated with it, and I think they've done that.

The issue for us, and I want to echo Mary's comment, the issue is the future change and what happens when the next one does it and what happens when the next one does it, and the point is that they're not all adopting a common grade of boutique fuel. They're all creating their own grade of boutique fuel. So, I think boutique fuels in and of themselves are not a bad thing. They may be a very effective solution, cost and benefit solution, for the states that need the air quality improvement, but we need to have more involvement in some of those decisions, I think from a fuel distribution standpoint, and how we get there.

MR. WROBLEWSKI: Okay, thank you.

Let me change gears and talk about some of the refining issues. You know, this morning we heard much about the relationship between world crude oil prices and regional wholesale gas prices and their movement and the relationship between those two commodities.

What I'd like to explore now is the mechanics behind those relationships and the degree to which the

crude refinery relationships differ depending upon what kind of refinery you have. Whether it's a refinery that's an independent and it's not integrated upstream with exploration and production or if it's just an independent by itself or if it's vertically integrated downstream with retailers.

So, my first question goes to the types of contracts that independent refiners use to obtain crude and the incentives that independents have to obtain crude as crude prices rise above the historic average on a number of the graphs this morning. So, I wanted to explore that interface between the independents versus the integrated for the firms upstream and how they acquire crude and is one firm or is one type of firm at an advantage or a disadvantage.

If anyone would like to start off with that one? Dr. Griffin, you just moved to your microphone.

MR. GRIFFIN: Well, I'll start out.

If you took your question 30 years ago where most of the crude was moving through integrated channels, there was a very specific advantage to being vertically integrated. You could optimize your refinery in terms of running certain types of crude which you had access to, the sulfur characteristics of the crude, the gravity and so forth.

I think, though, because of the evolution of the world oil market, there is today a very active oil market for different qualities of crudes. In fact, you can even look at the major oil companies, and what you'll find is that often times the crude they produce is not the crude they run in their refinery. They can get a better deal by selling it in the open market, and they can find some other crude that will fit their product slate and their refinery configuration.

So, I really think today that vertical integration is not particularly an important factor between crude production and refining, and then if you look and see what's happening in marketing, you find that that linkage, too, has been eroded over time. So, that's my take on the subject.

MR. WROBLEWSKI: Dr. Hogarty?

DR. HOGARTY: Just following up, I agree with the general direction of what Jim said. I think there can be some local or temporary differences among refineries due to the perturbations on the crude oil market. I can conceive of situations where certain refineries are configured to run, let's say, type A crude oil while others are configured to run type B, and there can be disturbances in the crude oil market which would cause type A to rise more than type B.

The crude oils tend to be separated in terms of qualities and prices, and over time, on average, I think the prices comport with the quality differentials, but I think that in the short period of time, there can be disturbances to these differentials, and I think that temporarily and perhaps locally or regionally, a given refinery can have a lower cost of crude oil than another. This averages out and perhaps should not be over-emphasized, but there can be these temporary and local price disturbances.

Now, the same applies to the differential as between product prices and crude oil prices. You can verify for yourself from the New York Mercantile Exchange prices that the crack spread, the three-to-one crack spread or the simple crack spread for gasoline, that is the spread between the gasoline price and the crude oil price that's referenced on that mercantile exchange, that spread will widen or shrink over time, and I think those sort of perturbations can be important in some regional or localized or some temporary price spikes, and I think they at times can make some price spikes worse and have a tendency at other times to alleviate the acute nature of some others.

So, whether the companies are vertically integrated or not might not make that much difference,

because the companies, beyond integration or not, could be buying on a short-term basis or under long-term contracts, and not jumping into tomorrow, but in the Persian Gulf crisis in 1991, access to long-term contracts and provision of long-term contracts by refiners for the wholesale customers they were serving turned out to be crucially important, because the spot gasoline prices tended to be unusually more volatile during that crisis than previously.

So, I think there's a lot of substance to the comment. I don't know that it's directly linked to vertical integration or not, and of course, it would average out, but locally and temporarily, I think it could be quite significant.

MR. WROBLEWSKI: Okay. Did you want to say something?

MR. MURPHY: Yeah, I mean, just I'm agreeing with what Professor Griffin was saying as well as most of what Tom was saying, but the real issue I think and the concern about this is, is there cross-subsidization, is the upstream subsidizing the downstream, or whether the question is whether the downstream is subsidizing the upstream, but I think and certainly the companies that I talk to, their refineries are operated -- not just the refining part of their systems, but each

individual refinery is operated as a separate cost center and profit center, and they are expected to make a return on that.

So, you would have to question them why there would be a philosophy or a desire to subsidize a particular sector of the industry at the expense presumably of a higher return from the sector in which the subsidy is coming. So, it's not a profit-maximizing, long-term strategy that's in the best interests of the corporation.

MR. WROBLEWSKI: Okay, thank you.

Did you want to --

DR. HOGARTY: Can I make one follow-up comment on that topic?

MR. WROBLEWSKI: Sure.

DR. HOGARTY: Going back into the distant past, say 30, 40, 50 years ago, I think vertical integration was much more important than it is now, and although I don't have the evidence to support it, I suspect that the refining marketing units of those days were not held to accountability, and they were allowed to keep going on very low profits, and to that extent, there was some merit to the idea that they were designed to convert the crude oil into products and move it out the door.

So, it may be remembrance of those past days

that's come forward into the future, but what I was saying earlier this afternoon was that beginning about 20-25 years ago, refiners have been subject to accountability rules. They must produce a profit, and that has been the fundamental problem. They have not been able to produce a profit that really compensates the investors for the investment.

MR. WROBLEWSKI: Okay, following up on your presentation from earlier this afternoon, have refinery margins increased in recent years, and if so, what accounts for that increase, and are the increases shared -- I know I'm kind of harping on this vertical integration point -- but are the increases in profitability or refinery margins, I should say, are they shared equally across those who are vertically integrated and those who aren't?

DR. HOGARTY: Well, I'm pretty sure on the first part, in the last few years, refinery margins have gotten better. They were dismal in the early 1990s.

MR. WROBLEWSKI: And what accounts for that change?

MR. MURPHY: I think it's largely been -- and this goes to 2000, and Tom is correct, you can see that the rate of return has increased in 2000 and presumably increased in 2001, although we don't have the data yet

which comes from the Department of Energy's financial reporting system, so we haven't got that, but I think the margins were increased in 2001, but you can see in almost every -- in fact, in every year -- now, I don't know about 2001, but in every year, and this goes back to 1980, the rate of return in refining and marketing was less than the rate of return for the S&P Industrials. So, it's been consistently a subnormal rate of return.

It's increased I think in the last several years because of the type of issues we've been talking about, because excess capacity has essentially been eliminated, because boutique fuels have grown and put further pressure on existing capacity, and that has led to higher margins, but those margins even now, and certainly this year, are below the overall rate of return in the industry.

MR. SLAUGHTER: I would just add on that, I think Ed's absolutely right that, you know, it's so depressing to listen to the Levin hearings and to hear people talk about what prices were this time last year. You know, most of our companies reported dismal results from the first quarter in the downstream sector. Several of them said they had the worst downstream margins in ten years. So, that doesn't bode very well

for where we're going to be this year, and regardless of the general movement of profitability in the refining sector, it's always well below, you know, the average for industries.

DR. HOGARTY: I'd add that the U.S. refining marketing sector is not only below the average for the U.S. industrial, but it's worse than foreign refining marketing, and it's markedly worse than the upstream, and I think that makes a significant difference in the long run in the allocation of capital within companies. If the refining marketing unit within company X must compete with the upstream and must compete with foreign refining marketing, its dismal rate of return is a poor recommendation.

Furthermore, within the refining marketing sector, again, I don't have the data to prove this, because the data are not segmented by refining and marketing, but my suspicion and hunch based on anecdotal evidence over the years has been that the refining sector by itself is really bad in terms of profitability in that it is sort of an albatross around the marketing arm of some of the companies, so that the combined refining marketing segment looks bad, but the refining by itself will be just terrible.

MR. WROBLEWSKI: If that's the case, if the

refining margins have been so low over the past decade, when you look at California, there's been a marked increase in the number of independents who have kind of expanded into refining, you know, who weren't vertically integrated. If you look at the share that -- I guess I'm going to say downstream vertically integrated, that refiners and the marketers have, it has increased substantially.

If refining returns have been so bad, why are -- what's the business model for these new independents to come in?

DR. HOGARTY: I'd like to start on that. PADD 5 has much better profit rates than the other PADDs. That's the number one thing. And historically, PADD 5 and especially California have been isolated from the other PADDs in terms of receiving product in-flows, and I think that isolation goes back long before California reformulated fuel, and it has merely been worsened by the CARB gasoline. That has made it just more difficult to get into the California market. But the financial reporting system data I believe show that the PADD 5 profit rates are noticeably higher than in the other PADDs.

MR. MURPHY: Of course, you know, the other thing to keep in mind if you go back 25 or 30 years,

you'll see that there were, in fact, many, many smaller refiners in California that essentially have gone -- well, essentially they have gone out of business, and so that is a direct result of the big economies of scale and the large investments that have been applied in the environmental area. So, they have been driven out of that market, and the remaining companies are very large companies pretty much.

DR. HOGARTY: Right, and one last thing. One business model for California or the West Coast or PADD 5 would be an individual company, ARCO. I think ARCO has been a leader out there in running refineries at high utilization rates, realizing large economies of scale and trying to generate large volumes, and ARCO has, through its effective competition, forced the other companies to respond, and I think grounds could be made for the California refineries having been forced by competition from ARCO to become more efficient than some other places.

MR. WROBLEWSKI: Okay, thank you.

Now, just the one last point I want to make or ask about in terms of refinery issues is that we've heard a lot about -- and this is the point I guess I was trying to make in your graph that you showed, Bob, earlier -- we've heard a lot about how refinery

utilization is at such a high number. Is it because high refinery utilization is efficient given the large investments that have been made? Is that the reason? So, it's not necessarily a bad, but that it's actually a good?

MR. SLAUGHTER: Well, I mean, the investments are extremely large, and I think there are a lot of numbers that show how much money has been put in the plants. You know, obviously domestic refining still makes sense for many people, because we still have a significant percentage of our refined product requirements refined domestically. We just simply though, in order to meet demand, have got to run plants all out, and I think you want to get everything you can out of your plant because of the investment that you've put into it.

The other thing, you know, even in recent years, with the elimination of the spare refining capacity that we had during much of the nineties, you know, when we've had the types of supply/demand balance, the industry has been comported by several Secretaries of Energy now to do everything we can to even postpone turnarounds and necessary maintenance.

That, of course, has to be done sometime, and most people don't understand, that has to be scheduled

years in advance. You have a troop of people who come in and do it, and you have to be very careful about when you do it. You're taking yourself out of the market.

We have had to tell several Secretaries of Energy, well, if it -- you know, if we need to take it down for safety, it just has to go down and that's it, we have to do the turnaround. Some of it is discretionary, but then it has to be done at some point, and when the appropriate period comes along and it's done like it was in the last few months, we then get criticized for having capacity down and not producing full tilt all the time.

So, I think it's kind of that constellation of factors, but, you know, one of the questions I think that all of us have is, you know, how long can you run at this high rate of capacity? And increasingly it's just expected of us all the time.

I mean, one of the things that was interesting, I'll just throw in there, was to look -- you know, demand was significantly down last year. I don't think the utilization rate ever went below 86 percent?

MR. MURPHY: Thereabouts, yeah.

MR. WROBLEWSKI: Even though demand was low you're saying?

MR. SLAUGHTER: Even though demand was low, and

it was interesting, we didn't really have any idea of what the nadir was there, and 86 was about as low as it went.

MR. WROBLEWSKI: Okay, thanks.

I want to switch gears again and move into inventories, and one of the things that prompted the Commission's investigation into gasoline prices has been their volatility. If we were to try to reduce volatility in refined petroleum products, what would we have to do? What would we have to do in terms of trying to provide some type of insurance? What effect would whatever policy we had have on refined petroleum prices?

You're looking exasperated, Professor Griffin.

MR. GRIFFIN: I was just thinking back to the fiasco of the 1970s, and here we're going to relive all this again.

No, sure, I guess the Government could either mandate that refiners hold certain levels of inventories or the Government could actually buy them and maintain them themselves and then assume that some omniscient bureaucrat is going to know when to sell these. I just think about all of the uncertainties in life, and, you know, friends get sick and get cancer, and we're here worrying about the price of gasoline and its volatility. I guess if I want to buy an insurance policy, you know,

I'm going to worry about my health or something, but I don't -- to me, gasoline is inherently a volatile -- the prices are inherently volatile, but there's very good economic reasons for why it is.

The good news is that it's not a large part of our budget for the most part, and aside from providing discussion in Congress, I just don't think it's one of the burning issues of the day.

MR. MURPHY: Just, you know, it's somewhat analogous to monetary theory and why we hold cash and you hold cash for several reasons, but two of the reasons is -- one is transactions, because you need to have a certain amount of cash in your pocket because you're going to go out and buy something on a daily basis or you can't walk around with no money, and we have a certain amount of product in the pipeline for exactly the same sort of reason, because you need to supply it on a regular, ongoing basis.

The second reason you hold cash is because you have a concern that you're going to be faced with a large substantial expense or some need for that money, precautionary demand, okay? One of the reasons you hold inventory is because you don't know what's going to occur, and you hope as a businessperson that if that some unusual occurrence occurs you are going to be able

to sell that inventory at a higher price than you paid for it, and that relationship is pretty much described in the futures exchanges in the differences between the current and futures prices.

If, in fact, you set up a program that says if that event were to occur, then I, the all-knowing federal bureaucrat, are going to release these inventories and depress that price and remove any possibility of receiving that rate of return on those inventories, you're going to see an offsetting reduction in the private inventories to correspond with the government inventories, and so you haven't really achieved anything other than sort of made the system more sluggish, because then you require a bureaucrat to say, now we need the inventories.

And of course, one of the issues that arose in the Midwest was whether or not those people released inventories as quickly as they did, as they should have, given perfect hindsight about how long the problem was going to last, and I submit that that is a problem that I would rather leave to private decision-makers rather than to the Secretary of Energy to decide that today is the day that we go to five days of inventory or four days or whatever the amount would be.

MR. WROBLEWSKI: Mary, did you want to add

something?

MS. MORGAN: Just one comment just as a reference material that you may want to look at was the studies, you know, on this subject, you know, that were commissioned out in California, the thing about strategic reserves and so on and so forth, and then there are physical limitations, too, for this inventory issue, particularly, again, I hate to keep harping on this tankage issue, but I mean that has a lot to do with it, and different parts of the country have very different amounts of storage, tankage, actually available, you know, to accommodate that kind of thing. In some places, it just isn't available.

MR. WROBLEWSKI: Has anybody tried to quantify what the savings have been or the effect has been on the reduction -- because of the reduction in inventories, has anyone tried to quantify what that effect has been on refined petroleum prices?

MR. SLAUGHTER: I'm not aware of it.

MR. MURPHY: I'm not aware of anything. Tom?

DR. HOGARTY: Nothing occurs to me offhand. I'd start with the rule of thumb of a penny per gallon per month to store the stuff and work it from there as a guesstimate, and I'm really beyond back of the envelope here, but I think that would be how you would go about

it.

MR. SLAUGHTER: Michael, could I just throw in one thought on storage?

MR. WROBLEWSKI: Sure, sure.

MR. SLAUGHTER: I mean, the idea in the last several years -- I mean, we have always had certain parts of the country that are looking for special storage. Hawaii has always been looking for product storage. The East Coast looked for years for product storage, particularly in heating oil, and it finally got some. California is talking about a reserve, California gasolines and fuels, and now the Midwest has been talking about an ethanol reserve, although I think Ed is trying to take care of that for them, but the one thing I see is that there's a medieval concept here, you know, where you can kind of see America just bustling with all these little medieval reserves of their own fuel and really acting as if the super efficient distribution system we have isn't there, and it's all going to add additional costs, plus we know that the product is in storage, you have basically got to come in and out of the market all the time and refresh that, so there is all kinds of interference with the marketplace.

MR. MURPHY: Let me suggest, a couple years ago, when the prices last went up, we were very concerned

about it, we actually went out and did something which we hadn't done before, which was talk to consumers on an actual formal basis and talk to them about what we saw as a crisis, and their response -- and the crisis was gasoline prices have increased substantially in a very short period of time, and the response we got, the uniform response we got was this is not a crisis. It is not imposing hardship on us.

Yes, we recognize that gasoline prices are volatile, and we recognize that prices are going up, and they have gone up and have come back down again. So, I think there's been a growing understanding on the part of the general public that gasoline prices are volatile, that overall prices have been low and have been falling, and certainly in real terms, but that they are more volatile than they were 20 or 30 years ago.

MS. DeSANTI: Let me ask just a follow-up question to make sure that I'm getting the gist of what you're saying, because I think what we're trying to get at here is the relationship between price volatility, and if you don't have price volatility, what's the effect going to be on average prices, and presumably, just as a matter of math, one would think that average prices then would be higher. If you were having increased costs to hold additional inventory, then on

average, prices would be higher, and that would be the price you would pay in order to reduce price volatility. Is that a correct understanding?

MR. MURPHY: That's correct.

DR. HOGARTY: Yes, I endorse that fully. I'd say average prices would be higher in large part because you would not have those distress periods like 1998 when the prices really fell. I think they came down to a national average of 95 cents a gallon for gasoline. I think that attempts to stabilize would eliminate those, and that was one of the lessons we took out of the 1970s, that the effect of setting ceilings tended to produce floors as well.

MS. DeSANTI: Okay.

MR. CRESWELL: Ed mentioned a precautionary stock. Has anybody tried to calculate what the cost of the Chicago spike was to a typical Chicago household and how that would compare to let's say the average cost of a penny per gallon for consumption over a year?

MR. MURPHY: I'm not aware --

MR. SLAUGHTER: I don't know that anyone's done that, but I think you also have to keep in mind that the Midwest, after it went through the price spike, then enjoyed some of the lowest prices in the nation for the rest of that year. So, you know, if somebody does such

a calculation, I hope they include the money that was saved after the price spike on an average -- compared to the average as well as the cost of the price spike, but I'm not aware that anybody's done that calculation.

MR. MURPHY: This sort of -- again, I alluded to it before, that there is somewhat of a market test in the heating oil market on the East Coast where consumers are offered a consistent price in several different terms, in some cases a price sold through the year and in some cases a fixed price based on purchasing in the summers, and those programs wax and wane in their popularity, but by and large they're not that popular.

When you have a price spike, obviously they become more popular, and one becomes more interested in life insurance when one gets the plague, but by and large, consumers I think -- and this is the point I'm making -- are not interested in higher average prices or higher prices overall in order to avoid price volatility.

And of course, there are mechanisms that could be established, obviously commercial consumers who might have ready access to the Mercantile Exchange, for instance, so they can, in fact, assure themselves of that, and even in that case it's fairly minor.

MR. WROBLEWSKI: I just wanted to follow up on

something that Bob had said earlier, is that one of the things that we've noticed in these recent price spikes in the Midwest and in California has been there have been some infrastructure impediments. So, the question that I have for both Steve and for Mary are what are the biggest obstacles in terms of expanding capacity in terms of pipelines into these constrained areas?

I mean, when you look at the Southeast, Steve, you said, you know, there hasn't been a price spike yet, but when you look, well, there are two main pipelines running through there. What are the biggest impediments to getting additional infrastructure to make the markets bigger in California and in the Midwest? I'll leave it at that.

MS. MORGAN: Well, I'll start with just some discussion, because a lot of people have heard about the Long Horn Pipeline, because this is an example of where there's been a lot of discussion about how bringing product from the Gulf Coast both into the West Texas market and on into Arizona, what impact would that have. We have heard about, you know, prices and margins in California and Arizona and other places like that. So, in that case, there's really two parts of the whole pipeline expansion.

First of all, I think Long Horn's been working

on having their pipeline come in. Now, I know that they talked to me about it as long as ten years ago when they were very first starting on the project, and they have encountered a lot of local resistance in various communities, like in the City of Austin and things. It's the same thing that we talked about, that people don't want it, okay, they don't see it as a benefit to them. If people in El Paso have cheaper gasoline, they could care less. They don't want it going in there.

Then there's all of the permitting. I think everybody talked about that. I mean, we're working on projects that we have been working on -- typically no pipeline project is going to make it in less than five years. It just isn't even possible in today's world from the very conception, the permitting period is typically going to be -- I mean, if everything is going just right and say you're only replacing pipe, not building a new one, you're probably faced with two to three years, even though that could be looked on as a maintenance project as much as an expansion project. So, permitting.

Right of way things, because there have been issues coming up with different things, such as Indian Reservations and other groups haggling with right of way problems. And then, again, there's probably a slight

difference between a pipeline company that is basically owned by a group of refiners versus one that isn't, one that's, you know, just simply providing transportation. You have to have the support of the people that are going to use the pipeline, and they may have very different interests.

I mean, I believe there is a lot of competition, you know, in that industry, because I deal with all of these different people every day, and they never agree on anything. So, I mean, that's the only thing that leads me to believe that they are constantly competing with each other, and so they have different --

MR. MURPHY: You should try a trade association, Mary.

MS. MORGAN: And so in this case, they'll say Long Horn really does get up and run it, then there's been a lot of discussion about Kinder Morgan's line that goes from El Paso to Tucson and Phoenix. There's also pipelines coming from Los Angeles to Tucson and Phoenix. The product actually passes each other going in opposite directions. So, in that case there's been questions, how do people want to supply the market?

And so, you know, we've been looking at an expansion of that pipeline into there for a long period of time. The issues go all the way back to the economic

regulation that Steve mentioned, such as, you know, we are regulated by the Federal Energy Regulatory Commission as to the tariffs that we can charge, and again, those stay basically the same over time. The indexing allows you to go up a little bit, but then on the other side, there's all of this other rate-making methodology that actually can lower your tariffs significantly.

If you're faced with a tariff that's going to be half what it was ten years ago, how are you going to make an investment and make any kind of return to support that? So, it's all of these different regulatory things as well as, you know, what do people want in the market?

MR. WROBLEWSKI: Steve, do you want to add something?

MR. JACOBS: Yeah, I would add one point, which is a further elaboration of the tariff point that Mary made.

You know, I mentioned that we're trying to build a pipeline across Alabama into Tennessee, and we will have spent $50 million in the permitting process before we begin construction. There is a risk that we get up to the day before we start, and we get told no. That $50 million is not a charge, is not a fee that gets

passed on in our tariffs. That $50 million, we rolled the dice and we lost, right? And we go away $50 million poorer than when we started.

So, when you begin one of these projects, you go through all the issues associated with the business risk, the political risk to do it, the question is, is there sufficient return to justify the investment?

Unfortunately, in many cases, the answer is probably not, or there's too much risk associated with it, business risk associated with it that it's better not to deal with it and live with the infrastructure that exists today.

MR. WROBLEWSKI: Do either of your pipelines operate under market-based rates?

MR. JACOBS: Yes.

MR. WROBLEWSKI: What effect have those had on the way you operate your business?

MR. JACOBS: Colonial Pipeline was granted market-based rates to markets in New York, New Jersey and Pennsylvania last October -- I'm sorry, last summer. We've implemented a program now with market-based rates into those markets. It's about 20 percent of the business we do, is market-based rates. The other 80 percent is the index method that I described earlier.

MR. WROBLEWSKI: And market-based rates, just

for the record, they require you not to notify FERC or you -- I guess you notify FERC the day you make the change in the rate for the usage of the pipeline. Is that what it --

MR. JACOBS: Well, let me back up just one second and explain.

Market-based rates are when the FERC decides that you don't have strong enough market power to influence prices down at the retail level. If you were to raise your tariff a dime and gas prices went up an equivalent amount, they would consider that to be there's not a competitive environment. So, specifically in the Northeast, they look at all the sources of supply, including the indigenous refiners in the Northeast, plus the import barrels, plus other pipelines that serve the market, and say you can change your price 10 cents a barrel, and people will decide to use you or not. If your tariff is too high, too high above the market rate, they will decide to provide another source of supply into that market.

So, now your question was how has that affected our rate-making ability?

MR. WROBLEWSKI: Yes.

MR. JACOBS: I would say not significantly. We're always looking at the FERC tariff as a method to

set the number, but it doesn't tell you what the tariff is. The tariff is a pricing tool, and you need to set your tariffs in order to be competitive in the marketplace to attract the business onto your system. So, I don't think it has changed substantially the way we look at tariffs.

MS. MORGAN: And I'd just like to add in addition to regulation at the federal level, perhaps like in California, there's regulation at the Public Utility Commission level, and a difference between, like, Plantation and Colonial, they're like one long pipeline that may deliver to a lot of markets.

Out in California, it's more of a hub and spoke arrangement within the state itself. So, a lot of competition on the relatively short hauls, as with trucking and things like that. So, even though -- I mean, we have attempted to have market-based rates, it's still before the Public Utility Commission there, but in our thinking for expansions and things, typically because there is a lot of competition, we would have to price, even if we got the market-based rates, we would have to price them lower than what you would get on your traditional cost of service or rate-making methodology simply to remain competitive on the short hauls.

There's a big difference in pipeline

transportation like Steve's for a thousand miles, pipelines are going to be every other mode, but in short haul, there can be a lot of other factors, just depending on whether the oil company involved has their own employees as truck drivers and owns their own trucks and that's a cost that they've already sunk, versus the pipeline. So, it can be different in different places.

MR. WROBLEWSKI: Okay, thanks.

Did you have any more questions you wanted to ask on transportation?

MR. CRESWELL: I guess I have one, a general question. We have been talking a lot about environmental regulations. This Agency's encouraged or required a good deal of restructuring of both the refining segment and the pipeline segment, and since we're on pipelines at the moment, both your organizations have -- or some of your properties have been affected by some of our divestiture orders, and I just was wondering, has that had any effect on your operations or your long-term expansion of capacity, that there's been this change in owners or change in organizational structure?

MS. MORGAN: Well, I can describe the effect that I believe. I believe that for a company like Kinder Morgan, which again, in its most basic business

is a provider of transportation and storage, not buying and selling products, we don't own refineries to make product, we don't have retail outlets to sell it, so when I look at the evolution of something like, say, Plantation Pipeline, which before was owned by three major oil companies, they may have had a different decision tree in deciding when to expand. They might be influenced by other factors, where for Kinder Morgan, we want to move every barrel of gasoline or diesel or jet fuel we can, because that's the only way we make money. So, we want to expand whenever we can get any kind of decent return on it, because that's our business, that's our core business.

And then also, when I was with Santa Fe Pacific before Kinder Morgan, we were owned by the railroad, and so again, it wasn't the railroad's core business. They, you know, they weren't as interested in investing in pipelines and everything, whereas Kinder Morgan, I mean, that is the business, and so there's a lot more drive, and Kinder Morgan also obviously has acquired assets, you know, as both the business model for, you know, the majors and integrated companies, they've wanted to divest more and more of the midstream assets for a lot of the reasons probably that people have talked about.

You know, it's a challenge making money all the

way up and down that integrated, you know, range of businesses, where someone who is a specialist in operating pipelines and terminals may be able to provide that service to them at a slightly lower cost, and so for us, as more people have reasons to divest themselves, it creates opportunity for us.

Again, a lot of times our customers tell us they like doing business with us because they -- rather than perhaps if they have a choice in going in a terminal that's owned by one of their competitors or one that's going to act pretty much as a third party and treat everybody the same, they prefer, you know, not to -- to have that other obstacle.

MR. WROBLEWSKI: Steve, did you want to add something?

MR. JACOBS: Yes, I would. Colonial has eight owners. Colonial was originally built back in the -- went into operation in 1963. It had ten owners. All were integrated major oil companies. Today, we have eight. I have personally been at Colonial for three years, and in the three years, there has been three ownership changes, and all of them have resulted from FTC-led decisions. I have not seen any change in the decision making.

Colonial operates as a very independent company

with a very rigid corporate governance model that decision making is around what's to make the most money for the integrated pipeline company, the stand-alone pipeline company I should say, and I haven't seen any significant changes in decisions coming out of our board as the ownership has changed.

MR. WROBLEWSKI: Okay, thank you.

MR. FRANCZYK: I know the pipeline companies have mentioned and I think even the EPA White Paper on boutique fuels mentioned that the proliferation of boutique fuels has effectively reduced the capacity of pipelines. I wonder if anybody has quantified that, and also, if you have, where you see that going in the future in a worst case scenario.

MR. JACOBS: The future question is going to be harder to answer. Today we see probably 2 percent, 3 percent in product that gets downgraded in the transmission. Moving multiple grades of product, you get to the end, and there's an interface material that doesn't meet any of the specs. That gets pulled offline and gets reprocessed and separated into finished components to meet the specs.

We've talked about lost capacity in dealing with the number of unique grades and boutique fuels. I think in total there may be a 2 percent or 5 percent

impairment to business as a result of that. You do your darnedest to keep running at full steam ahead.

I mean, I would look at the analogy of you're running down the highway with cruise control at 65 miles per hour, and you now enter into a metropolitan area with lots of entrance and exit ramps and therefore a lot of traffic getting onto and off of the system. It causes you to have to brake, turn off the cruise control, reduce your speed to 55 at certain times, increase your speed back to 65 once you're to a steady-state condition. We find ourselves hitting the brake more often than what we would otherwise have to because of that.

MS. MORGAN: And the thing that I'd like to add, and again, I am going to describe more the California situation, as we talk about other things like refining capacity hitting its level, a lot of the pipeline segments or the pipeline systems are very close to capacity. So, it gets worse.

We may have been able to stay within 2 to 5 percent -- in California, we have 136 grades of gasoline or at least that we move through our system, okay? I mean, it's mind-boggling how many there are. But as we get closer to capacity, it becomes worse, okay, because just in the last month, as I've had to talk to all of

the major suppliers, refiners out there about this thing about ethanol, they don't know whether they want to go early or they want to go late, you know? They say can we ship both a slate of CARB gasoline as well as RBOB as well as all these others that are going to Arizona and Nevada and all of them?

I've told them, I can nominate them, but I can't guarantee my line won't go into proration because of it. I don't know who's going to do it. Again, it's this thing about the proportion. If everybody switched, it's an easy switch, because then you don't have to worry about moving it through these tanks, and there's tanks all along this whole thing. If the wrong proportion of people switch, it can hurt my capacity enough to put me into proration, but I can't predict that, because now there's all this uncertainty about what's going to happen.

I think everybody's doing their dead level best to decide, but with everything that's going on -- so, it gets worse as you reach capacity.

MR. MURPHY: We haven't looked at the issue as to pipeline capacity, but we have looked at the effect of increased transmits, loss in product, as you go to very low sulfur content in gasoline and diesel, and in the environment where we're concerned about the adequacy

of production volumes to begin with, we think that there's a substantial problem in terms of increase in the amount that you lose in the pipeline, particularly in the diesel area.

I just sent a letter to EPA last week asking that they put a pipeline person on the FACA, the commission that they have to look at the adequacy of it for exactly this reason.

MR. WROBLEWSKI: Okay, thanks. I have two more questions. The first one really deals with FTC merger review and remedies, and given that probably in the next few years we'll probably see more stringent gasoline requirements and other refined product specifications, do we here at the FTC need to look beyond the simply refinery calculations, refinery capacity calculations, in making a preliminary assessment of a merger to consider the ability of that refinery to produce specific final products or specific streams of products? Should we be more detailed?

DR. HOGARTY: The question is what is the scope of the relevant market, is that your question?

MR. WROBLEWSKI: Right, that's right.

DR. HOGARTY: Yeah --

MR. MURPHY: Well, I mean, I'm certainly not going to suggest increased FTC scrutiny, but I would

suggest that one of the things that we have proposed if this bill is enacted is that the number of so-called boutique fuels, and you can do the count in many different ways, and the way we do the count we get around 15, and you can get much larger numbers if you include different grades and things like that, but the number of boutique fuels be reduced from 15 to 5, and we think that can be done and that can be done without sacrificing any environmental qualities.

The effect of doing that is to increase the fungibility of the market, to increase competition, to increase the availability of supplies, and so that would work in the other direction. If that is successful, this boutique fuels problem is going to be much, much less of a problem in the future years.

MR. SLAUGHTER: I'll just jump in and say that, again, you know, one of our concerns there is the burden on the industry, and to the extent that the number of boutique fuels is rationalized, it's all going to be in the direction of tighter specs and tougher environmental compliance, and we're worried about the impact on the investment requirements for individual refiners and, you know, there are efficiency gains that can be had if we had fewer boutique fuels, particularly pipeline system.

I don't think any of us would argue about that,

but the refining part of the system is severely stressed now, and we are concerned about reducing the number of boutique fuels and the impact that it might have on refiners who are currently in business if they have another fuel spec on top of everything else. So, there's a distinction I think between where API is and where we are on this, but it's not really that I disagree with what Ed is saying.

I'm just looking ahead to the way that kind of works out in the political mix, and everything that seems to happen to us goes in the direction of more investment requirement, and we're, you know, many times burned, many times shy at this point.

MR. WROBLEWSKI: My last question deals with -- you know, we've talked about -- this morning and then this afternoon we've talked about many different factors that can affect the prices of refined petroleum products. If I were to ask each one of you which are the two most important, you know, so we ranked them, was it crude, was it capacity utilization, is it the fact that demand is inelastic, is it the environmental rules in terms of varying fuel specifications, is it changes in concentration in refining in various markets, how would you rank those in terms of which are the most important factors?

MR. MURPHY: Well, I wasn't here for the morning, but I think by and large the most important contributor to gasoline or any product volatility, price volatility, is crude oil prices, and that has been the ongoing problem and issue and is likely to continue being the ongoing problem and issue.

What we've talked about this afternoon, of course, is on top of that or what happens to the product prices on top of crude prices, but if the question is what is the largest contributor to gasoline price volatility, by all accounts it's crude oil prices.

MR. WROBLEWSKI: And what would you count to be the first among equals in that second tier of the issues that we discussed this afternoon?

MR. MURPHY: I would put the lack of -- or the shortage in refining capacity and then a lot of things that contribute would go into that, boutique fuels is part of the problem there, the oxygenate mandate is part of that problem, but it's essentially the limited excess capacity to compensate for unexpected changes, shifts, run-outs, whatever, that contributes to price volatility.

MR. WROBLEWSKI: Mary?

MS. MORGAN: I would agree in the same order with the prices, because I had someone just in our

meeting the other day say, well, what happened a year or so ago, why did these prices -- I said, well, crude oil went from $13 to $26 dollars, and people were shocked that prices went up? Well, not only here, because they were talking about natural gas, too, and this, that and the other. I said, you know, why is anybody surprised when that happens?

So, I definitely agree with that, and I agree with -- because just in all of these emergency situations we've had to live with, you know, is when some kind of disruption happens, you know, a major unexpected refinery fire or something like that, I mean we all lived through that when this happened in California, and those kind of things, you know, they are -- they have almost an immediate effect.

But I also agree, even though as a pipeline person I'm really not supposed to talk about prices, but, you know, we saw prices -- because people asked me about it, and I'd look at OPIS, and the prices in California were one-third. They were so low just two or three months ago, they were lower than they had been in like ten years, but nobody ever complains, you know, when they're low. They only complain when they're high. But anyway, I agree with the order.

MR. WROBLEWSKI: Steve?

MR. JACOBS: Well, I started my presentation with an apology that what I was going to say was a repeat of what you've heard before, so I'll again apologize and again mention that I hope a repeated message gets remembered. I think Ed touched on it very eloquently with the issue around capacity. The industry does not have sufficient capacity to deal with upsets. It doesn't have excess capacity to deal with upsets. We run fine in a steady-state condition.

MR. SLAUGHTER: I'd agree with everyone else. I mean, the biggest correlation is the crude price. The crude price drives a lot of it, but when you look at things that we really can affect, particularly here in Washington with public policy, you know, I have to say that you have to focus on things you can affect here, and one of those things is, you know, the extremely large environmental costs that are put on the industry.

In terms of what you can actually do something about as opposed to just have hearings about, that is something that can be done we think more efficiently than it is now, but, you know, one of the things at the Levin hearing last week, the first panel was asked, you know, do you think a new refinery will be built in the U.S.? And the answer was no. Would you build one?

Well, no, we don't think we need one.

Of course, there were some of the biggest refiners there who have substantial investments already in the industry, so I can understand why they would say it, but, you know, the impression I think that was left with the panel was that we don't need more refining capacity, and I think we do. I agree with Ed that we don't have enough spare capacity, and it would be a big plus for everybody if we had some.

One of the problems, though, is that I don't think that the American consumers want to support any extra costs in gasoline, and they would have to support some extra costs in order to have some additional capacity, you know, they're kind of voting with their feet here. They're taking volatility and tight supply/demand balance, but I think Ed's right. It is definitely crude, but there are some things we can work on here in Washington, like the environmental burden.

MR. WROBLEWSKI: Tom?

DR. HOGARTY: Crude oil has to be at the top of the list, at least historically. As to the future, I'm not so sure. What little I know about declining cost of crude oil is that it's much less than current prices, so I'm somewhat optimistic that the long-term crude oil

price is going to be much lower in the future than it has been in the recent past.

I think that beyond that, generally capacity to manufacture gasolines and to move them by pipeline and other low-cost transportation modes is a key factor, and I will try to be consistent with what I said earlier, that I think the incentives to provide capacity can be made better. It's not an answer to say that we will not have a new refinery of the large kind anymore.

Even if that were true, there are numerous opportunities to upgrade the existing refining capacities, and I believe that those upgrades have taken place over the years and would take place in greater abundance and that they would greater ameliorate the price volatility problem, especially the spike problem.

So, I agree with the Commission assessment out of the Midwest, that the scarce capacity was really the fundamental factor, and I would put it number one on Bob's criterion that the FTC is an American agency and can deal with problems in the American sector of the oil market, and I think that that's one where the FTC could have a significant impact in the long run.

MR. WROBLEWSKI: Bob, I'll leave the last word

to you. Since we started out with you, I'll leave the last word to you as well.

MR. LARSON: Okay, well, thank you. Well, the last words are that I think it's been an interesting session that we have had this afternoon. I will note that part of my presentation indicated that there was based upon our estimates a 2 to 3 cent difference between the cost of producing winter grade RFG versus summer grade RFG, but yet we do see a much greater difference in prices during that time. So, it doesn't seem to be so much refinery cost driven. It must be due to other factors.

Clearly during the summer, there is a much greater demand on gasoline product than there would be during the winter, and maybe some of the capacity issues that the folks are raising here are driving that big price issue.

MR. WROBLEWSKI: Okay, thank you.

That wraps it up for this afternoon. Tomorrow morning starts at 9:00 a.m., and the session will deal with marketing issues, retail and marketing issues, and it will go from about 9:00 to 12:30. So, we will see you then. Thank you very much.

(Whereupon, at 4:12 p.m., the proceedings were adjourned.)

C E R T I F I C A T I O N O F R E P O R T E R

DOCKET/FILE NUMBER: P022105

CASE TITLE: REFINED PETROLEUM PRODUCTS CONFERENCE

DATE: MAY 8, 2002

I HEREBY CERTIFY that the transcript contained herein is a full and accurate transcript of the notes taken by me at the hearing on the above cause before the FEDERAL TRADE COMMISSION to the best of my knowledge and belief.

DATED: 5/14/2002

SALLY JO BOWLING, RPR SUSANNE BERGLING, RMR

C E R T I F I C A T I O N O F P R O O F R E A D E R

I HEREBY CERTIFY that I proofread the transcript for accuracy in spelling, hyphenation, punctuation and format.

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