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GASOLINE: WHAT'S CAUSING RECORD PRICES AT THE PUMP?

HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY AND RESOURCES

OF THE

COMMITTEE ON
GOVERNMENT REFORM

HOUSE OF REPRESENTATIVES

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GASOLINE: WHAT'S CAUSING RECORD PRICES AT THE PUMP?

MONDAY, MAY 9, 2005

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENERGY AND RESOURCES,
COMMITTEE ON GOVERNMENT REFORM,
Long Beach, CA.

The subcommittee met, pursuant to notice, at 1:30 p.m., in City Council Chambers City Hall, 333 West Ocean Boulevard, Long Beach, CA, Hon. Darrell E. Issa (chairman of the subcommittee) presiding.

Present: Representatives Issa and Watson.

Staff present: Larry Brady, staff director; Steve Cima, Dave Solan, and Chase Huntley, professional staff members.

Mr. ISSA. Good afternoon. A quorum being present, the Government Reform Subcommittee on Energy and Resources will now come to order.

Today our high energy prices are affecting everyone's cost of living, America's economy, from consumers and businesses to public and private agencies. For Californians filling up the gas tank is not a luxury; it's a necessity. They have to fill up to get to work, take the kids to school, and go to the grocery store.

In recent weeks President Bush has shown leadership by calling for action on his energy development and conservation programs. He pledged to address the root causes that are driving up gasoline prices and encourage oil-producing nations to maximize their production, as well as vowing that consumers will not be gouged at the pumps.

Since coming to Washington the President has stressed the need for a comprehensive energy policy. Last month the House passed an Energy Policy Act of 2005, and now it is time for the Senate to enact this or similar legislation so that we could work out differences and more toward a national energy strategy to reduce consumer cost.

The President has also stressed the need to promote greater energy independence by harnessing the power of technology to create new sources of energy and make more efficient use of existing sources.

Since 2001 I have driven a Toyota Prius and it is here with me today. New technologies like hybrid vehicles have played and will play an absolutely essential role in lowering overall energy costs for consumers, and it is important that Congress continue to reward the development and use of these energy savings innovations and others to come.

I understand that people are frustrated and outraged with the soaring gasoline prices. As consumers struggle with increased prices, we hear about oil companies with enormous profits increasing global oil demand and of limited plans for investing in refineries and petroleum infrastructure.

I believe it is important that this subcommittee hear from consumers and address your questions regarding gasoline prices. For the past week I have allowed the public to submit questions, some of which we will be asking the panel this afternoon in addition to—if time allows—questions from the audience.

The issues we will address today are serious and go to the core of our economic well-being and standard of living.

Hopefully the witnesses today can enlighten us on these issues and possibly point out some solutions. I look forward to the testimony of the witnesses today. The witnesses include: Mr. John Cook, Director of Petroleum Division, Office of Oil and Gas, Energy Information Administration, U.S. Department of Energy; Mr. Jim Wells, Director, National Resources and Environment, U.S. Government Accountability Office; Mr. Pat Perez, Transportation Energy Division, California Energy Commission; Ms. Rayola—how do I pronounce it properly?

Ms. DOUGHER. Rayola Dougher.

Mr. ISSA. Rayola Dougher. Thank you. I'll strive to get it right.

Ms. DOUGHER. Thanks.

Mr. ISSA. Ms. Dougher is manager, Energy Market Issues, American Petroleum Institute.

I want to thank the audience for attending this hearing. I will now yield to the ranking member, the gentlewoman from California, Ms. Diane Watson, for her opening statement.

Ms. WATSON. Thank you so much, Mr. Chairman. I appreciate you having this hearing in Long Beach, and I want to thank the city council here in Long Beach for hosting this field hearing. It's close to my home and we came down through the rain in almost 20 minutes, so I appreciate that.

As you know, commuting is a necessity here in southern California and record gasoline prices are taking their toll on my constituents. My district starts, I would say, roughly at the 405 and goes over to the University of Southern California, up to that Hollywood sign, and down to South Los Angeles. It's really in the heart of the freeway area. It is from about 3 a.m., Monday to 3 o'clock Tuesday the congestion starts and continues. It is in the congested area of the city.

So gas prices on the average throughout the United States rose above $2.20 a gallon in April of this year, creating record highs. And unbelievably on March 5th of the year the average price of a gallon of regular gas in California was $2.61.

Darrell, I've even seen signs around greater Los Angeles of $2.93.

Mr. ISSA. It was $2.79 at the closest gas station here today.

Ms. WATSON. So the cost of gas is rising at an astronomical rate and the gasoline market's uneven for different sections of the country. And, you know, they like to look at us out here on the West Coast and say, "You've got those high gasoline prices and you've got all those cars, what are you going to do?" But I see the signs

back in the Washington, DC, area, Virginia area also showing the record rise in cost.

Mr. Chairman, the global thirst for oil has placed both foreign and domestic oil companies in a very powerful position. American consumers are caught in the squeeze of unregulated gas pricing.

The American dream is to create successful businesses and contribute to the free market system of this great nation, but there is some concern that the recent mergers in the United States oil industry has made it easier for companies to control gas pricing. Indeed the gas and oil industry is recording the largest revenues in history. ExxonMobil has disclosed the largest annual revenue in the history of the business.

It is important for American Government to understand the dynamics of an industry in which the top 10 companies control 80 percent of the domestic oil refinery capacity. It's important for us in Congress to listen to the studies done by oversight agencies.

The U.S. General Accounting Office released a report in May 2004 on the effects of mergers and market concentration on the petroleum industry. And GAO found that the oil company mergers and an increase in market concentration led to higher wholesale gas prices. It is critical to note that the GAO reached their findings in mergers that occurred between 1991 and 2000. Since 2001 the largest five oil companies operating in the United States, ExxonMobil, Chevron/Texaco, ConocoPhillips, BP, and Shell, have enjoyed after-tax profits of $230 billion. Yes, even through an economic downturn and an unreasonably high jobless rate five companies have cleared an astronomical sum of money, $230 billion.

The Federal Trade Commission is the agency responsible for preserving competition in the market place in order to protect consumers. A number of experts have concluded that the increase in market concentration allows individual companies to engage in strategic decisions such as withholding supplies to increase prices and thereby increase the bottom line, their profits.

In March 2001, FTC reports found that oil companies were making decisions to withhold formulated gas blends supply in order to maximize profits.

Californians have suffered outrageous petroleum pricing through no fault of their own, with dishonest market manipulation such as the Enron scandal.

Mr. Chairman, I want to commend you, again, on this timely field hearing. It's important. And it's critical that we investigate the reasons for higher prices at the gas pumps and report back to not only our constituents but those across this country.

Moreover, the President has indicated that the recently passed majority energy bill will not provide any short-term relief on gas prices. So Americans need to know whether they fill their tank or whether they use the money to buy food and other things that they need on a day-to-day basis.

So I look forward to this informational session with the GAO, the EIA, and the California Energy Commission. And I understand that we have a representative of the petroleum industry and I look forward to listening. Thank you.

Mr. ISSA. Yes and, I apologize if I'm giving you my froggy throat. Thank you.

According to the rules of the Government Reform Committee I would request that each witness raise their right hand to take the oath.

[Witnesses sworn.]

Mr. ISSA. And let the record show that each answered in the affirmative.

Thank you all for being here today—both the audience and our distinguished panel. As Congresswoman Watson said and made very clear, although we may differ in party, we don't differ in a belief that gas prices have gotten too high and that they need to be brought down. I think on a bipartisan basis we also agree that the energy bill, if passed and signed into law, will not be an overnight panacea for all of our problems. And certainly that's one of the questions we're going to have for this panel today is long-term/short-term.

The normal custom for any hearing is a 10-minute opening statement by each of the panelists. We have your written testimonies in their entirety. They will be available both to this committee and to the people here in the audience, and as well as on our Web site. So if you'd like to abbreviate, add in material that's not available there, or summarize in any way, feel free to. We'll not keep you to an exactly 10-minute schedule, but Mr. Cima will be banging on me to bang on you at some point.

And with that I would like to introduce—here we go—Mr. Cook, Director of Petroleum Division, Energy Information Administration, the U.S. Department of Energy. And I'm looking for the gentleman's biography. Well, I apologize, your title is more than enough, and I will have the biography by the next introduction. But, Mr. Cook, I appreciate your being here today. I would ask, again, that your entire testimony be put in the record and to summarize it in about 10 minutes.

STATEMENTS OF JOHN COOK, DIRECTOR OF PETROLEUM DIVISION, OFFICE OF OIL AND GAS, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY; JIM WELLS, DIRECTOR, NATIONAL RESOURCES AND ENVIRONMENT, U.S. GOVERNMENT ACCOUNTABILITY OFFICE; PAT PEREZ, TRANSPORTATION ENERGY DIVISION, CALIFORNIA ENERGY COMMISSION; AND RAYOLA DOUGHER, MANAGER, ENERGY MARKET ISSUES, AMERICAN PETROLEUM INSTITUTE

STATEMENT OF JOHN COOK

Mr. COOK. Thank you, Mr. Chairman and subcommittee members. On behalf of EIA I'd like to thank you for the opportunity to testify today on the factors behind recent gasoline price movements. As the first speaker indicated and all U.S. drivers are all too aware, gasoline prices have risen sharply since the beginning of the year. As of last Monday the national average retail price stood at $2.24, up 42 cents from a year ago and nearly 46 cents from January. While relatively high in historical terms, retail prices have been dropping recently. And barring unforeseen developments, we look for them to drop much further by Memorial Day. In addition, adjusting for inflation, gasoline prices were much high-

er in the early 1980's at a little over $3 a gallon. Nonetheless, gasoline like oil prices in general are currently high throughout the United States, and especially in southern California.

California prices typically run higher than the U.S. average and often exhibit more volatility. This year's no exception with the retail price running up about 58 cents since the beginning of year, some 33 cents higher than the national average.

My statement today summarizes major changes seen in oil markets since 2000 impacting gasoline.

High prices, at least in our view, are primarily the result of an unusual tightening and global crude markets. This tightness was brought about primarily by an unexpected acceleration in demand growth, stretching global crude production capacity nearly to its limits. As a result crude prices almost doubled last year, and that lack of spare capacity is expected to keep crude markets tight and prices high for the foreseeable future. Other factors adding to this pressure, of course, include tight refining capacity and tightening product specifications worldwide.

To look more closely at the causes underlying recent gasoline price pressure it may be helpful to take a look at the components underlying retail costs. This figure shows that typically crude oil accounts for the largest amount of retail cost and usually the lion's share of any increase.

Here we see that April-over-April comparison show about 32 cents of the overall 44-cent run-up accruing to the crude sector. Refining costs added about 7 cents and marketing costs about 5. Since taxes vary little in the short-term, sufficient insight into the drivers here behind high retail prices may be obtained if we simply focus on the crude and refining sector.

Figure 3 shows the crude prices have shifted upwards a couple of times in the last several years. After averaging around $20 for most of the 1990's, crude slumped almost to $10 as a result of the Asian financial crisis and extra supply from Iraq re-entering the market. OPEC responded to this by sharply cutting production, driving prices not only back to the $20 level, but to what seemed a new level of about $30 in the face of declining global inventories.

Then last year the crude oil prices shifted to a second higher level, well over $40, almost doubling and rising from $30 early in the year to a peak of over $56 by late October. Though prices fell back toward $40 by the end of the year, they recently rebounded over $57, and once again have fallen to about $50. We expect prices for the remainder of this year to range between the low $50's and the mid-$50's.

There are a number of factors that underlie this tightening in the global crude balance pushing prices to $50. And probably the biggest one is the huge increase in global demand. Probably the biggest surprise was China with a demand increase of over a million barrels a day last year compared to growth rates of less than half that amount in prior years. China and the United States alone accounted for almost 60 percent of the increase last year, and we expect that growth to remain strong this year.

On the supply side, growth in non-OPEC production fell well short of meeting increasing world needs, and we expect that to remain short of those requirements.

We will continue to see growth in Russian and the Caspian regions, but there are no large new areas adding potentially a million to $2 million per day as needed such as that seen from the North Sea and the Alaskan North Slope regions in the 1970's and 1980's. Therefore, if demand continues to grow strongly, OPEC must increase its capacity significantly.

The next figure shows that inventories in the developed nations of the OECD moved to more comfortable levels at the mid point of last year. On the other hand, if we take into account strong global demand growth, if we put inventories in today's supply terms or in terms of expected consumption covered, the blue line at the top shows that they were low most of last year and fell to 2000-like lows of about 50 days by the end of the year. We expect supply to remain low this year and again fall toward 50 days by the end of the year, but perhaps the most important change last year was the drop in the world's ability to search crude production to offset unanticipated supply losses.

The next figure shows that global spare capacity which primarily resides in OPEC, in fact, primarily in just one country, Saudi Arabia, has ranged—is currently ranging between a million to a million and a half barrels per day and stands at the lowest point since the first Gulf war. As global oil demand rises seasonally to its peak in the fourth quarter, we expect that spare capacity to drop even further.

In our view it is this lack of supply cushions, low inventories on a day supply basis, and very little, if any, usable spare capacity that is responsible for the price pressure that we see in today's markets. The difference between what we see in today's markets and that from the last 20 years is that these drivers, low spare capacity and low day supply, are not short-term in their nature.

Turning to gasoline. We saw in figure 2 that crude oil explained most, but not all of the rise in retail prices. While crude oil accounted for about 32 cents, relatively tight conditions in wholesale markets added another 7. This chart if you look at it closely indicates that while crude oil and gasoline generally move together, at times spot gasoline increases at a much faster pace than crude oil widening the spread between them. The spread or the difference between spot gasoline and spot crude oil depends upon the gasoline supply/demand, balanced relative to that of crude oil. These spreads tend to rise when gasoline market conditions tighten; that is, factors in the gasoline market tighten the balance over and above any tightness originating from crude markets. The figure shows that tight crude oil and gasoline market conditions last year lifted spreads throughout the Nation to very high levels. By the beginning of this year, though, some regions began to experience some softening, especially in the Gulf Coast where spreads in February dropped almost to zero. Unfortunately in April they bounced back to relatively high levels.

Turning to California. For the most part spreads this year have run to—have been in at the relatively high end of California's range. Spreads in California generally are higher than other regions and more volatile. Hence, the retail prices are higher and more volatile. In fact, it's not unusual for California spreads to run

20 to 30 cents on average higher than the Gulf Coast, and at times they can even range up to 50 or 60 cents higher.

The primary reasons for this are that the California system supplies most of the region's needs, but the system runs near its capacity limits, meaning there's little spare capacity to meet shortfalls. California's also isolated, primarily from the Gulf Coast, which prevents any rapid resolution to imbalances.

The region uses a unique gasoline that's difficult and expensive to make, which limits the number of suppliers that can provide extra amounts. And finally, as California turned to ethanol banning MTBE, it lost production capability, which in the face of growing gasoline demand further tightened its balance, heightening its already high spreads.

The last figure shows that following the ban California retail prices rose relative to U.S. prices by another 10 cents or so. In short, California's unique fuel situation is likely to keep markets tight on the West Coast for some time, meaning their prices are to remain higher and more volatile.

As we look ahead, we don't see much relief. Crude oil is likely to remain 50 day supply and keeps pressure on OPEC spare capacity. Tight refining capacity is also likely to add to this pressure. At this point little is certain. If crude oil remains around $50 and gasoline markets remain relatively soft, we may see some further decreases in the weeks ahead as we move toward Memorial Day. If crude oil rises, which is possible as we move to the fourth quarter, we have a strong surge and demand during the peak summer, or if there is a rash of refinery outages, then of course that would put gasoline prices back up.

That concludes my testimony. I would be happy to answer any questions.

[The prepared statement of Mr. Cook follows:]

STATEMENT OF

JOHN COOK

DIRECTOR, PETROLEUM DIVISION

ENERGY INFORMATION ADMINISTRATION

U.S. DEPARTMENT OF ENERGY

BEFORE THE

SUBCOMMITTEE ON ENERGY AND RESOURCES

COMMITTEE ON GOVERNMENT REFORM

U.S. HOUSE OF REPRESENTATIVES

MAY 9, 2005

Mr. Chairman, I appreciate this opportunity to testify today on the Energy Information Administration's (EIA) insights into factors affecting recent gasoline prices.

EIA is the statutorily chartered statistical and analytical agency within the U.S. Department of Energy. We are charged with providing objective, timely, and relevant data, analysis, and projections for the use of the Department of Energy, other Government agencies, the U.S. Congress, and the public. We produce data and analysis reports that are meant to assist policy makers in determining energy policy. Because we have an element of statutory independence with respect to the analyses that we publish, our views are strictly those of EIA. We do not speak for the Department or for any particular point of view with respect to energy policy, and our views should not be construed as representing those of the Department or the Administration. EIA's baseline projections on energy trends are widely used by Government agencies, the private sector, and academia for their own energy analyses.

Gasoline prices have risen sharply since the beginning of this year throughout the United States (**Figure 1**). As of May 2, the national average retail price for regular gasoline was $2.24 per gallon, 39 cents higher than a year ago, and up nearly 46 cents since the beginning of the year. While relatively high in historical terms, the current national average price has dropped more than 4 cents below the level reached on April 11, which was the highest national average price ever recorded, in nominal terms.

Adjusting for inflation, however, U.S. gasoline prices were significantly higher in 1981, with the March 1981 price equating to $3.10 per gallon in today's dollars.

While gasoline prices, and oil prices in general, are currently high throughout the United States and even worldwide, California has been hit particularly hard. California prices are typically higher than the U.S. average, and thus the run-up this year began from a higher level. In addition, California retail prices often exhibit more volatility than other areas when markets tighten. This year is no exception, as the average retail price in California has risen about 58 cents since the beginning of this year, and stands at $2.56 per gallon, almost 33 cents higher than the national average. As was the case for the U.S. average, California gasoline prices reached an all-time high (again, not adjusted for inflation) on April 11, at $2.59 per gallon.

The remainder of my statement indicates that gasoline prices reflect changes in petroleum markets seen since 2000. Current gasoline prices in California and the United States are primarily the result of unusual tightening in world crude oil markets, which was particularly acute in 2004. This tightness was brought about by accelerating demand increases, which stretched worldwide crude oil production capacity nearly to its limits. As a result, crude oil prices almost doubled in 2004, and that lack of spare capacity is expected to keep crude oil markets tight and prices high at least through 2006. Adding to price pressures were exacerbating factors such as changing world petroleum product specifications and declining excess refining capacity, which reduce supply flexibility and

diminish the ability of the world, as well as the United States, to rebalance product markets quickly as unexpected demand swings occur.

Background

Retail gasoline prices are a function of many influences. Thus, in order to assess the causes of price changes, it is necessary to break down retail prices into their various components: crude oil prices, refining costs and profits, distribution/marketing costs and profits, and taxes.

Comparing U.S. retail gasoline prices in April 2005 with those of a year earlier, the average price rose by 44 cents per gallon, and each of the components listed above increased (**Figure 2**). The U.S. composite refiner acquisition cost of crude oil grew from $33.46 per barrel (equivalent to 80 cents per gallon) in April 2004 to an estimated $46.70 per barrel ($1.11 per gallon) in April 2005, accounting for 32 cents per gallon of the increase in gasoline prices. The average spot gasoline price rose by 39 cents per gallon, or 7 cents more than the increase in crude oil prices, reflecting a gain in the spread between the two, which represents refining costs and profits. Finally, the average retail gasoline price, excluding taxes, increased by 44 cents per gallon, or 5 cents more than the increase in spot prices, reflecting a rise in that spread, which represents distribution and marketing costs and profits. Taxes usually change very little, but they did increase slightly (less than one cent) over this time period, since some States and localities charge taxes based on a percentage of price.

To elaborate on the previous paragraph, crude oil price variations often account for most of the change in the price of gasoline, which again was the case between April 2004 and April 2005 (a 32-cent-per-gallon increase). The second major component contributing to price variation is the spread between spot gasoline prices and crude oil prices, which rose 7 cents per gallon. Gasoline is sold into spot markets by both refiners and importers, and spot prices reflect the overall supply/demand balance for gasoline in the United States and regionally. As such, any change in gasoline supply availability or demand levels will influence this spread, and thus the short-run profitability of refining or importing gasoline. These changes, in turn, spur refiners and importers to increase or decrease supply, and thus are, to some extent, self-adjusting. The spot price spread tends to be very seasonal, rising in the spring and summer due to higher demand. In the longer term, changes in the costs of refining and blending gasoline, including the impact of government regulations on the refining industry, will also be reflected in this spread.

The retail-to-spot price differential, at least in the short term, is primarily a function of the lag involved in passing price changes through from wholesale to retail markets, both upward and downward. Because of this lag, as prices are rising, the retail-to-spot spread is compressed, while as prices are falling, it temporarily expands, in either case only until retail price changes catch up to changes in the underlying wholesale markets. In the longer term, this differential can also reflect changes in the underlying cost structure and/or competitive landscape of the petroleum marketing and distribution sectors.

Finally, insofar as taxes are concerned, there is usually relatively little change in the short term in excise tax rates, which are typically denominated in cents per gallon, but a number of States (including California) and local jurisdictions charge additional sales or other taxes denominated as a percentage of the sales price.

Crude Oil Prices

In 2004, crude oil prices almost doubled from 2003, rising from about $30 per barrel for spot West Texas Intermediate (WTI) at the end of 2003 to a peak of $56.37 on October 26, 2004. Although prices fell back through the end of the year, they rebounded again in 2005 to peak at $57.26 on April 1. They have since fallen to around $50, but are expected to range from the low- to mid-$50s level for much of the remainder of the year.

Prices since the end of 2003 represent the second major shift in the marketplace since the 1990s, when prices averaged close to $20 per barrel (**Figure 3**). The first shift occurred in the late 1990s. In late 1998, crude oil prices plunged to almost $10 per barrel as a result of the Asian financial crisis slowing demand growth just when extra supply from Iraq was entering the market for the first time since the 1990-1991 Gulf War. The Organization of Petroleum Exporting Countries (OPEC) reacted to the low prices and the associated economic impacts by sharply reversing prior production increases, which eventually not only restored the $20 level, but pushed prices to what seemed to be a new level of about $30 per barrel, as demand grew in the face of OPEC production discipline and declining global inventories.

Prices in 2004 appear to have shifted to a second higher level, well above $40 per barrel. Several factors underlie the tightening world supply/demand balance driving this second increase. The key factor probably was world petroleum demand growth, which rose in 2004 much more than anticipated by most analysts. China was probably the biggest surprise, as its demand grew by 1 million barrels per day from 2003, compared to a 0.4 million-barrel-per-day increase between 2002 and 2003. China and the United States combined accounted for almost 60 percent of the increase in demand in 2004, and all indications are that growth will remain strong in 2005.

On the supply side, growth in non-OPEC production fell well short of meeting increasing world needs in 2004 and is expected to continue to fall short for the next several years. The largest source of non-OPEC production growth is expected to be Russia and the Caspian Sea region, which are anticipated to contribute more than 80 percent of the non-OPEC increase in supply in 2005 (0.5 million of the 0.6-million-barrel-per-day increase). Africa, Brazil, and Ecuador are other major non-OPEC areas where production increases are expected. However, there are no new large areas on the horizon that would add 1 to 2 million barrels per day of supply, as the North Sea or the Alaskan North Slope did in the 1970s and 1980s. Therefore, to meet expected strong demand growth, OPEC production and capacity must increase significantly.

As 2004 unfolded, market participants initially focused on inventories, which measure the balance between supply and demand, looking for signs of changing market conditions and resulting price pressures. World petroleum inventories were low for the

first half of 2004, indicating a tight market, but they were not lower than levels seen in 2000 or 2003. Furthermore, 2004 inventories recovered towards year-end before falling sharply again. Yet, prices rose higher in 2004 than in either of those prior years. What was different?

Before answering that question, a couple of qualifications may be worth noting. First, inventories in areas outside of the Organization for Economic Cooperation and Development (OECD) are not well known. Since China is not a member of the OECD, it is possible that some of the market pressure seen in 2004 was not reflected adequately in OECD inventories. Also, while inventories in absolute terms moved to seemingly comfortable levels in 2004, inventories were not high when adjusted for strong demand growth. That is, on a forward cover basis (i.e., the number of days of expected consumption covered by inventories), stocks remained at very low levels throughout most of 2004 (**Figure 4**). While OECD inventories were in the middle of the average range at the beginning of 2005, in terms of forward cover, inventories were near the lows seen in 2000, at just 50 days. While OECD stock levels are expected to stay within the average range throughout 2005, forward cover is expected to drop back to 50 days by the end of the year.

On the supply side, perhaps the most important change in 2004 from recent years was the drop in the world's ability to surge crude oil production, either to fill in for unanticipated loss of supply (e.g., Venezuela or Iraq) or simply to meet unexpected demand strength. **Figure 5** shows an estimate of surplus crude oil production capacity in

OPEC. Since OPEC is generally the only area that maintains short-term surplus production capacity, it effectively represents world spare capacity. At this point, EIA estimates that OPEC has about 1.1 to1.6 million barrels per day of extra production capacity, primarily in one country, Saudi Arabia. At these levels, spare capacity is as tight as at any point since the first Gulf War. As occurred last fall, spare capacity may drop further as global oil demand rises seasonally to peak during the second half of 2005.

In EIA's view, it is the lack of both supply cushions – inventories and spare capacity – in the face of strong demand growth that explains most, if not all, of the price pressure currently evident in oil markets.

In summary, the tight petroleum markets in 2004 and 2005 and associated crude oil price increases differ from those experienced over the past 20 years in that the factors driving recent changes are not short-term in nature. Neither strong demand growth rates nor relatively small crude production capacity increases are likely to shift enough to relieve current price pressures in the near term.

Gasoline Prices, Focusing on California

As indicated previously, crude oil price increases explain much of the rise in gasoline prices seen in 2004 and 2005. Crude oil and petroleum product markets generally move together (**Figure 6**). With average crude oil prices rising by $13.24 per barrel (32 cents per gallon) since last April, gasoline prices followed for the most part. Spot gasoline price spreads over crude oil were high in 2004, reflecting the tight product

and crude oil market situation. However, from January through April, the U.S. spot spreads over crude oil have averaged about 4 cents per gallon less in 2005 than in 2004. This is at least partially due to a weaker gasoline balance in 2005, as reflected in higher gasoline inventories.

California has historically seen some of the highest, and most volatile, gasoline prices in the United States (**Figure 7**). The reasons for the striking differences in the behavior of California gasoline prices, as compared to those in other parts of the United States, are numerous. Several major factors contribute to the problem:

- While the California refinery system supplies most of region's needs, the refinery system runs near its capacity limits, which means there is little excess capability in the region to respond to unexpected shortfalls;
- California is isolated from and lies a great distance from other supply sources (e.g., 14 days' travel by tanker from the Gulf Coast), which prevents a rapid resolution to any supply/demand imbalances;
- The region uses a unique gasoline that is difficult and expensive to make, and as a result, the number of other suppliers who can provide product to the State are limited.

As a result of these factors, refinery outages on the West Coast at times can cause prices to surge. In both California and other U.S. regions, outages typically occur during the first quarter as refiners undergo maintenance prior to the peak summer demand period, and 2005 is no exception. California refinery outages to date in 2005 have not

appeared unusual, and gasoline production through April this year has remained adequate to meet demand without creating unusual gasoline price surges.

California's ban on methyl tertiary butyl ether (MTBE) beginning in 2004 (many refiners phased out MTBE in 2003) added to the State's already tight gasoline balance, as refiners lost production capability when replacing MTBE with ethanol. This, along with continued demand growth, has contributed to price pressures. From 2000 through 2002, California retail gasoline prices averaged about 19 cents per gallon more than the U.S. average gasoline price, but in 2003 as MTBE began to be removed, California prices averaged 27 cents per gallon higher than the U.S. average, and remained at that level through 2004. In 2005, the California gasoline market, apart from crude oil, while tight, seems to be slightly less so than in 2004. From January through May 2, California retail prices have been about 4 cents per gallon closer to U.S. average gasoline prices than they were in 2004.

Forecast

As we look ahead at the remainder of this year and next, EIA expects crude oil prices to remain above $50 per barrel. World demand, while likely growing less than in 2004, is expected to continue relatively strong growth. Projections for 2005 and 2006 call for worldwide growth averaging 2.2 million barrels per day, or 2.6 percent, per year, down from the 3.4 percent growth in 2004. With little excess crude oil production capacity, this growth will be met mainly by expanded capacity in Russia, the Caspian Sea

region, and Saudi Arabia, but the balance between supply and demand is expected to remain tight, leaving little room for error.

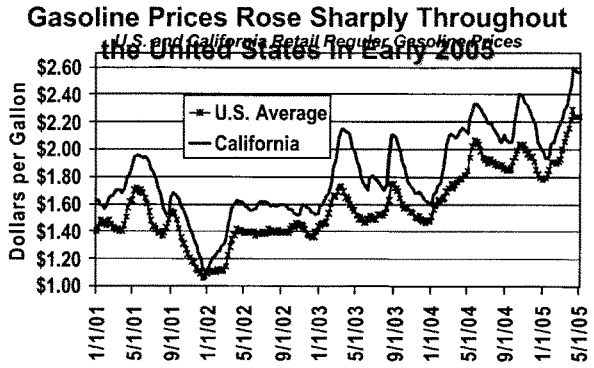
The tight crude oil market also increases the likelihood of continued crude oil price volatility. For example, crude oil prices could ease somewhat over the next few months as world demand relaxes seasonally and refinery maintenance in other parts of the world eases the pull on crude oil supplies. However, as the world's high demand season gets underway in the run-up to winter, crude prices may rise again, possibly to the mid-$50's per barrel, as seen earlier this year. High refinery utilizations and non-fungible product specifications reduce supply response flexibility and thus add to the potential for volatility.

At this point, little is certain. Gasoline markets could turn in either direction. If crude oil prices do not increase further, the United States may have already seen or may lie near its high point for summer gasoline prices. Even so, a second peak towards the end of the driving season is possible if summer demand surges as it did in 2003, even without further increases in the price of crude oil. California's tight market is even more subject to short-term swings in price through the summer months than elsewhere in the United States. In addition, crude oil markets could tighten again as we near the fourth quarter with world demand rising seasonally. If this occurs, crude prices could also contribute to a late summer or early fall increase in gasoline prices.

In summary, for the next several years, consumers can expect gasoline prices in the range of those seen recently. EIA's Summer Outlook, issued April 7th, projects U.S. gasoline prices in 2005 to average $2.28 per gallon for the April to September summer season, 38 cents above last summer. Similar high motor gasoline prices are expected through 2006. Monthly average prices are projected to peak at about $2.35 per gallon in May or June. As in 2004, the primary factor behind these price increases is high crude oil costs. WTI crude oil, for example, is projected to average 37 cents per gallon higher than last summer. High world oil demand will continue to support crude oil prices and increase competition for gasoline imports. In the United States, additional changes in gasoline specifications and tight refinery capacity can be expected to increase operating costs slightly and limit supply flexibility, adding further pressure to pump prices. U.S. motor gasoline demand is projected to reach an average of 9.3 million barrels per day this summer, up 1.8 percent from last summer. Despite high prices, demand is expected to continue to rise due to the increasing number of drivers and vehicles and increasing per-capita vehicle miles traveled.

This concludes my testimony, Mr. Chairman. I would be glad to answer any questions you and the other Members may have.

Figure 1



Source: EIA Weekly Gasoline Survey

Figure 2

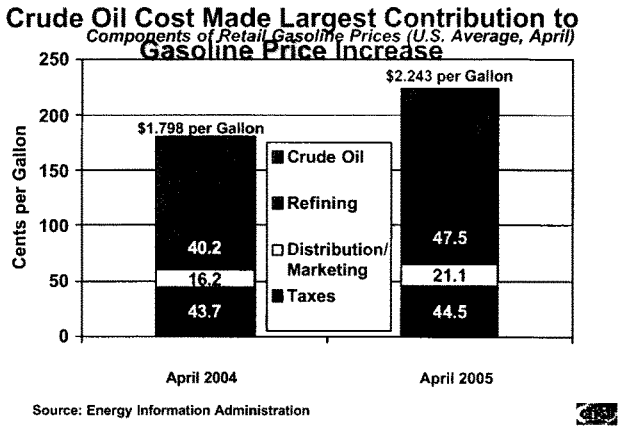
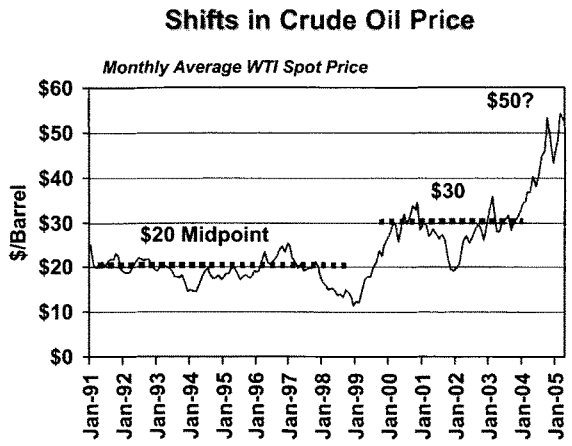

Crude Oil Cost Made Largest Contribution to Gasoline Price Increase
Components of Retail Gasoline Prices (U.S. Average, April)
Cents per Gallon
250
200
150
100
50
0
$1.798 per Gallon
$2.243 per Gallon
40.2
16.2
43.7
47.5
21.1
44.5
Crude Oil
Refining
Distribution/ Marketing
Taxes
April 2004
April 2005
Source: Energy Information Administration

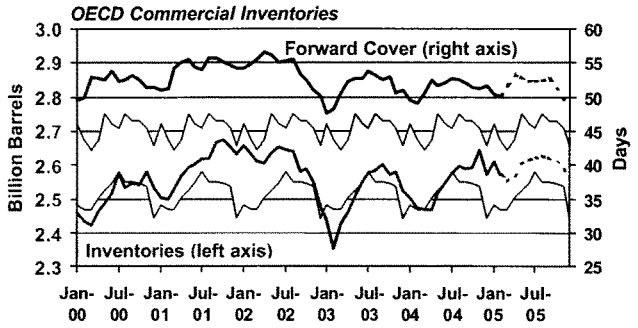
Figure 3



Source: Bloomberg West Texas Intermediate Crude Cushing spot price

Figure 4

Inventories in Normal Range But Forward Cover Low

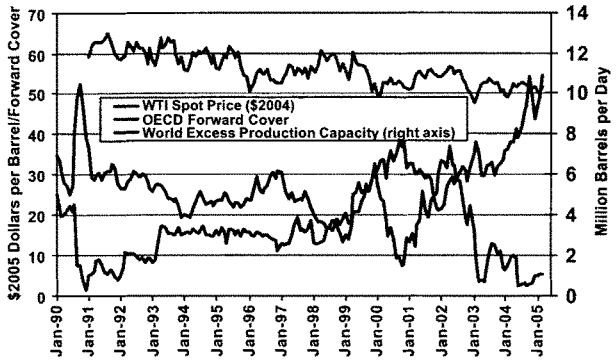


NOTE: Colored Band is Normal Stock Range (5 Year Average +/- 1 standard deviation)

Source: Energy Information Administration

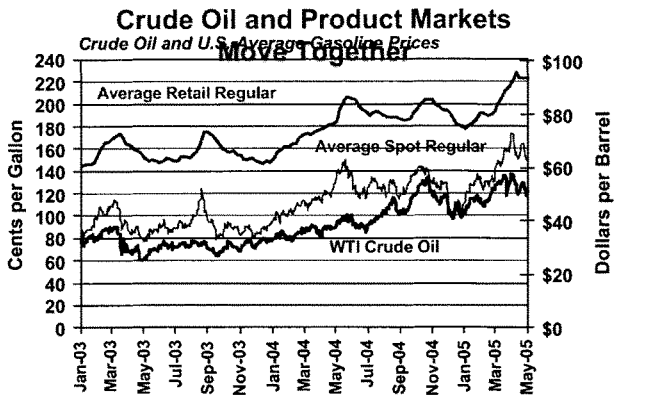
Figure 5

Lack of Excess Capacity and Low Forward Cover Thrust Prices Upward



Sources: WTI: Reuters; OECD Forward Cover: International Energy Agency; World Excess Production Capacity: U.S. Energy Information Administration estimates.

Figure 6

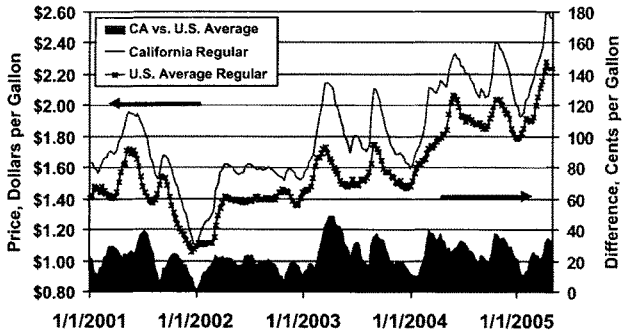


Source: EIA Retail Prices, Reuters Spot Prices

Figure 7

California Prices Moved Slightly Closer to U.S. Average in 2005

U.S. and California Retail Gasoline Price Comparison



Source: Energy Information Administration

John S. Cook, Director, Petroleum Division, Office of Oil and Gas, Energy Information Administration.

Dr. Cook is responsible for collection, publication, and electronic dissemination of crude oil and petroleum product price and volume data and for analysis of petroleum markets. In addition to publishing regular EIA petroleum documents such as the *Petroleum Marketing Monthly*, *Petroleum Supply Monthly*, *Weekly Petroleum Status Report*, and the *Fuel Oil and Kerosene Sales Report*, his staff is responsible for monitoring daily market activity and for providing short-term analyses of petroleum market issues, such as *Price Changes in the Gasoline Market* and *Potential Import Availability of Gasoline and Diesel Fuel Through 2007*. He also works in conjunction with various State agencies to sponsor energy and emergency management conferences during the year.

Dr. Cook began his career as an Assistant Professor of Economics at the University of South Carolina. Before joining EIA, he worked for the Bureau of Labor Statistics, becoming Chief of the Branch of Service Industry Price Indexes, managing publication activities related to transportation price indexes. Dr. Cook has a Ph.D. in economics and a Master of Science degree in mathematics from Purdue University, and a Bachelor of Arts degree in mathematics from Southern Illinois University.

Mr. ISSA. Thank you. We'll hold our questions till the end.

Mr. Jim Wells is Director of the National Resources and Environment Team at the Government Accountability Office. Mr. Wells joined the GAO in 1969, that is a long and distinguished career, and has worked extensively in both energy and environmental issues.

Again, Mr. Wells, thank you for being here. Your entire statement will be put in the record.

STATEMENT OF JIM WELLS

Mr. WELLS. I truly am pleased to participate in the subcommittee's hearing today to discuss today's gasoline prices.

Holding this hearing today in Long Beach, CA, is clearly very appropriate because just last week you set a record. You for the first time had the highest gasoline prices in the Nation surpassing Hawaii. I don't know whether that's a good thing or a bad thing, but there is a lot of pain.

Mr. ISSA. It's a good thing if we pass them in tourism. It's a bad thing if we pass them in gas prices.

Mr. WELLS. Fair enough. There truly is a lot of pain as retail gasoline prices are soaring. Each additional 10 cents per gallon of gasoline adds about $14 billion to the American's annual gasoline bill. Consumers have a lot of questions as they fill up their tanks with 380 million gallons a day, or they read in the newspapers, as Congresswoman Watson talked about, high oil company profits. Will prices get higher? Any chance they'll go down? What can the Federal Government do?

Mr. Chairman, you asked us to be here today based on our work to talk about three questions. So let me just quickly summarize the first question.

How are gasoline prices determined? First, you start with crude oil prices. If gasoline were the meal that you went into a restaurant to buy, clearly the main entree would be crude oil, which represents about 50 percent of the cost of that meal. If crude oil goes up, gasoline prices will follow.

Another general fact is the price of crude is not a U.S. determined commodity price. Crude oil is a worldwide commodity and its price at any single point in time has little to do with the cost that it takes to get it out of the ground. The price is what the market will bear, and how much is demanded, and it depends on how much oil is brought to the market.

When OPEC cuts back on production, prices rise. When demand increases faster than supply, prices rise. That's what we have today. In a sense, the last tanker of oil that's out there in the ocean at the end of the day as its steering toward, it will steer and turn toward that country, whether that might be the United States or whether it might be China, that's willing to pay the highest price for that last barrel of oil. That's how world crude oil price is determined.

In the last 15 months crude oil is up 60 percent to over $50 a barrel. We're going to hear a lot of explanations today about this large increase, and clearly it is being attributed to surging world demand, and particularly as it relates to China and the rest of Asia, instability in the Persian Gulf region, and actions by OPEC

to restrict the production of oil and thereby increasing the price on the world market.

I want to look a moment to—John Cook had a chart on the board that talked about what is involved in the cost of a gallon of gasoline. On page 8 of my statement we have a chart there that talks about the components, the crude oil, the taxes, the refining, and the marketing and distribution.

These are the main prices and pieces of a gallon of gasoline. You're paying for these ingredients, the cost to make it, and then you have to move it to your local filling stations, but clearly this also includes the amount of the profit, and in the marketplace and perhaps API will talk about that today—that will allow the industry to earn on delivering that gallon of gasoline as well as the Federal and State and local taxes that are imposed on a gallon of gasoline.

As John mentioned, a number of other factors also play a role. Refining capacity, you'll hear that today, in the United States is very tight. Meaning that we're already producing about as much as our existing 149 refineries can. Our refinery numbers are down over 300 refineries that were in existence in the 1980's, and we've now dropped to 149 refineries. We're importing about 42 million gallons of gasoline per day to help meet this demand.

The volume of inventories is another issue. What's maintained by refineries in today's environment is typically low, 23 days' worth of supply as compared to 40 days of supply in the 1980's.

The regulatory factors that are imposed on the industry are also playing a fairly significant role. For example, in order to meet the National Air Quality Standards under the Clean Air Act, many States have adopted the use of special gasoline blends, so-called "Boutique Fuels," which cost more to make, and they are clearly putting stress on the gasoline supply system in existence today.

Finally, the structure of the gasoline market that we have in this country has changed. It's different than it used to be. For example, a wave of mergers of the oil companies. We had a report last year that Congressman Watson talked about, 2600 mergers occurred in a 10-year period. We have a lot of loss of mom-and-pop dealers that have changed the gasoline market. And many of this could possibly lead to higher gasoline prices at the pump.

If I can, turning to question 2, why are prices so high in California? For example, at the end of April when the national average price was $2.20, California's price was $2.57. Explanation for why California prices have been high include California's unique gasoline blend, which I might add is the cleanest burning in the Nation, and it is also the most expensive. Some studies have estimated it as much as 5 to 15 cents more to contribute to that clean gasoline.

There's a tight balance between supply and demand here on the West Coast. There's a long distance to replace any gasoline in the event of supply disruptions. The term used many times is that California is an island of itself in terms of the ability to bring in supply.

California also has a high level of gasoline taxes. California currently taxes gasoline at—a gallon of gasoline at 57 cents, 30 cents per gallon more than the State with the lowest, which is Alaska.

I don't want to imply that anything is wrong with these factors. They just represent choices, choices that are made and agreed to.

Internationally, taxes, the United Kingdom, Germany have imposed $4 taxes on gasoline. Canada's a dollar. Throughout the world the U.S.' taxing structure is the lowest for gasoline products.

The third question was: What does the future look like? In one way it's simple. Future gasoline prices will reflect the world's supply and demand. Demand is expected to rise. For example, instead of using 20 million barrels per day, EIA has estimated that we'll need approximately 28 million barrels in the future.

Demand in the rest of the world is also rising even faster than what it is in the United States. A big question is: Do we have the world capacity to expand to keep up? GAO really doesn't know. A lot of studies and a lot of people need to look at that. Are we, in fact, running out of oil? We have been asked by the House to do another investigation to look at where the status is on world oil reserves, and we will begin that shortly.

However, I don't want to leave the impression that it's all gloom and doom for the future. In the past oil companies have always managed to find enough oil to meet demand, and we clearly have technology improvements. We're getting smarter. We have better equipment, and this may continue to be the case in the future.

Further, consumers can choose to be more energy efficient and use different kinds of products, and otherwise they can make a choice to conserve more energy. For example, in 1980 many consumers, when prices rose, chose to switch to smaller and more fuel-efficient vehicles. That was in the 1980's.

Mr. Chairman, if I could refer to a picture that appeared in the USA Today newspaper today, you have a picture of the President of the United States and the President of Russia, President Putin, carpooling. They're in their car carpooling. This is an example of walking the talk, perhaps, in terms of things that can be done immediately in fixes.

Mr. ISSA. I wouldn't do it with a 1950 Volvo. That was not a sterling example of a fuel efficient automobile, nor environmentally sensitive.

Mr. WELLS. Would you agree with me it's an example of carpooling, perhaps?

Mr. ISSA. I just wonder how many SUVs are following those two heads of state.

Mr. WELLS. Today, Mr. Chairman, we have 200 million vehicles in some mix of SUVs and newer hybrids. Maybe that mix will change. I notice you're driving a hybrid. Ford, Honda, Toyota sold 16,000 hybrids in March 2005, this year. 83,000 new hybrids were registered in the year 2004. That is small, but it is making a dent.

Although not in the short-term, clearly there are some other things that will impact the future—where will the price of gasoline be in the future? The pace of the developing alternative energy supplies such as the hydrogen fuel cell technology clearly does hold promise.

There are additional unpredictable factors on the downside that may include geopolitical issues such as the stability in the Middle East, Venezuela, and the valuation of the U.S. dollar in world currencies. Because of the price paid for oil that we buy is denomi-

nated in U.S. dollars, the U.S. buying power can be a major factor for the future. If the dollar falls, the oil-producing countries that are collecting these dollars will demand more dollars in return for their oil, which will have some impact, potentially major impact, on the price in the future.

Mr. Chairman, in closing, it is possible that low energy prices may be gone forever. Some think that the $50 barrel of oil may be here to stay, which you heard from the EIA today that at least through 2005. While there's even some predictions in the financial community that have predicted a $100 barrel of oil, but this is far from a sure thing. Holding this hearing is a great first step in getting a better understanding of what paths may be available to help steer the energy policy that you, Mr. Chairman, have talked about in the Congress. Clearly striking that balance between efforts to boost supplies on the one hand, to improve efficiencies and to conserve energy on the other hand are going to present challenges as well as opportunities to make a difference on what prices we pay for gasoline in the future. How we choose to meet those challenges is an opportunity that perhaps we need to seize and to help determine the quality of life and the economic prosperity of the United States in the future.

Finally, I think most of us here today would agree, and clearly in the audience behind me that what is true for the Nation as a whole is even more dramatically so here in California. California needs a lot of gasoline to grow.

Mr. Chairman, this completes my prepared statement and I look forward to responding to questions.

[The prepared statement of Mr. Wells follows:]

United States Government Accountability Office

GAO

Testimony

Before the Committee on Government Reform, Subcommittee on Energy and Resources

For Release on Delivery
Expected at 1:30 p.m. PDT
Monday, May 9, 2005

ENERGY MARKETS

Understanding Current Gasoline Prices and Potential Future Trends

Statement of Jim Wells, Director
Natural Resources and Environment

GAO-05-675T

May 9, 2005

GAO
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Highlights

Highlights of GAO-05-675T, a report to House Committee on Government Reform, Subcommittee on Energy and Resources

ENERGY MARKETS

Understanding Current Gasoline Prices and Potential Future Trends

Why GAO Did This Study

Gasoline prices have increased dramatically in recent weeks and currently, California has the highest gasoline prices in the nation. Consequently, consumers are expected to spend significantly more on gasoline this year than last. Specifically, EIA recently projected that, because of higher expected gasoline prices, the average American household will spend about $350 more on gasoline in 2005 than they did in 2004. Understandably, the public and the press have focused on these higher gasoline prices and some have questioned why this is happening Moreover, people are concerned about the future, with some analysts projecting prices of crude oil—the primary raw material from which gasoline is produced—to remain at current high levels or even increase. Other analysts expect prices to fall as new oil supplies are developed and as consumers adjust to the current high prices and adopt more energy-efficient practices.

This testimony, as requested, address factors that help explain today's high gasoline prices in the nation as a whole and specifically in California. In addition, potential trends that may impact future prices of crude oil and gasoline are addressed.

www.gao.gov/cgi-bin/getrpt?GAO-05-675T.

To view the full product, including the scope and methodology, click on the link above For more information, contact Jim Wells at (202) 512-3841 or wellsj@gao.gov.

What GAO Found

Crude oil prices and gasoline prices are linked, because gasoline is derived from the refining of crude oil. As a result, crude oil prices and gasoline prices generally follow a similar, albeit not identical, pattern over time. For example, from January 2004 to the present (April 25, 2005), the price of West Texas Intermediate crude oil rose by almost $20 per barrel, an increase of almost 60 percent, while over the same period, average gasoline prices rose nationally from $1.49 to $2.20 per gallon, an increase of 48 percent. Explanations for this large increase in crude oil and gasoline prices include rapid growth of world demand for crude oil and petroleum products, instability in the Persian Gulf region, and actions by the Organization of Petroleum Exporting Countries (OPEC) to restrict the production of crude oil and thereby increase its price on the world market. In addition to the cost of crude oil, gasoline prices are influenced by a variety of other factors, including refining capacity constraints, low inventories, unexpected refinery or pipeline outages, environmental and other regulations, and mergers and market power in the oil industry.

Gasoline prices in California, and in other West Coast states, have consistently been among the highest in the nation and recent experience is no different. For the last week in April, the price of regular grade gasoline in California was $2.57 per gallon, about 37 cents above the national average. Explanations for California's higher than average gasoline prices include (1) California's unique gasoline blend, which is cleaner burning and more expensive to produce than any of the other commonly used gasoline blends; (2) a tight balance between supply and demand in the West Coast, and the long distance to any viable sources of replacement gasoline in the event of local supply disruptions; and (3) California's higher level of gasoline taxes—California currently taxes a gallon of gasoline at 30 cents per gallon more than the state with the lowest taxes, Alaska. Some sources have also attributed high gasoline prices, in part, to the fact that California's refining sector is more concentrated in the hands of fewer companies than in other refining areas, such as the Gulf Coast.

Future gasoline prices will, in large part, be determined by the supply and demand for crude oil and its price on the world market. World crude oil demand is projected to rise, so new sources will have to be developed or prices will rise. Technological innovations that reduce the cost of finding or extracting crude oil could reduce prices, other things remaining constant. Greater conservation, or improvements in energy efficient technologies could also mitigate rising demand and reduce upward pressure on prices. In addition, alternative fuel sources may become more economical, thereby supplanting some of the demand for crude oil and gasoline in the future.

America faces daunting challenges in meeting future energy demands, and policy makers must choose wisely to ensure that the country can meet these demands, while balancing environmental and quality of life concerns.

Mr. Chairman and Members of the Subcommittee:

I am pleased to participate in the Subcommittee's hearing to discuss today's gasoline prices and the factors behind future trends in those prices. Soaring retail gasoline prices have garnered much media attention and generated much public anxiety, particularly in a state as dependent on gasoline as California. According to data published by the American Automobile Association, since a year ago, average national gasoline prices have increased 23 percent to $2.24, with average prices in California currently at $2.63 per gallon, 25% more than in New Jersey, which has the nation's lowest average prices. In the Los Angeles area, prices have increased 20 percent to $2.60 in the same period. According to the Department of Energy's Energy Information Administration (EIA), which compiles and analyzes energy statistics, higher expected gasoline prices in 2005 will increase the average American household's spending on gasoline by about $350 over 2004 expenditures. Nationally, each additional ten cents per gallon of gasoline adds about $14 billion to America's annual gasoline bill. Still, when adjusted for inflation, gasoline prices are not at an all time high—the highest inflation adjusted prices occurred in 1981 and were equivalent to a price of about $3.00 today. In addition, U.S. consumers pay less for a gallon of gasoline than consumers in many other industrialized nations, in large part because the United States imposes much lower taxes on gasoline than these other countries.

The availability of relatively inexpensive gasoline has helped foster economic growth and permitted a quality of life not widely available across the globe. Large price increases, especially if sustained over a long period, pose long term challenges to consumers. In this regard, some recent analyses suggest that gasoline prices may stay at today's relatively high level or even increase significantly in the future. For example, some analysts have projected that the price of crude oil—the primary raw material in the production of gasoline—while changing from day-to-day, may remain in the vicinity of current levels for some time. One analysts has even projected that oil may reach $105 per barrel in coming years—almost double the current price. In contrast, others suggest that crude oil prices—and therefore, gasoline prices—will fall as oil companies invest in

more crude oil producing capacity and as consumers respond to higher prices by adopting more energy-efficient practices. Regardless of what happens in the future, the impact of gasoline prices is felt in virtually every sector of the U.S. economy and when prices increase sharply, as they have in recent months, consumers feel it immediately and are reminded every time they fill up their tanks or read in the newspapers about high oil company profits.

It is therefore essential to understand the market for gasoline. In this context, you asked us to discuss (1) how gasoline prices are determined nationally, (2) what factors cause California's prices to be consistently among the nation's highest, and (3) some of the important factors that will determine gasoline prices in the long run. You also requested that we provide some graphical depiction of gasoline prices and other relevant data and we include these in appendix 1 of this document.

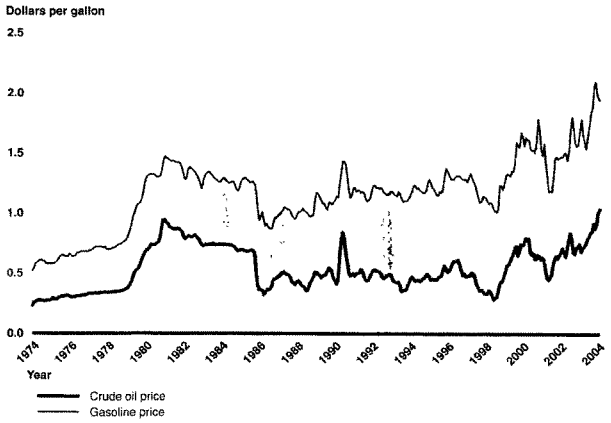
To respond to your questions, we relied heavily on previous work on gasoline prices and other aspects of the petroleum products industry and collected updated data from a number of sources that we deemed reliable. This work was performed in accordance with generally accepted government auditing standards.

In summary, our work has shown:

- Crude oil prices and gasoline prices are inherently linked, because crude oil is the primary raw material from which gasoline and other petroleum products are produced—when crude oil prices fluctuate, gasoline prices generally follow a similar pattern. In recent months, crude oil prices have risen significantly—from January 2004 to the present (April 25, 2005), the price of West Texas Intermediate crude oil, a benchmark for international oil prices, has risen by almost $20 per barrel, an increase of almost 60 percent. Over the same period, average gasoline prices rose nationally from $1.49 to $2.20 per gallon, an increase of 48 percent. Explanations for this large increase in crude oil and gasoline prices include rapid growth of world demand for crude oil and petroleum products, particularly in

China and the rest of Asia, instability in the Persian Gulf region (the source of a large proportion of the world's oil reserves), and actions by the Organization of Petroleum Exporting Countries (OPEC) to restrict the production of crude oil and thereby increase its price on the world market. Figure one illustrates the relationship between crude oil and gasoline prices over the past three decades. The figure shows that major upward and downward movements of crude oil prices are generally mirrored by movements in the same direction by gasoline prices.

Figure 1: Gasoline and Crude Oil Prices—1974-2004 (Not adjusted for inflation)



Source: GAO analysis of Energy Information Administration, Department of Energy, Monthly Energy Review, Monthly Refiner Acquisition Cost of Crude Oil, Composite and and Bureau of Labor Statistics, Monthly Motor Gasoline Prices, U.S. City Averages, Regular Gasoline.

- While crude oil is a fundamental determinant of gasoline prices, a number of other factors also play a role in determining how gasoline prices vary across different locations and over time. For example, refinery capacity in the United States has, in recent years, not expanded at the same pace as demand for gasoline and other petroleum products—during the same period we have imported larger and larger volumes of gasoline from Europe, Canada, and other countries. It is important to

note that imports are not, in and of themselves a problem—frequently imported goods are available at lower prices than domestically produced goods. However, the American Petroleum Institute has recently reported that U.S. refinery capacity utilization has increased to 92 percent. As a result, domestic refineries have little room to expand production in the event of a temporary supply shortfall. Further, the fact that imported gasoline comes from farther away than domestically produced gasoline means that when supply disruptions occur in the United States, it might take longer to get replacement gasoline than if we had excess refining capacity in the United States, and this could cause gasoline prices to rise and stay high until these new supplies can reach the market. In addition, refinery accidents and other localized supply disruptions have at times caused price spikes especially at the state or regional level. Recently, a tragic fire at a BP refinery in Houston killed 15 people and temporarily shut down about 3 percent of the nation's refining capacity—while this event has not been definitively linked to increased prices, such events in the past have, at times, had major effects on prices.

- The volume of inventories of gasoline, maintained by refiners or marketers of gasoline, can also have an impact on prices. As with trends in a number of other industries, the petroleum products industry has seen a general downward trend in the level of gasoline inventories in the United States. Lower levels of inventories may cause prices to be more volatile because when a supply disruption occurs, there are fewer stocks of readily available gasoline to draw from, which puts upward pressure on prices. Regulatory factors also play a role. For example, in order to meet national air quality standards under the Clean Air Act and amendments, many states have adopted the use of special gasoline blends—so-called "Boutique Fuels." Many experts have concluded that the proliferation of these special gasoline blends has caused gasoline prices to rise and/or become more volatile, especially in regions such as California that use unique blends of gasoline, because the fuels have increased the complexity and costs associated

with supplying gasoline to all the different markets. Finally, the structure of the gasoline market can play a role in determining prices. For example, we recently reported that some mergers of oil companies during the 1990s led to reduced competition among gasoline suppliers and may have been responsible for an increase in gasoline prices by as much as 2 cents per gallon.

- Gasoline prices in California, and in other West Coast states, have consistently been among the highest in the nation and recent experience is no different. For example, for the last week in April, when the national average price for regular grade gasoline was $2.20, the California price was $2.57. Explanations for why California's prices have been higher than the national average include (1) California's unique gasoline blend, which is cleaner burning and more expensive to produce than any of the other commonly used gasoline blends; (2) a tight balance between supply and demand in the West Coast, and the long distance to any viable sources of replacement gasoline in the event of local supply disruptions; and (3) California's higher level of gasoline taxes—California currently taxes a gallon of gasoline at 30 cents per gallon more than the state with the lowest taxes, Alaska.

- Future gasoline prices will reflect world supply and demand balance. If demand for oil and petroleum products continues to rise as it has in past years—EIA projects that U.S. demand for crude oil will rise about 38 percent by the year 2025—then oil supply will have to expand significantly to keep up. Currently, world surplus crude oil production capacity—the amount by which oil production can be increased in the short run without installing more drilling equipment or developing new oil fields—is very small. Moreover, many of the world's known and easily accessible crude oil deposits have already been developed and many of these are experiencing declining volumes as the fields become depleted. As a result, new production facilities will have to be built, and perhaps new oil deposits will need to be developed, to meet rising demand for gasoline and other petroleum products. In so doing, entities may encounter higher costs of

extracting and processing oil. For example, there are large stores of crude oil in tar sands and oil shale, or potentially beneath deep water in the ocean, but these sources are more costly to extract and process than many of the sources of oil that we have already tapped. To the extent that extraction and processing costs rise, the price of crude oil and the petroleum products made from it will have to rise to make supplying it economically viable. If, on the other hand, technological innovations improve our ability to extract and process oil, this will increase the available future supply and ease pressure on petroleum product prices.

- Although demand for crude oil is projected to increase, it could fall below current expectations if consumers choose more energy efficient products or otherwise conserve more energy. Such a reduction in demand could lead to lower-than-expected future prices. For example, in response to high gasoline prices in the United States, in the 1980s many consumers chose to switch to smaller or more fuel-efficient vehicles, which reduced demand for gasoline. Environmental issues could also have an impact on world crude oil and petroleum product prices. For example, international efforts to reduce greenhouse emissions could cause reductions in demand for crude oil and petroleum products as more fuel-efficient processes are adopted or as cleaner sources of energy are developed. Additional factors that will likely influence future oil and gasoline prices include geopolitical issues, such as the stability of the Middle East; the valuation of the U.S. dollar in world currency markets; and the pace of development of alternative energy supplies, such as hydrogen fuel cell technology.

Background

In 2004, the United States consumed about 20.5 million barrels per day of crude oil accounting for roughly 25 percent of world oil production. A great deal of the crude oil consumed in this country goes into production of gasoline and, as a nation, we use about 45 percent of all gasoline produced in the world.[1] California alone presently consumes almost 44 million gallons of gasoline per day. To put this in perspective, in 1997 (the last year for which we found available data for international comparisons), only the rest of the United States and Japan consumed more gasoline than California.

Products made from crude oil—petroleum products, including gasoline—have been instrumental in the development of our modern lifestyle. In particular, gasoline, diesel, and jet fuel have provided the nation with affordable fuel for automobiles, trucks, airplanes and other forms of public and goods transportation. Together, these fuels account for over 98 percent of the U.S. transportation sector's fuel consumption. In addition, petroleum products are used as raw materials in manufacturing and industry; for heating homes and businesses; and, in small amounts, for generating electric power. Gasoline use alone constitutes about 44 percent of our consumption of petroleum products in the United States, so when gasoline prices rise, as they have in recent months, the effects are felt throughout the country, increasing the costs of producing and delivering basic retail goods and making it more expensive to commute to work. It is often the case that prices of other petroleum products also increase at the same time and for the same reasons that gasoline prices rise. For example, today's high gasoline prices are mirrored by high jet fuel prices, which have put pressure on airline companies, some of which are currently in the midst of financial difficulties.

[1]The large percentage of total world gasoline production that is consumed by the United States partly reflects the fact that diesel is a commonly used fuel for cars in Europe, while U.S. cars primarily run on gasoline. If all motor vehicle fuels were accounted for, the United States' share of these fuels would be smaller than its share of gasoline. However, we do not have the data to present this more comprehensive measure.

Gasoline prices vary a great deal over time. For example, in the 10-year period April 1995 through April 2005, the national average price for a gallon of regular grade gasoline has been as low as $0.89 and as high as $2.25 without adjusting for inflation. In addition, gasoline prices vary by location and, in recent years, California has consistently had among the highest prices in the nation.

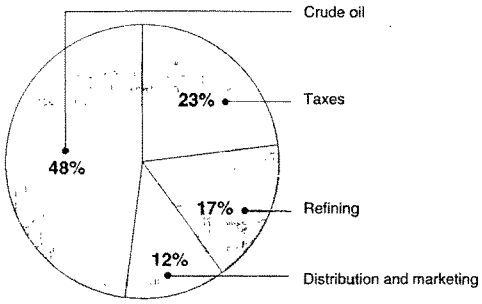
The future path of gasoline prices is difficult to predict, but it is clear that the use of petroleum products worldwide is going to increase for the near term and maybe beyond. Some analysts have predicted much higher crude oil prices—and as a result, higher prices of petroleum products—while others expect prices to moderate as producers respond to high prices by producing more crude oil and consumers respond by conserving more, and investing in more energy-efficient cars and other products. In either case, the price of gasoline will continue to be an important part of the household budgets of Americans for the foreseeable future and therefore, it is important to understand how prices are determined so that consumers can make wise choices.

Gasoline Prices Are Determined by the Price of Crude Oil and a Number of Other Factors

Crude oil prices feed directly into the price of gasoline, because crude oil is the primary raw material from which gasoline is produced. For example, according to our analysis of EIA data, crude oil accounted for about 48 percent of the price of a gallon of gasoline on average in 2004 in the United States.[2] When crude oil prices rise, as they have in recent months, refiners find their cost of producing gasoline also rises, and in general, these higher costs are passed on to consumers in the form of higher gasoline prices at the pump. Figure 2 illustrates the importance of crude oil in the price of gasoline. The figure also shows that taxes, refining, and distribution and marketing also play important roles.[3]

[2] EIA also lists taxes; refining costs and profits; and distribution and retail marketing costs and profits as other components of gasoline prices.
[3] The latter two categories, refining, and distribution and marketing, includes costs associated with these activities as well as profits. The figure is a snapshot of how much each component contributes to the price

Figure 2: Elements in the Price of a Gallon of Gasoline (Average for 2004)



Source: GAO analysis based on EIA data

Because of the prominent role of crude oil as a raw material of gasoline production, in order to understand what determines gasoline prices it is necessary to examine how crude oil prices are set. Overall, the price of crude oil is determined by the balance between world demand and supply. A major cause of rising crude oil prices in recent months has been rapid growth in world demand, without a similar growth in available supplies. In particular, the economy of China has grown rapidly in recent years, leading to increases in their demand for crude oil. In contrast, oil production capacity has grown more slowly, leading to a reduction in the surplus capacity—the amount of crude oil that is left in the ground, but could be extracted on short notice in the event of a supply shortfall. EIA has stated that the world's surplus crude oil production capacity has fallen to about one million barrels per day, or just over one percent of the world's current daily consumption, making the balance between world demand and supply of crude oil very tight. This tight balance between world crude oil demand and supply means that any significant supply disruptions will likely cause prices to rise. For example, a workers' strike in Nigeria's oil sector in October 2004 forced world crude oil prices to record highs

of a gallon of gasoline, and the relative proportions attributable to each component vary over time as crude oil prices and other factors change.

(Nigeria is the world's seventh largest oil producer, supplying an average 2.5 million barrels per day in 2004).

Another important factor affecting crude oil prices is the behavior of the Organization of Petroleum Exporting Countries (OPEC)–members of which include Algeria, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela. OPEC members produce almost 40 percent of the world's crude oil and control almost 70 percent of the world's proven oil reserves. In the recent past and on numerous other occasions, OPEC members have collectively agreed to restrict production of crude oil in order to increase world prices for that commodity.

In addition to the cost of crude oil, gasoline prices are influenced by a variety of other factors, including refining capacity constraints, low inventories, unexpected refinery or pipeline outages, environmental and other regulations, and mergers and market power in the oil industry.

First, domestic refining capacity, has not kept pace with growing demand for gasoline. As demand has grown faster than domestic refining capacity, the United States has imported larger and larger volumes of gasoline and other petroleum products from refiners in Europe, Canada, and other countries. EIA officials told us that, in general, this increase in imports has reflected the availability of gasoline from foreign sources at lower cost than building and operating additional refining capacity in the United States would entail. However, the American Petroleum Institute (API) has recently reported that capacity utilization has been high in the U.S. refinery sector. Capacity has typically averaged over 90 percent, and has recently increased to 93 percent—much higher than the rate in many other industries, which API reports are more typically operating at around 80 percent of capacity. As a result, domestic refineries have little room to expand production in the event of a temporary supply shortfall. Further, the fact that imported gasoline comes from farther away than domestically produced gasoline means that when supply disruptions occur in the United States, it might take longer to get replacement gasoline than if we had excess refining capacity in the United States, and

this could cause gasoline prices to rise and stay high until these new supplies can reach the market.

Gasoline prices may also be affected by unexpected refinery outages or accidents that significantly disrupt the delivery of gasoline supply. For example, in a recent report, we found that unexpected refinery outages had been a factor in a number of prices spikes in California in the 1990s. More recently, the tragic explosion and subsequent fire at a BP refinery in Houston, that killed 15 people, temporarily shut down nearly 4 percent of the nation's refining capacity. While we have not analyzed the potential impact on gasoline prices of this specific event, similar events in the past have caused temporary increases in prices until alternative sources of supply can be brought to market. Pipeline disruptions can have a similar effect, as was seen when Arizona's Kinder Morgan pipeline broke in July 2003 and average gasoline prices jumped 56 cents in a month in Arizona. In addition, tanker spills, and other similar events can all have an impact on gasoline prices at various points in time because they cause interruption in the supply of crude oil or petroleum products, such as gasoline.

The level of gasoline inventories can also play an important role in determining gasoline prices over time because inventories represent the most accessible and available source of supply in the event of a production shortfall or increase in demand. Similar to trends in other industries, the level of inventories of gasoline has been falling for a number of years. In part, this reflects a trend in business to more closely balance production with demand in order to reduce the cost of holding large inventories. However, reduced inventories may contribute to increased price volatility, because when unexpected supply disruptions or increases in demand occur, there are lower stocks of readily available gasoline to draw from. This puts upward pressure on gasoline prices until new supplies can be refined and delivered domestically, or imported from abroad.

Regulatory steps to reduce air pollution have also influenced gasoline markets and consequently have influenced gasoline prices. For example, since the 1990 amendments to the Clean Air Act, the use of various blends of cleaner-burning gasoline—so-called

"boutique fuels—has grown. A number of reports by government agencies, academics, and private entities have concluded that the proliferation of these special gasoline blends has put stress on the gasoline supply infrastructure and may have led to increased price volatility because areas that use special blends cannot as easily find suitable replacement gasoline in the event of a local supply disruption. However, these special gasoline blends provide environmental and health benefits because they reduce emissions of a number of pollutants. GAO is currently working on a report on special gasoline blends that will look at these issues and discuss the effects of these special blends on emissions and on the supply system.

Finally, we recently reported that industry mergers increased market concentration and in some cases caused higher wholesale gasoline prices in the United States from the mid-1990s through 2000.[4] Overall, the report found that the mergers led to price increases averaging about 2 cents per gallon on average. For conventional gasoline, the predominant type used in the country, the change in the wholesale price, due to specific mergers, ranged from a decrease of about 1 cent per gallon—due to efficiency gains associated with the merger—to an increase of about 5 cents per gallon—attributed to increased market power after the merger. For special blends of gasoline, wholesale prices increased by from between 1 and 7 cents per gallon, depending on location.

California's Unique Gasoline and Isolation from Other Markets Contribute to its Higher Gasoline Prices

California, and the West Coast states more generally, have consistently had among the highest gasoline prices in the nation. For example, California's gasoline prices averaged about 21 cents more per gallon than national gasoline prices over the last ten years. In addition, California has at times had more volatile gasoline prices than the rest of the country. For example, in an earlier report on California gasoline prices, we noted that,

[4] *Energy Markets: Effects of Mergers and Market Concentration in the U.S. Petroleum Industry (GAO-04-96, May 2004).*

while gasoline prices did not spike more frequently than in the rest of the United States, California's gasoline price spikes were generally higher.[5]

Many of the factors influencing gasoline prices nationwide have had an even more dramatic effect on California prices. For example, California's high gasoline prices have been attributed, in part, to its cleaner burning gasoline. In response to air quality problems and in order to meet air quality standards resulting from the Clean Air Act and amendments, California adopted a unique blend of gasoline in 1996 that increased refining costs and likely caused prices of gasoline in the state to rise. California's blend of gasoline is unique in the United States and, according to EPA models, is the cleanest burning of all the widely used special gasoline blends in the country. This gasoline blend is also very difficult to make, and those refineries that chose to make it had to install expensive new equipment and refining processes in order to meet the specifications of the gasoline. Some studies have suggested that the current blend of California gasoline costs between 5 and 15 cents more per gallon to make than conventional gasoline. It is likely that these costs are passed on, at least in part, to consumers.

In addition, in recent years, California has developed a tight balance between supply and demand, which has at times led to sharper or longer price spikes when supply disruptions have occurred. Expansion of the gasoline supply infrastructure has not kept pace with growing demand, and as a result, the California refinery system has run at near capacity. For example, according to EIA testimony before the Congress, demand for gasoline in California has grown at roughly two to four times production capacity growth. California Energy Commission staff told us that the tight supply and demand balance has led to large price movements in response to even small supply disruptions, caused by refinery outages and other events.

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[5] GAO, *Motor Fuels: California Gasoline Price Behavior,* GAO/RCED-00-121 (Washington, D.C.: April 28, 2000).

Moreover, supply disruptions may have a larger impact on California than on other states. First of all, only a few refineries outside of the state can produce California's special blend of gasoline. In addition, there are no major pipelines connecting the state with other major refining areas. Therefore, if supply is disrupted in California, gasoline must be brought in from the few refineries outside the state that make California's blend of gasoline—often from as far away as the Gulf Coast or beyond. And because of the lack of pipeline access to the state, tankers and other means must be used, and the process is slow. For example, we recently reported that gasoline shipped into California by tanker from such places as the Gulf Coast, the U.S. Virgin Islands, Europe, and Asia, can take between 11 and 40 days and added 3 to 12 cents per gallon to the retail price.

Another factor contributing to the prices Californians pay at the gasoline pump is that residents of California pay comparatively higher gasoline taxes than residents in many other states. For example, at about 57 cents per gallon on average, California's total gasoline tax rate is among the highest, behind only New York and Hawaii, and is 30 percent higher than the national average of 44 cents per gallon, according to a November 2004 survey by the American Petroleum Institute.

In our recent report on oil industry mergers discussed earlier in this testimony, we found that the highest price impact of mergers—about 7 cents per gallon of gasoline—was in California. In addition, the California Attorney General recently reported that California's gasoline industry is more concentrated than that of the rest of the United States, with California's six largest refiners controlling more than 90 percent of refining capacity. The California Attorney General noted further, that these six refiners in California control a majority of the terminal facilities and 85 percent of the retail locations in the state. To the extent that these factors lead to greater market power on the part of refiners or gasoline marketers, prices may be higher as a result. However, we have not analyzed this directly.

Future Oil and Gasoline Prices Will Reflect Supply/Demand Balance, but Technological Change and Conservation Will Also Play a Role

Looking into the future, daunting challenges lie ahead in finding, developing, and providing sufficient quantities of oil to meet projected global demand. For example, according to EIA, world oil demand is expected to grow to nearly 103 million barrels per day in 2025 under low growth assumptions, and may reach as high as 141 million barrels per day in 2025 —increases of between 25 and 71 percent, from the 2003 consumption level of 83 million barrels per day. For the United States alone, EIA estimates that oil consumption will increase by between 1.2 and 1.9 percent annually through 2025 depending on assumptions about economic growth and other factors. Looking further ahead, the rapid pace of economic growth in China and India, two of the world's most populous and fastest growing countries, may lead to a similarly rapid increase in their demand for crude oil and petroleum products. While these countries currently consume only a small fraction of world crude oil, the pace of their demand growth could have far reaching implications if recent trends continue. For example, consumption of oil by China and India is currently far below that of the United States, but is projected to grow at a more rapid rate. EIA's medium-growth projections estimate that oil consumption for China and India will grow by about 4 percent annually through 2025, while consumption in the U.S. is projected to grow at an annual rate of 1.6 percent over the same period.

To meet the rising demand for gasoline and other petroleum products, new oil deposits will likely be developed and new production facilities built. Currently, many of the world's known and easily accessible crude oil deposits have already been developed, and many of these are experiencing declining volumes as fields become depleted. For example, the existing oil fields in California and Alaska have long since reached their peak production, necessitating an increasing volume of imported crude oil to West Coast refineries.[6] Developing new oil deposits may be more costly than in the past, which

[6] Even if new oil fields are developed in the Arctic National Wildlife Refuge, by the time these fields reach their expected peak production of 876,000 barrels per day, according to EIA projections, U.S. demand at this time would have increased by far more than this amount.

could put upward pressure on crude oil prices and the prices of petroleum products derived from it. For example, some large potential new sources, such as oil shales, tar sands, and deep-water oil wells, require different and more costly extraction methods than are typically needed to extract oil from existing fields.[7] In addition, the remaining oil in the ground may be heavier and more difficult to refine, necessitating investment in additional refinery processes to make gasoline and other petroleum products out of this oil. If developing, extracting, and refining new sources of crude oil are more costly than extracting and refining oil from existing fields, crude oil and petroleum product prices will rise to make these activities economically feasible.

On the other hand, technological advances in oil exploration, extraction, and refining could mitigate future price increases. In the past, advances in seismic technology significantly improved the ability of oil exploration companies to map oil deposits, which enabled them to ultimately extract the oil more efficiently, thereby getting more out of a given oil field. In addition, improvements in technology have enabled oil companies to drill in multiple directions from a single platform, and also to pin-point specific oil deposits more accurately, which has led to increases in the supply of crude oil. Further, refining advances over the years have also enabled U.S. refiners to increase the yield of gasoline from a given barrel of oil—while the total volume of petroleum products has remained relatively constant, refiners have been able to get more of the more valuable components, such as gasoline, out of each barrel, thereby increasing the supply of these components. Further technological improvements that lower costs or increase supply of crude oil or refined products would likely lead to lower prices for these commodities.

Similarly, innovations that reduce the costs of alternative sources of energy could also reduce the demand for crude oil and petroleum products, and thereby ease price pressures. For example, hydrogen is the simplest element and most plentiful gas in the universe and its use in fuel cells produces almost no pollution. In addition, hydrogen fuel

[7] We are currently working on a report on global oil reserves that will address the constraints on global supply due to tapped oil reserves and the difficulty in extraction.

cell cars are expected to be roughly three times more fuel-efficient than cars powered by typical internal combustion engines. Currently, enormous technical problems stand in the way of converting America's fleet of automobiles from gasoline to hydrogen, including how to produce, store, and distribute the flammable gas safely and efficiently, and how to build hydrogen cars that people can afford and will want to buy. However, there are federal and state initiatives under way as well as many private efforts to solve these technical problems, and if they can be solved in an economical way in the future, the implications for gasoline use could be profound.

Greater conservation or improved fuel efficiency could also reduce future demand for crude oil and petroleum products, thereby leading to lower prices. The amount of oil and petroleum products we will consume in the future is, ultimately, a matter of choice. Reducing our consumption of gasoline by driving smaller, more fuel-efficient cars—as occurred in the 1980s in response to high gasoline prices—would reduce future demand for gasoline and put downward pressure on prices. For example, the National Academies of Science recently reported that if fuel-efficiency standards for cars and light trucks had been raised by an additional 15 percent in 1990, consumption of gasoline in the year 2015 would be 10 billion gallons lower than it is expected to be under current standards. The Congress established fuel economy standards for passenger cars and light trucks in 1975 with the passage of the Energy Policy and Conservation Act. While these standards have led to increased fuel efficiency for cars and light trucks, in recent years, the switch to light trucks has eroded gains in the overall fuel efficiency of the passenger fleet. Future reductions in demand for gasoline could be achieved if either by fuel efficiency standards for cars and light trucks are increased, or consumers switch to driving smaller or more fuel-efficient cars.

The effect of future environmental regulations and international initiatives on oil and petroleum products prices is uncertain. On one hand, regulations that increase the cost or otherwise limit the building of refining and storage capacity may put pressure on prices in some localities. For example, the California Energy Commission told us the lack of storage capacity for imported crude oil and petroleum products may be a severe

problem in the future, potentially leading to supply disruptions and price volatility. Alternatively, international efforts to reduce the generation of green house gas emissions could cause reductions in the demand for crude oil and petroleum products through the development and use of more fuel-efficient processes and as cleaner, lower-emissions fuels are developed and used.

Moreover, geopolitical factors will likely continue to have an impact on crude oil and petroleum product prices in the future. Because crude oil is a global commodity, the price we pay for it can be affected by any events that affect world demand or supply. For example, Venezuela—which produces around 2.6 million barrels of crude oil per day, and which supplies about 12 percent of total U.S. demand for oil—is currently experiencing considerable social, economic, and political difficulties that have, in the past, impacted oil production. In April 2002, the oil flow from Venezuela was stemmed during 3 consecutive days of general strikes, affecting oil production, refining, and exports. Finally, instability in the Middle East, and particularly the Persian Gulf, has in the past, caused major disruptions in oil supplies, such as occurred toward the end of the first Gulf War, when Kuwaiti oil wells were destroyed by Iraq.

Finally, the value of the U.S. dollar on open currency markets could also affect crude oil prices in the future. For example, because crude oil is typically denominated in U.S. dollars, the payments that oil-producing countries receive for their oil are also denominated in U.S. dollars. As a result, a weak U.S. dollar decreases the value of the oil sold at a given price. Some analysts have recently reported in the popular press that this devaluation can influence long-term prices in two ways. First, oil-producing countries may wish to increase prices for their crude oil in order to maintain their purchasing power in the face of a weakening dollar. Secondly, because the dollars that these countries have accumulated, and that they use, in part, to finance additional oil exploration and extraction, are worth less, the costs these countries pay to purchase technology and equipment from other countries whose currencies have gained relative to

the dollar will increase. These higher costs may deter further expansion of oil production, leading to even higher oil prices.[8]

Conclusions

In closing, clearly none of the options for meeting the nation's energy needs are without tradeoffs. Current U.S. energy supplies remain highly dependent on fossil energy sources that are costly, imported, potentially harmful to the environment, or some combination of these three, while many renewable energy options are currently more costly than traditional options. Striking a balance between efforts to boost supplies from alternative energy sources and policies and technologies focused on improved efficiency of petroleum burning vehicles or on overall energy conservation present challenges as well as opportunities. How we choose to meet the challenges and seize the opportunities will help determine our quality of life and economic prosperity in the future.

What is true for the nation as a whole is even more dramatically so in California. California is one of the most populous and steadily growing states in the nation, and its need for gasoline, as well as other energy sources, will grow. However, California's unique problems with respect to developing the right amount and type of infrastructure necessary to ensure a sufficient supply of gasoline, other petroleum products, or alternative fuels must be resolved or viable alternatives developed if California is to continue to enjoy the prosperity and high quality of life it is known for.

We are currently studying the gasoline prices in particular, and the petroleum industry more generally, including a primer on gasoline prices, a forthcoming report on special gasoline blends, an analysis of the viability of the Strategic Petroleum Reserve, an evaluation of world oil reserves, and an assessment of U.S. contingency plans should oil

[8] Higher oil prices, because they increase the U.S. trade deficit, may also contribute to the further devaluation of the dollar. Hence, analysts have called this process a vicious cycle in which a weak dollar drives up oil prices, which then feeds back into the trade deficit and cause the dollar to weaken further.

imports from a major oil producing country, such as Venezuela, be disrupted. With this body of work, we will continue to provide Congress and the American people the information needed to make informed decisions on energy that will have far-reaching effects on our economy and our way of life.

Mr. Chairman, this completes my prepared statement. I would be happy to respond to any questions you or the other Members of the Subcommittee may have at this time.

GAO Contacts and Staff Acknowledgements

For further information about this testimony, please contact me at (202) 512-3841 (or at wellsj@gao.gov). Godwin Agbara, Nancy Crothers, Randy Jones, Mary Denigan-Macauley, Samantha Gross, Mark Metcalfe, Michelle Munn, Melissa Arzaga Roye, and Frank Rusco made key contributions to this testimony.

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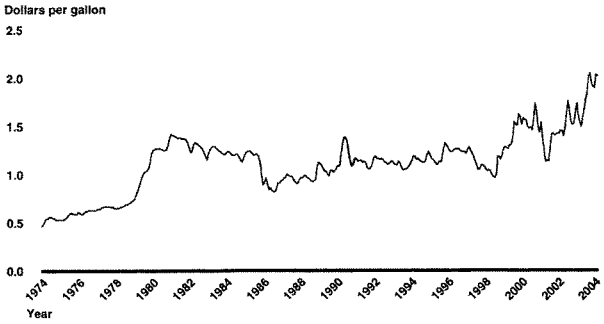
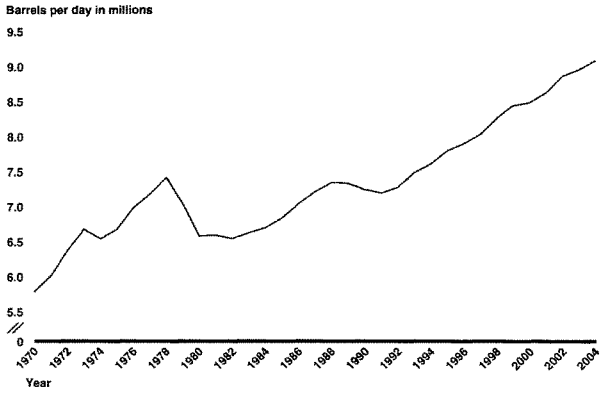
Appendix: Selected Charts and Figures

U.S. Retail Price of Gasoline (Not adjusted for inflation)



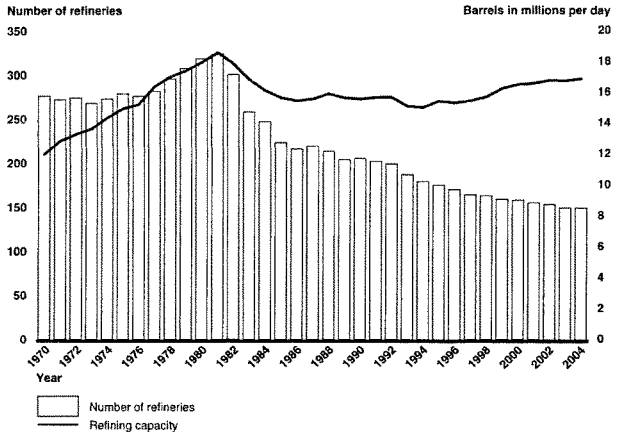
Source: GAO analysis of monthly data from the Bureau of Labor Statistics, U.S. City Averages, Regular Gasoline.

U.S. Gasoline Consumption (1970-2004)



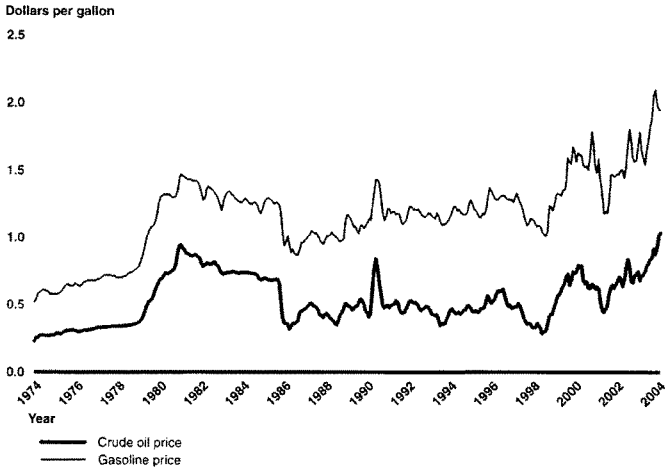
Source: GAO analysis of Annual data from the Energy Information Administration, U.S. Department of Energy.

Refining Capacity and Number of Refineries (1970-2004)



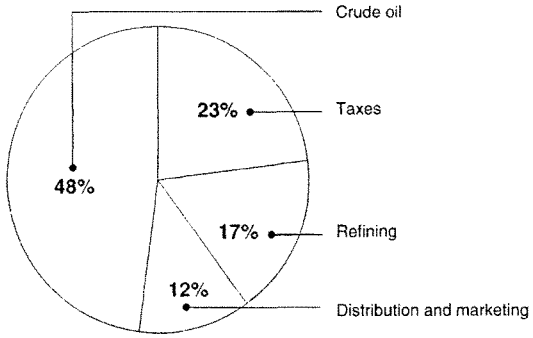
Source: GAO analysis of Annual data from the Energy Information Administration, U.S. Department of Energy.

Gasoline and Crude Oil Prices—1974-2004 (Not adjusted for inflation)



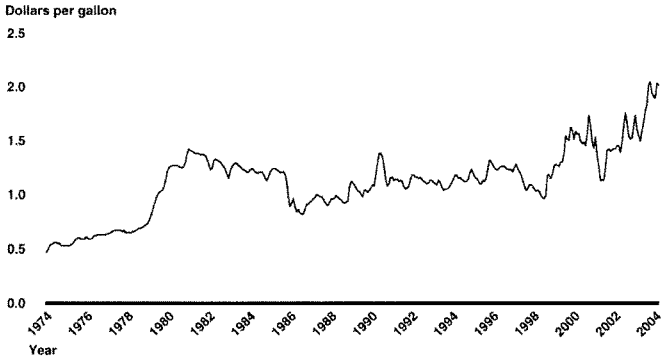
Source: GAO analysis of Energy Information Administration, Department of Energy, Monthly Energy Review, Monthly Refiner Acquisition Cost of Crude Oil, Composite and and Bureau of Labor Statistics, Monthly Motor Gasoline Prices, U.S. City Averages, Regular Gasoline.

Elements in the Price of a Gallon of Gasoline (Average for 2004)



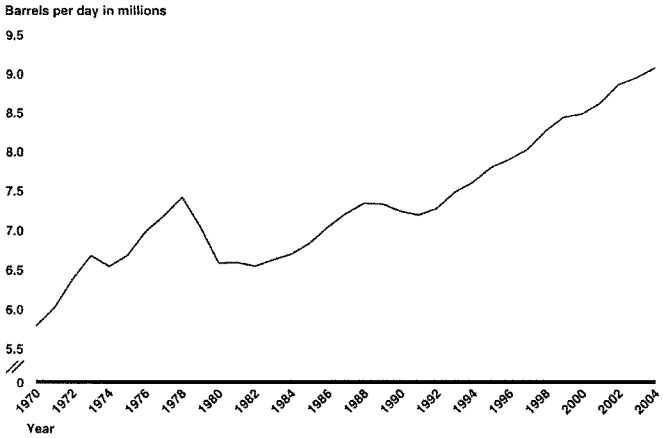
Source: GAO analysis based on EIA data.

U.S. Retail Price of Gasoline (Not adjusted for inflation)



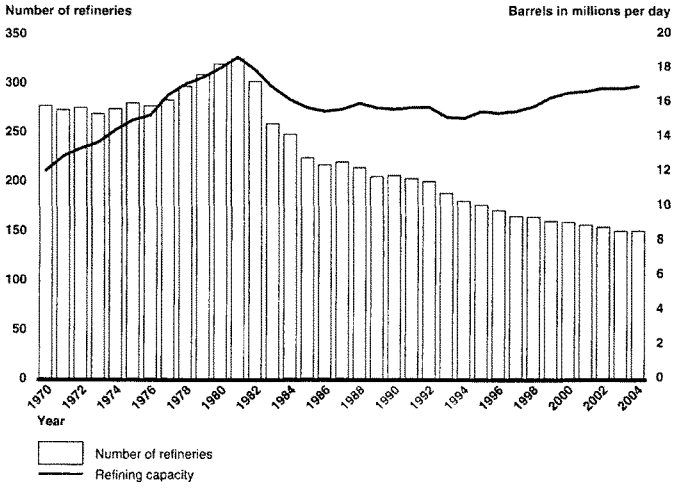
Source: GAO analysis of monthly data from the Bureau of Labor Statistics, U.S. City Averages, Regular Gasoline.

U.S. Gasoline Consumption (1970-2004)



Source: GAO analysis of Annual data from the Energy Information Administration, U.S. Department of Energy.

Refining Capacity and Number of Refineries (1970-2004)



Source: GAO analysis of Annual data from the Energy Information Administration, U.S. Department of Energy.

Mr. ISSA. Thank you, Mr. Wells.

And next we go to Mr. Pat Perez, manager, Transportation Fuel Office, California Energy Commission. Pat's been involved in energy technology and transportation fuel issues for more than 24 years. As a technical and policy expert Pat has managed and directed numerous technical reports, helped developed policies for addressing fuel issues, and provided expertise to the Governor's office on California's most pertinent and obviously difficult subjects as they face us here today. We look forward to your testimony.

STATEMENT OF PAT PEREZ

Mr. PEREZ. Thank you, Congressman Issa and Congresswoman Watson, for the invitation to be here this afternoon.

What I'd like to do is just briefly summarize what has taken place in the California petroleum markets this past year, what factors have contributed to our fuel price increases, and what measures the California Energy Commission believes would help mitigate those impacts certainly over the long run.

First, talking a little bit about the fuel price trends and causes. The price of crude oil, of course, on world markets to a very large degree determines the price of transportation of fuels, even though California receives 42 percent of its crude oil supply from in-state oil fields. The price of the Kern River crude oil, a benchmark California heavy oil, has risen 49 percent since the beginning of the year. And Alaskan North Slope which you see up on this screen, a very important feedstock for making products in California, has also increased roughly 36 percent since the beginning of the year.

Among the world oil market factors affecting crude oil prices are the following: Certainly cautious investment strategies in petroleum exploration and production by oil companies and OPEC are contributing to the higher prices. Second, the slow return of Iraqi oil production to pre-war levels is also hindering oil output. And high demand that we've heard from the two previous speakers relative to our world oil production capacity is leading to a very tight market.

And I might also add that 20 to 30 percent reduction, or the devaluation of the dollar relative to other foreign currencies is also adding upward pressure to oil because that's when OPEC trades barrels in.

The operations of California refineries and related infrastructure also impact State fuel prices. In early 2005 California refineries underwent intensive planned maintenance as described in the graphic behind you. In anticipation of this downtime, inventories of gasoline were built up to very high levels early in the year. However, unplanned outages at two refineries in California and at facilities elsewhere on the Pacific Coast caused the depletion of those inventories as reflected on the figure behind you.

As companies sought to cover their obligations and purchases on-the-spot market, wholesale prices increased and, as you can see, retail prices soon followed. The cost components of a gallon of gasoline at this price include $1.22 for crude oil, 52 cents for taxes; refining costs and profits add another 71 cents, and then finally 12 cents for distribution, marketing costs, and profits.

As seen in this figure the cost of crude oil and refining costs as well as profits have increased significantly since the beginning of the year while distribution, marketing cost, and profits have actually declined since January.

California drivers consume about 43 million gallons of gasoline per day. With prices increasing almost 60 cents per gallon since the beginning of the year, the State's consumers are paying over $25 million per day more for just gasoline. Or expressed in another way, motorists are paying over $9 a day more each time they fill their tanks at the service station.

California petroleum markets and neighboring States are very much interconnected and interrelated. Although California's considered to be somewhat of an island as far as its gasoline and diesel markets, it's still affected by conditions in other regions. In addition to imports of crude oil and other refinery feedstocks, California also routinely imports finished fuels and essential blendstocks for making our fuels. Since only a limited number of supply sources can provide fuels meeting California's clean burning fuel specifications, we must compete with other areas for these products. Our distance from many of these supply sources further constrains our ability to attract cargoes during unexpected refinery outages.

California's petroleum trade relations with other States however are much more complex than just simple import dependents. As described in figure 5 behind you, Nevada is an integral part of our fuel markets since it relies almost entirely on California refineries and pipelines for fuels. Arizona receives most of its fuels from California with the rest coming from Texas. And in Oregon, they also receive significant amounts of fuel from California. As a consequence, situations that affect one Pacific region State typically affect neighboring States as well.

Now, I'd like to just turn my attention a little bit to ethanol and the California gasoline production cost that we heard just a few minutes ago.

Certainly the shift away from methyl tertiary butyl ether or MTBE in gasoline has necessitated the use of ethanol here in California because the U.S. Environmental Protection Agency has not granted California a waiver from the minimum oxygen requirement. Ethanol is the only type of oxygenate that can be used in California; the Nation's largest consumer of ethanol. In fact in 2004 California refiners blended about 900 million gallons of ethanol.

The cost of ethanol relative to other gasoline blendstocks has not been a direct cause, however, of the higher gasoline prices seen in the State. There have been—blending economics of higher ethanol concentrations are much more favorable than they were last year as seen in the figure. There have been no shortages of ethanol or significant difficulties of blending the new gasoline.

The oxygenate requirement has, however, reduced refinery flexibility to produce and blend gasoline that meets California's Air Quality rules. This is particularly true during the low-volatility summer gasoline season that we're now in because the use of ethanol requires backing out some of the cheaper or less expensive gasoline components such as butanes and pentanes while replacing those with higher cost blendstocks such as alkylate that you can see on the figure behind you.

Turning our attention a little bit, price gouging and anti-trust issues, that certainly commands a lot of attention, not only in California, but throughout the country is that investigating price gouging or anti-trust issues in California is really the responsibility of the Federal Trade Commission and the California Attorney General's Office.

Two types of investigations have been initiated by the Attorney General's Office. Those looking at gasoline prices and at oil company mergers, in the case of gasoline pricing, the Attorney General's Office concluded that a lack of competition in gasoline markets in the State has played a significant role in past price spikes. However, the ability of Government to quickly remedy high fuel prices is somewhat limited.

Several measures are proposed about Attorney General's Office have been studied by the California Energy Commission, including the creation of a State fuel reserve. And also a pipeline connecting refineries in the U.S. Gulf Coast to California, that would increase and provide us opportunities for getting more supplies, but we've also undertaken very comprehensive studies on expanding the use of alternative fuels and conservation.

What we found in those studies was one that the State fuel reserve was not found to be a viable measure because it could potentially displace private inventories of fuel, offer profitmaking opportunities that might reduce its effectiveness, and could actually reduce the total supply of gasoline in our State.

A pipeline to the Gulf Coast also does not look feasible at this time because we do not believe there is sufficient product to move in that pipeline to California to make it economically feasible.

Several oil company mergers have also been investigated by the Attorney General's Office since 1999. And in several cases these investigations have led to refinery asset divestments or other concessions aimed at preserving competition by reducing the concentration of important segments of California's refining and marketing industry in too few hands.

Now, I'd like to talk a little bit about the impact of the well-publicized Chevron/Texaco/Unocal merger. We see no impacts on refined product supplies for California from ChevronTexaco's acquisition of Unocal, since Unocal does not possess any refineries or service stations in California, but there could be a major change to an important gasoline blending constraint, which is the patenting by Unocal of the phase 3 gasoline formulations that were negotiated by both the oil industry and the California Air Resources Board.

If ChevronTexaco's acquisition includes all five sets of these patents and ChevronTexaco decides to discontinue the enforcement of said patents, this would remove a significant cost to producing gasoline in this State. Non-major refiners would benefit because their license agreements could be eliminated, thus reducing a cost component for their own overall operations. Major refiners who are currently blending around some of the patents could eliminate this practice, also reducing operating expenses.

The final benefit would be the removal of a constraint for importers, some of whom are unwilling to send cargos to California for fear of infringing on Unocal's patent rights. All of those benefits

would probably amount to between 1 and 3 cents per gallon for the cost of making California-compliant gasoline.

Now, talking a little bit about refinery expansions. Big West is considering an expansion project at their Bakersfield refinery that could increase gasoline and diesel production by another 10,000 to 12,000 barrels per day over the next 2 to 4 years. Likewise, here in the South Basin, Paramount Petroleum should begin production of California-compliant gasoline for the first time within the next several days. And this will certainly add to the much-needed capacity to satisfy our growing appetite for not only gasoline but diesel.

No new refineries are planned for California; however, one 150,000-barrel-per-day refinery is planned for Arizona, which if they obtain all their permits and secure some tenure supply contracts for crude oil, could be up and operating by 2010. Some of the responses to high and rising fuel prices. The long-term demand for gasoline in California is expected to continue growing. Refinery capacity is only expected in California to average less than a half a percent per year growth creating a growing gap between supply and demand in our State. I think this figure here kind of shows the dilemma that we are faced here in California with slight expansion of refinery capacity and growing demand. And as you can see from that figure, the gap is widening, not narrowing over time.

Two other general approaches can be applied to address this growing shortfall between what we consume and what we produce. That is, one, the increase in importation of products. And I'm not just talking about gasoline, but also diesel and jet fuel. And, second, strategies to reduce demand.

The Energy Commission recently sponsored a study that has identified current and future constraints with the system of wharves, storage tanks, and pipelines that could impair our ability of importers to deliver cargoes of petroleum products to this State, especially during a disruption. The potential problems are most serious here in our backyard in southern California, and particularly at the Port of Los Angeles and Long Beach where most of the growing quantities of imported crude oil and finished products would have to be received.

Long lead-times and the complexity of acquiring permits to construct facilities were identified in our study as leading to a shortage of storage capacity and higher storage tank lease rates, which you as a consumer, those higher costs ultimately get passed on to the consumer as reflected in higher product prices.

Finally, on reducing demand for petroleum, the Energy Commission and the California Air Resources Board in a joint study found that improving fuel efficiency using existing and emerging technologies would most dramatically reduce petroleum demand. And specifically we recommend a doubling of fuel efficiency for cars, pick-ups, sport utility vehicles to 40 miles per gallon.

The proposed energy bill Legislation that is emerging in Washington, DC, represents a significant opportunity to alter these vehicles fuel efficiency standards for the first time in many years.

The Energy Commission encourages the U.S. Senate to make revisions to their version of the energy bill that would advance this strategy, particularly increases in Corporate Average Fuel Economy standards.

The Energy Commission and ARB have also concluded that California must also increase the use of alternative fuels, including natural gas, ethanol, liquid petroleum gas, gas-to-liquid, diesel, biodiesel, electricity, and hydrogen. We recommend that the State increase the use of alternative fuels to 20 percent of on-road fuel use by 2020, and 30 percent by 2030.

The Energy Commission has also recommended several near-term options certainly that is assisted by people moving to hybrid vehicles. And I'm very pleased to see Congressman Issa driving one of those vehicles, but there's also other things that consumers can do, such as greater use of public mass transit, carpooling, telecommuting, minimizing idling, and maintaining a vehicle property. And certainly we have a host of other near-term means for reducing the impact of the high prices we have on the Energy Commission's Web site.

And with that I'd like to conclude my testimony.

[The prepared statement of Mr. Perez follows:]

Prepared Witness Testimony of Pat Perez,
Manager of the Transportation Fuels Office of the
California Energy Commission to the
Committee on Government Reform
Subcommittee on Energy Policy, Natural Resources and
Regulatory Affairs
(May 9, 2005)

Mr. Chairman and members of the Subcommittee:

I welcome this opportunity to discuss California's experiences with gasoline and diesel price and supply issues. It has been about a year since former Energy Commission Chairman Bill Keese spoke to this Subcommittee. I will try to briefly summarize what has taken place in California petroleum markets in the last year; what factors have contributed to our fuel price increases, what the impacts of the price increases have been, and what measures the California Energy Commission believes would help mitigate those impacts.

Recent Fuel Price Trends and Causes

The price of crude oil on world oil markets to a very large degree determines the price of transportation fuels, even though California received about 42 percent of its crude oil supply from in-state oil fields during 2004. The price of Kern River crude oil, a benchmark California heavy oil, has risen 49 percent, from $27.83 per barrel on January 1 to $41.43 per barrel on April 28. This compares to $30.94 per barrel a year ago. Alaska North Slope (ANS) crude oil, another important feedstock for California refineries, has risen 36 percent, from $35.39 per barrel on January 1 to $48.04 per barrel on April 28. This compares to $36.26 per barrel a year ago. On April 1 of this year, ANS reached a record high of $54.14 per barrel.

Crude oil prices paid by California refiners are greatly influenced by geopolitical events and other world oil market factors, including the following:

? Cautious investment strategies in petroleum exploration and production by large oil companies and exporting nations, creating a very narrow margin of excess oil production capacity worldwide

? OPEC oil production quotas that defend prices, substantially exceeding, and making obsolete, the group's long-time preferred price range of $22 to $28 per barrel

? The slow return of Iraqi crude oil production to pre-war levels, due to sabotage of pipelines and other facilities, as well as political uncertainties in Nigeria and Venezuela

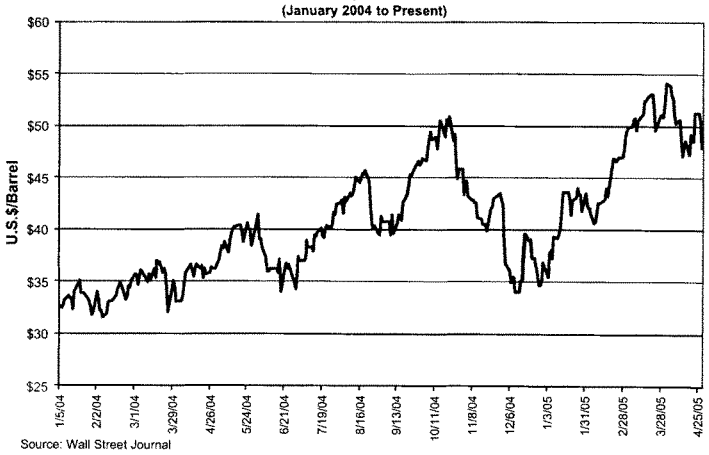
? Continuing high demand for oil in the U.S. and Asia, particularly in China and India, due to increasing economic growth

? Weather-related events, such as Hurricane Ivan and cold winter weather in the Northeastern U.S. and Europe

? The devaluation of the U.S. dollar, in which most oil is traded, by 20 to 30 percent relative to other currencies

? The continued diversion of oil into the Strategic Petroleum Reserve

Figure 1
Alaska North Slope Crude Oil Prices
(January 2004 to Present)

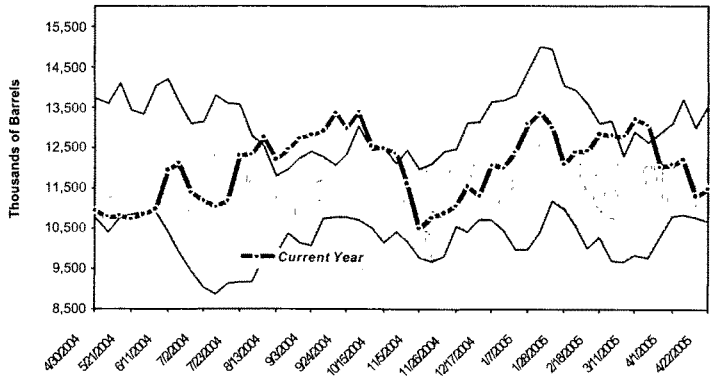


Source: Wall Street Journal

One interesting feature of the recent spike in crude oil prices is that it is occurring despite relatively substantial crude oil inventories in the U.S. As of April 22, U.S. inventories of crude oil were over 324 million barrels, more than 25 million barrels above last year. The fact that prices have nevertheless increased highlights the apparent growing belief among many market participants that future oil prices will continue to reflect the low levels of world excess crude oil production capacity.

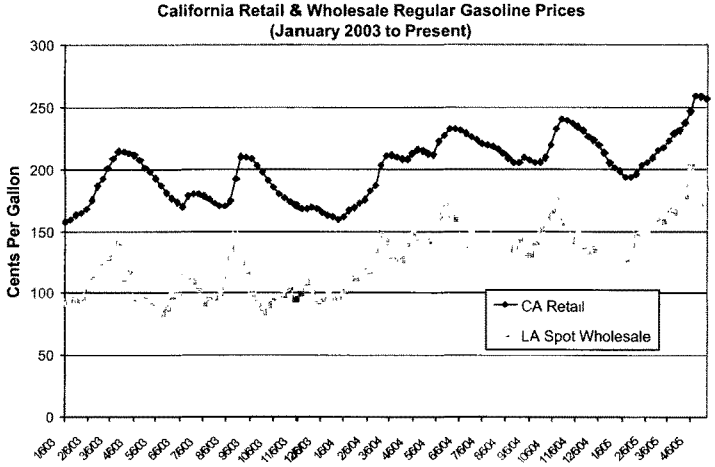
Although the majority of recent fuel price increases results from rising crude oil costs, the operations of California refineries and related infrastructure also impact state fuel prices. As was the case last year during the late winter, California refineries underwent an intensive schedule of planned maintenance in early 2005, in preparation for the switch to manufacturing summer-grade gasoline. In anticipation of this downtime, inventories of gasoline were built up to relatively high levels, according to Energy Commission data, and by early March exceeded the range for the previous five years (see Figure 2). In addition to the scheduled maintenance, unplanned outages at two refineries in California and at facilities elsewhere on the Pacific Coast resulted in a depletion of these inventories.

Figure 2
California Blendstocks and CARB Gasoline Inventories
(with 5-Year Hi-Lo Band)



As companies sought to cover their obligations with purchases on the spot market, wholesale prices increased and retail prices soon followed. According to the U.S. Energy Information Administration, on April 4 of this year the wholesale spot price of regular-grade California reformulated gasoline exceeded two dollars per gallon for the first time. As of April 25, the wholesale and retail prices of gasoline in California were $1.85 and $2.57 per gallon, respectively (see Figure 3). This compares to $1.23 and $1.98, respectively, on January 3, and $1.42 and $2.12 last year.

Figure 3
California Retail & Wholesale Regular Gasoline Prices
(January 2003 to Present)



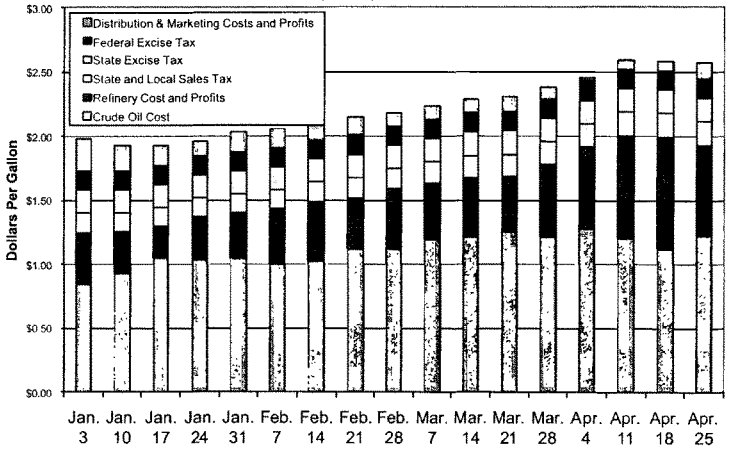
Source: U.S. Energy Information Administration

The breakdown of cost components of a gallon of branded gasoline in California during 2005 are shown in Figure 4. Crude oil costs were about 47 percent, or $1.22, of the April 25 retail price of $2.57 per gallon. Taxes added another 52 cents, just over 20 percent of the retail price. Refining costs and profits increased substantially over the year to 71 cents per gallon, about 27 percent of the total, compared to 41 cents, or about 21 percent of the total, at the beginning of the year. Meanwhile, distribution and marketing costs and profits declined to only twelve cents per gallon, compared to 25 cents at the beginning of the year. While Figure 4 shows growth in the segment for refinery costs and profits, and decreases in marketing costs and profits, it should not be construed that refineries or marketers in California are making greater or lesser net profits. Those determinations would require more comprehensive data and analyses.

California drivers consumed about 15.9 billion gallons of gasoline in 2004, almost 12 percent of U.S. demand, or about 43 million gallons per day. This represents an increase of gasoline use, despite the higher prices, of about 240 million barrels over 2003, due to the growing population and economy. Compared to early January 2005, the price of gasoline has risen about 59 cents per gallon. This increase costs California consumers over $25 million per day, compared to January. The State also consumes about 2.8 billion gallons of highway diesel per year, with substantial additional daily expenditures due to the recent price increases. Diesel price increases negatively affect agricultural and trucking

interests as well, and potentially increase the cost of farm products and goods moved by truck or rail transport. Jet fuel has also increased sharply in price, compelling airlines to add surcharges to their ticket prices to cover increased fuel costs.

Figure 4
Components of California Branded Gasoline Prices
(January 2005 to Date)



Sources: California Energy Commission and U.S. Energy Information Administration

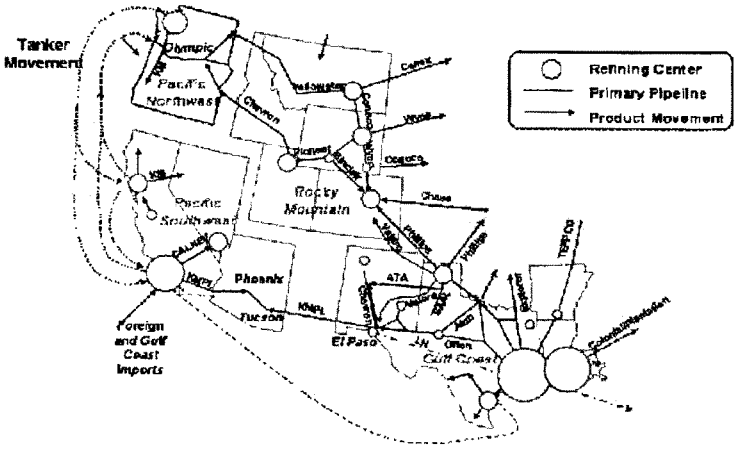
California Petroleum Markets and Neighboring States

Although California is considered to be somewhat of an island as far as its gasoline and diesel markets, it is still very much affected by conditions in other regions. In addition to the substantial impact of global trade in crude oil and other refinery feedstocks on state fuel prices, California also routinely requires imports of finished fuels and essential blendstocks from out-of-state. Since only a limited number of supply sources can provide fuels meeting California's clean burning fuel specifications, we must compete with other areas for imports of these clean burning finished products and blendstocks. Typically, this competition also requires paying additional transportation premiums to bid supplies away from regions closer to the sources. The higher cost of these imported fuels sets the price of all barrels of similar product, even if only relatively small amounts are imported. Our distance from many of these supply sources further exacerbates our ability to attract cargoes during unexpected refinery outages or pipeline

problems because it can take four to six weeks to obtain alternative supplies, leading to higher prices when inventories are low.

Focusing solely on California's growing dependence on imports, however, obscures the considerable complexity of the State's petroleum trade relationships with neighboring states, as well as with nations in the Pacific region. As shown in Figure 5, Nevada is an integral part of the State's fuels markets, as it is almost entirely dependent on California refiners and pipelines for its transportation fuels, receiving about 150 thousand barrels per day. Likewise, Arizona receives most of its fuels from California, about 140 thousand barrels per day, with the remainder coming in by pipeline from Texas. Oregon also receives significant amounts of its transportation fuels from California, roughly 35 to 40 thousand barrels per day, either by truck into southern Oregon, or by tanker and barge into the Portland area. Approximately one gallon of gasoline out of every seven produced in California is delivered to an adjacent state. Although California is a net importer of significant volumes of fuels and blendstocks from Washington, the State also ships some products and feedstocks back to Washington, helping to balance out refinery operations in the West Coast region.

Figure 5
California Crude Oil & Product Shipments



Several California refiners have contractual obligations to make deliveries to neighboring states. As a result, situations that adversely affect Arizona and Nevada can affect California as well, since all available gasoline in the region becomes more valuable. Likewise, California-specific issues usually impact prices in Arizona, Nevada, and, to a lesser extent, Oregon, which is tied more closely to refinery production in Washington and British Columbia. Occasionally, product from California is needed to correct market imbalances, as happened earlier this year when refinery problems in the Northwest caused shortages in distillates, and diesel was diverted from California.

Refiners in California that produce gasoline for export to Arizona and Nevada are able to produce a greater total volume of gasoline at their facilities because the specifications in these neighboring states are less stringent than California standards. These differences in gasoline specifications permit refiners to use components that cannot be blended into California gasoline, thus avoiding higher operational costs that would be associated with further processing of these components.

At this time, Arizona is considering building a new refinery near Yuma. If all of the necessary permits and financing are obtained and the refinery is completed, additional supplies could become available in early 2010. At the same time, if an associated crude oil pipeline is completed, supplies of gasoline and diesel fuel for the Southwest will be improved. The Kinder Morgan Pipeline Company has also announced that they are in the process of obtaining rights-of-way and all of the necessary permits to construct an expansion of the East Line that delivers transportation fuels from El Paso, Texas to Tucson and Phoenix. This expansion project is expected to be completed by the second quarter of 2006, resulting in an 80 percent increase of this pipeline's capacity. Once the project is completed, the expanded capacity will enable additional volumes of gasoline to be delivered to the Phoenix and Tucson markets from Texas and New Mexico refineries. To the extent that the marketers shift supply sources from the West Line to the East Line, California consumers could benefit because greater quantities of blendstocks to produce California reformulated gasoline would be available.

Ethanol and California Gasoline Production Costs

The shift away from methyl tertiary butyl ether (MTBE) in gasoline has necessitated the use of ethanol because the federal Environmental Protection Agency (U.S. EPA) has not granted California a waiver from the minimum oxygen requirement. Ethanol is the only type of oxygenate that can be used in California; the nation's largest user of ethanol. In 2004, California refiners blended about 900 million gallons of ethanol in gasoline.

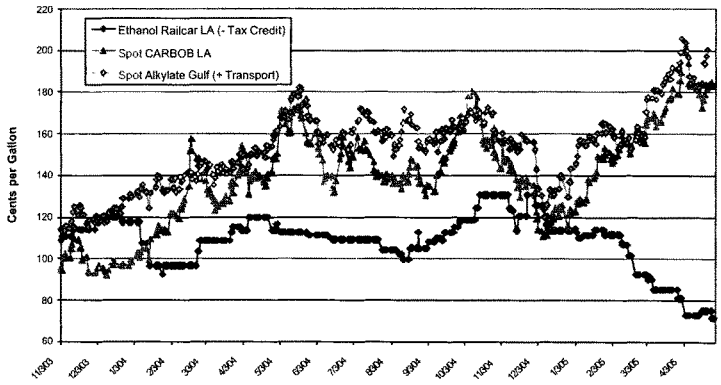
Refinery modeling analyses performed on behalf of the Energy Commission estimated that phasing out the use of MTBE and transitioning to ethanol would increase average production costs by 3.4 to 6.4 cents per gallon. This estimated cost impact accounted for the necessary capital expenditures, increased operating costs for fractionating and handling higher volatility components such as pentanes, and the lower energy content and resulting fuel economy penalty of gasoline blended with ethanol. This modeling effort, however, only compared Phase 3 reformulated gasoline (RFG) to Phase 2 RFG.

No refinery modeling analysis was performed that compared the cost to transition to Phase 2 RFG from conventional gasoline. Rather, the California Air Resources Board (ARB) developed engineering cost estimates that were in the range of five to eight cents per gallon. Combining these two values, a total increase in production costs of 8 to 14 cents per gallon to transition from conventional California gasoline to Phase 3 RFG could be used to estimate incremental production costs.

As stated in previous Energy Commission testimony before this Subcommittee, the cost of ethanol, relative to other gasoline blendstocks, has not been a direct cause of recent price spikes in the State. Today, estimated net costs of ethanol are over a dollar less per gallon than costs of alkylate (an important gasoline blendstock) and California reformulated gasoline blendstock for oxygenate blending (or gasoline without the oxygenate added yet, referred to as CARBOB). As shown in Figure 6, blending economics of higher ethanol concentrations are much more favorable than they were last year. For example, during the first quarter of 2004, ethanol averaged a 35 cent discount to alkylate and a 22 cent discount to CARBOB. But during the first quarter of 2005 these discounts had increased to 66 and 55 cents, respectively. There were no shortages of ethanol or significant difficulties with blending the new gasoline.

The oxygenate requirement has, however, reduced refinery flexibility to produce and blend gasoline that meets air quality rules. Phase 3 reformulated gasoline for ethanol blending is also a more difficult formulation to produce for refiners outside the U.S. Premium blending components with the appropriate properties of high octane, low sulfur, and low volatility have become more costly as more regions adopt cleaner gasoline formulations, including phasing out MTBE. This is particularly true during the low-volatility summer gasoline season, which lasts eight months, because the use of ethanol requires backing out some of the cheaper gasoline components, such as butanes and pentanes, and replacing them with higher cost blendstocks, such as alkylate.

Figure 6
Recent California Gasoline and Blendstock Prices



Notes: Ethanol railcar prices are from Platts, and are average prices for prompt Southern California shipments including 52 c/gal federal tax credit (51 c/gal after 1/1/05). Alkylate is an important blendstock used in California reformulated gasoline. California alklylate prices are calculated from Platts and include 20 c/gal transportation & distribution cost from Gulf Coast to California. Spot wholesale prices for regular-grade California reformulated gasoline blendstock for oxygenate blending (CARBOB) are from US Department of Energy.

California has petitioned the U.S. EPA to waive the federal oxygen requirement for California. As you are aware, regulations promulgated by the ARB allow refiners to produce reformulated gasoline using a predictive model. Recipes of various gasoline blends are entered into a spreadsheet that is used to calculate vehicle emissions. If the submitted formula results in emissions that are equivalent or superior to the simple recipe, the blend of gasoline is permissible for use in California. Recipes for gasoline that do not contain any oxygen can pass the predictive model test and be sold in California. About 80 percent of the gasoline consumed in California is subject to U.S. EPA reformulated gasoline rules that require the use of a minimum of 1.8 percent by weight oxygen.

The intent of the waiver is to provide additional flexibility to California gasoline marketers, primarily in the areas of ethanol contract negotiations and responses to environmental concerns. If the federal oxygen requirement was waived, refiners would no longer be required to use ethanol in 80 percent of the State's gasoline. Instead, they could determine what level of ethanol use would be optimal depending on relative blending economics, octane requirements of their gasoline pool, and segregation limitations of the distribution infrastructure. With this added flexibility, it is more likely that refiners could negotiate more favorable terms for ethanol contracts.

With regard to environmental concerns, ARB has petitioned for a waiver primarily because the use of ethanol in motor vehicles increases emissions of particulate

matter (PM), compared to blends of gasoline that do not contain any ethanol. Therefore, the continued mandated use of ethanol is thought to interfere with the State's efforts to comply with PM standards. More recently, the results of a permeation study indicate that the use of ethanol can increase evaporative emissions of hydrocarbons, a precursor to the formation of smog. If the federal oxygen mandate was waived, ARB would have greater flexibility to potentially mitigate these environmental impacts. ARB should be contacted to obtain a more thorough understanding of these environmental concerns.

Price Gouging and Anti-Trust Issues

Gasoline and diesel price increases of recent years have caused many consumers to question the competitiveness of California fuels markets. Investigating price-gouging or anti-trust issues in California is the responsibility of the Federal Trade Commission at the federal level and the Attorney General's Office at the state level. Two types of investigations have been initiated by the Attorney General's Office, including activities looking at gasoline pricing and oil company mergers.

In the case of gasoline pricing, the Attorney General's Office issued its *Report on Gasoline Pricing in California* in 2000, as well as an update in 2004, which concluded that a lack of competition in gasoline markets in the State played a significant role in price spikes. However, the ability of government to quickly remedy high fuel prices is limited. Several measures that were proposed in the report have been studied by the Energy Commission, including a state fuel reserve, a pipeline connection to the Gulf Coast, and increased use of alternative fuels and conservation. The state fuel reserve was not found to be a viable measure because it could potentially displace private inventories of fuel, offer profit-making opportunities that might reduce its effectiveness, and could actually reduce the total supply of gasoline in California. A pipeline to the Gulf Coast does not look feasible because it would probably not move enough volumes of fuel to make it economically feasible. As we will discuss shortly, increasing vehicle efficiency and use of alternative fuels have been found to be viable long-term options to reduce petroleum dependency.

Four oil company mergers have also been investigated by the Attorney General's Office since 1999. In several cases, these investigations have led to refinery asset divestments or other concessions aimed at preserving competition by reducing the concentration of important segments of California's refining and marketing industry in too few hands. In following sections, I will discuss the recently proposed ChevronTexaco-Unocal merger, as well as activities undertaken jointly by the Energy Commission and the Attorney General with respect to keeping the Shell Bakersfield refinery from being shut down.

In a recent draft consultant report *Retail Policies and Competition in the Gasoline Industry*, it was found that independent distributors of transportation fuels play a smaller role in California than in almost any other state. It is therefore natural to assume a linkage of high vertical integration in the state's petroleum industry with high fuel prices. The report's authors, however, are very cautious in their conclusions about government intervention in these market arrangements. They warn that little is known about the side effects that potential legislative proposals might have, and that new arrangements might actually prove more damaging than existing practices.

Impact of the ChevronTexaco-Unocal Merger

We see no short or long-term impacts on refined product supplies for California from ChevronTexaco's acquisition of Unocal, since Unocal does not possess any downstream refining assets or service stations in California. But there could be a major change to an important gasoline blending constraint, the patenting by Unocal of the Phase 3 gasoline formulations negotiated by the oil companies and ARB. If ChevronTexaco's acquisition includes all five sets of these patents and ChevronTexaco decides to discontinue the enforcement of said patents, this would remove a significant cost to producing gasoline in the State. ChevronTexaco has already taken a different approach, compared to Unocal, regarding enforcement of patents. ChevronTexaco has successfully filed for and obtained patents for blends of gasoline containing ethanol. Even though between 95 and 98 percent of California's gasoline is currently blended with ethanol, ChevronTexaco is not enforcing any of their patents.

If ChevronTexaco obtains the Unocal patents through this acquisition and does not enforce them, there would be immediate benefits for other refiners and importers. Non-major refiners would benefit because their license agreements could be eliminated, thus reducing a cost component for their operations. Major refiners who are currently blending around some of the patents could eliminate this practice, also reducing operating expenses. The final benefit would be the removal of a constraint for importers, some of whom are unwilling to send cargoes to California for fear of infringing on Unocal's patent rights. All of these benefits would probably amount to between one and three cents per gallon.

Shell Bakersfield Refinery Sale

Shell's original plans to cease refining operations at its Bakersfield refinery have been a major concern of the Energy Commission and other state officials over the last year. The California Attorney General's Office intervened and created the necessary climate to facilitate a successful sale of the refinery to another party, following Shell's initial announced intention to terminate refinery operations and not offer the facility for sale. The refinery in Bakersfield has been sold to Big

West, LLC., a subsidiary of Flying J, Incorporated. The transfer of ownership was completed in March of 2005. Shell intends to continue operating its terminal at the facility beyond that date.

The continued operation of this refinery avoids a loss in supply equivalent to two percent of the State's gasoline production and six percent of its diesel production. It also prevents the development of constraints on the Northern California and Central Valley pipeline and distribution infrastructure. The closure of this refinery would have resulted in more imports of refined products, in the range of an additional 30 to 40 thousand barrels per day combined totals for gasoline and diesel. Independent marketers in the area are an important supply source for local agricultural users and municipalities and could have been negatively impacted by the closure of this refinery.

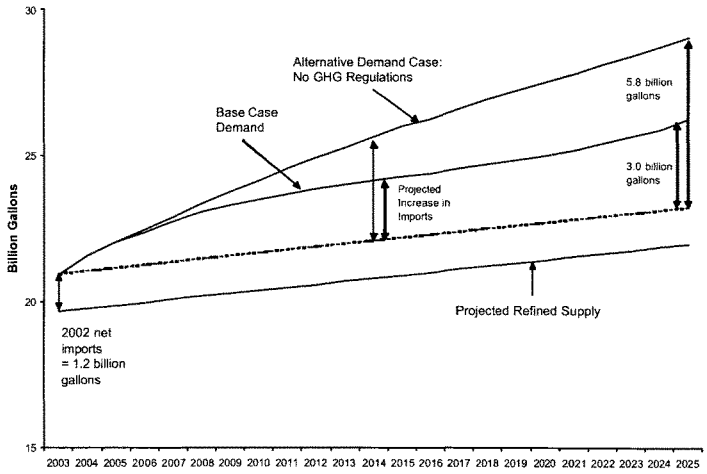
This refinery currently produces much of the gasoline and diesel consumed in the region by processing heavy San Joaquin Valley crude oil. It also produces other petroleum products, such as butane, petroleum coke, and unfinished oils that are primarily exported out of California.

Big West is considering an expansion project at the refinery that could increase gasoline and diesel production by another 10 to 12 thousand barrels per day through the installation of a fluid catalytic cracker process unit and an alkylation plant. If undertaken, permitting and construction of the project will likely take between 24 and 48 months to complete.

Responses to High and Rising Fuel Prices

In addition to the immediate problems of ensuring fuel supply in the face of unusually high short-term demand growth, the long-term demand for gasoline in California is expected to continue growing. In our *2003 Integrated Energy Policy Report*, the Energy Commission estimated long-term gasoline demand growth at about 1.4 percent per year and diesel at 1.9 percent per year. Recent high fuel prices and lower expectations of population and economic growth will lower these estimates for our 2005 Report. Further, future petroleum demand growth may ultimately depend to a great extent on the outcome of litigation on California's climate change emission control regulations. However, refinery production capacity growth is only expected to average about 0.5 percent per year over the long term. Figure 7 shows the growing gap between fuel demand and expected refinery capacity. Three general approaches can be applied to address the potentially growing shortfall between what we consume and what we produce; increase refinery production capacity, increase imports, and reduce demand.

Figure 7
Projected Clean Fuels Demand, Imports, and Refined Supply



Note: Clean fuels include gasoline, jet fuel, and diesel.
Source: *Forecasts of California Transportation Energy Demand, 2005-2025,* Draft Staff Report, May 2005.

Increase Refinery Production

One approach to deal with the anticipated increase in demand for transportation fuels in California is for refiners to increase their production at local facilities. Over the last several years, refiners have gradually increased production of transportation fuels by undertaking modest projects that are normally conducted during periods of routine maintenance. These incremental increases in capacity are referred to as "refinery creep" and have averaged between 0.3 and 0.5 percent per year. If the recent past is any indication, future refinery creep will continue to lag behind demand increases, necessitating additional imports of transportation fuels. The Energy Commission is forecasting that refinery creep will not keep pace with demand. It should be noted that there is no insurmountable barrier preventing larger expansion projects. Rather, the economics and timelines associated with refinery expansion projects in other areas outside California have been more attractive, to date. It is expected that refiners will continue to evaluate these types of opportunities, especially in light of the higher refinery margins that have been sustained for a considerable period of time.

Increase Imports of Petroleum Products through Expanded Infrastructure

Expansions of marine terminal, pipeline, and storage infrastructure may need to be encouraged to enhance the industry's long-term ability to import finished fuels and blendstocks. An Energy Commission sponsored study has identified current and future constraints within the system of wharfs, storage tanks, and pipelines that could impair the ability of importers to deliver cargoes of petroleum products to the State. The Energy Commission believes that these constraints may reduce the supply of gasoline available during a disruption. The potential problems are most serious in Southern California, where most of the growing quantities of imported crude oil and finished petroleum products would be received.

The long lead-time for, and complexity of, acquiring permits to construct facilities were identified in our study as leading to a shortage of storage capacity and higher storage tank lease rates. This results in fuel suppliers holding lower inventories than they might otherwise choose. The Energy Commission has also sponsored a detailed study on the permitting of petroleum product storage facilities, which recommended providing statewide authority for implementing and enforcing California's existing Permit Streamlining Act (PSA). The PSA establishes strict timelines for agencies to conduct permit application reviews and issue decisions, which are frequently not met. A fundamental problem appears to be that no one agency within California is responsible for implementing the PSA. This issue is very complex, but an improved permitting process could yield significant benefits by eliminating redundancy and providing a more definite timeframe for decisions.

Increasing imports in the short-term could be accomplished by relaxing throughput limits at marine bulk terminals, or by expanding capacity of pipelines moving fuel from wharfs to inland facilities. The lifting of throughput limits, which are regulatory limits placed on throughput for air quality reasons, would not typically increase the actual throughput substantially without modifications to the facility, since current technical capacities are not substantially higher than the throughput limits. Changes would generally not make economic sense unless made permanent. Procedures exist, however, for seeking relief from air district regulations through administrative processes.

During periods of high import demand, Southern California petroleum marine terminals are highly utilized. The Energy Commission is concerned that new storage capacity expansions might be restricted by lack of access to the distribution network. Firms in a position to grant that access may not feel that it is in their economic interest to do so. Regulations in this area are unclear. The Federal Energy Regulatory Commission can regulate pipeline rates, but has determined that it cannot force a pipeline company to connect with facilities of competing firms. We are concerned that this barrier to entry for new or expanded storage facilities will reduce the state's ability to import needed products. The

Energy Commission released a follow-up study in late April entitled *An Assessment of California's Petroleum Infrastructure Needs* that covers these issues in greater detail.

Reduce Demand for Petroleum

In a joint study, the Energy Commission and the California Air Resources Board (ARB) have addressed the long-term impacts of petroleum dependence on the California economy and environment, and have recommended several long-term options that could be used to reduce petroleum demand. These include increased fuel efficiency of light-duty vehicles, greater use of alternative fuels, and accelerated introduction of fuel cell vehicles. Several other shorter-term measures were also recommended and appropriate actions taken, including establishing a tire efficiency program, requiring government fleets to use fuel efficient vehicles, and educating consumers about proper vehicle maintenance.

This joint study found that improving fuel efficiency using existing and emerging technologies would most dramatically reduce petroleum demand and specifically recommends a doubling of fuel efficiency for cars, pickups, and sport utility vehicles to 40 miles per gallon. In most of the options studied, fuel savings for consumers would exceed the costs of more fuel-efficient vehicles. Changing vehicle fuel-use efficiency standards requires the exercise of federal authority, however, and would obviously have the greatest cumulative benefits implemented at a national level. The proposed Energy Bill legislation that is emerging in Washington, DC represents a significant opportunity to alter these vehicle fuel-efficiency standards for the first time in several years. The Energy Commission encourages the United States Senate to make revisions to their version of the Energy Bill that would advance this strategy, particularly increases in the CAFE standards.

Even though improving vehicle efficiency is the single most effective means of reducing petroleum dependence, the Energy Commission and ARB have also concluded that California must also increase the use of alternative fuels, including natural gas, ethanol, LPG, Fischer-Tropsch or gas-to-liquid (GTL) diesel, biodiesel, electricity and hydrogen. While many uncertainties persist regarding the costs and market potential of these fuels, the joint study recommends that the state increase the use of alternative fuels to 20 percent of on-road fuel use by 2020, and 30 percent by 2030. One potential target in meeting this goal is to use GTL fuel, derived from natural gas at remote production facilities, which has very clean and useful blending properties. GTL fuel could be used as a 33 percent blending agent in diesel in order to extend distillate supplies. Another target would be to begin introducing fuel cell light-duty vehicles in 2012, increasing to 10 percent of new sales by 2020, and to 20 percent by 2030.

Reducing fuel demand in the short-term can be difficult, particularly in the transportation sector, because much driving is non-discretionary and the cost of purchasing a new high-mileage vehicle can be high. The Energy Commission has recommended several options for voluntary fuel conservation and has made this information available on its website. These options include; greater use of public mass transit, car pooling and telecommuting, driving at the speed limit, limiting unnecessary use of air conditioning, minimizing idling, and maintaining the vehicle properly by replacing dirty air filters, keeping tires fully inflated and getting regular tune-ups.

Mandatory conservation measures, such as strictly enforced speed limits, could be used, but are not recommended except in extreme circumstances. If the Governor declares a state of emergency, other measures could be taken, including requiring large employers (500 or more employees) to operate emergency transportation management programs to increase ridesharing. However, declaring an emergency comes with the considerable risk that motorists will immediately respond by filling up their gasoline tanks, which could result in an actual fuel shortage, and that traders will see it as a signal to bid up the price of supplies.

This joint agency study and some of the other recent Energy Commission reports relating to transportation fuels are available on the Commission's website (www.energy.ca.gov) and are shown in the following table.

The Energy Commission thanks the Subcommittee for its interest in our opinion on these matters. If we can provide additional information, please let us know.

Recent Transportation Fuel-Related Reports from the California Energy Commission

Report Title	Status	Date
Options to Reduce Petroleum Fuel Use	Staff Report	May 2005
Alternative Fuels Commercialization	Staff Report	May 2005
An Assessment of California's Petroleum Infrastructure Needs	Staff Report	April 2005
Forecasts of California Transportation Energy Demand 2005-2025	Staff Report	April 2005
Retail Policies and Competition in the Gasoline Industry	Draft Consultant Report	March 2005
Global Climate Change	Draft Staff Report	March 2005
California Hydrogen Fuel Station Guidelines	Consultant Report	October 2004
Market Power in California's Gasoline Market	Consultant Report	May 2004
2003 Integrated Energy Policy Report	Final Commission Report	December 2003
California Alternative Fuels Infrastructure Program Evaluation 2003	Consultant Report	December 2003
Ethanol Supply Outlook	Final Staff Report	October 2003
Permit Streamlining for Petroleum Product Storage	Final Consultant Report	October 2003
Gulf Coast to California Pipeline Feasibility Study	Final Commission Report	September 2003
California Clean Fuels Market Assessment Report 2003	Consultant Report	August 2003
Reducing Petroleum Dependency in California	Joint Agency Report	August 2003
Feasibility of a Strategic Fuel Reserve in California	Final Commission Report	July 2003
Causes for Gasoline and Diesel Price Increases in California	Staff Reports	March to November 2003
Economic Benefits of Mitigating Refinery Disruptions	Consultant Report	July 2002
Marine Product Tanker Fundamentals, Economics and Outlook	Consultant Report	March 2002
Supply Potential for Petroleum Products in the U.S. Gulf Coast	Consultant Report	March 2002
MTBE Phase-Out in California (including Appendix of Stakeholder Comments)	Consultant Report	March 2002

PAT PEREZ – Manager of the Transportation Fuels Office, California Energy Commission

Pat Perez has been involved in energy technology and transportation fuel issues for 24 years, as a technical and policy expert and, most recently, as manager of the Transportation Fuels Office of the California Energy Commission. In this capacity, Pat has managed and directed numerous technical reports, helped develop policies for addressing fuels issues, and provided real-time expertise to the Governor's office on California's most pertinent energy issues.

Pat was directly involved in providing analysis and oversight for the phase-out and replacement of MTBE with ethanol in motor gasoline, helping ensure a smooth transition and avoid adverse supply and price impacts on the citizens of California. His work has led to the publishing of numerous petroleum and ethanol studies since late 1999.

Pat holds a Bachelor of Arts degree in Geography from the University of California Santa Barbara.

Mr. ISSA. Thank you very much. Very helpful.

Rayola Dougher is manager of energy market issues, American Petroleum Institute. She has more than 20 years' experience in economic analysis of energy-related topics. Since 1985 her work has focused on public policy issues impacting the U.S. petroleum industry. And we look forward to your testimony. Thank you.

STATEMENT OF RAYOLA DOUGHER

Ms. DOUGHER. Thank you, Mr. Chairman, Congresswoman Watson. API welcomes this opportunity to discuss why gasoline prices are so high and what can be done about it. Obviously your constituents, like Americans everywhere, are concerned about the continuing rise in prices and the impacts on their wallets and on the U.S. economy.

I believe America's oil and natural gas industry shares common values and concerns with you. We share your commitment to finding workable solutions to our Nation's energy problems. We are committed to providing consumers with reliable energy supplies. We work hard to support economic growth. We believe our domestic oil and natural gas resources can be developed in a responsible way.

Technological advances enable us to produce energy while protecting the land and the environment. And we want to work with you in building support in Congress for urgently needed, comprehensive energy legislation.

Now, I'll leave the rest of my testimony, which you have, and I just thought I'd run through a few slides. Some of them might be redundant, so I'll be a little—I'll gloss over those points that we've already covered; OK? So here it goes.

Why we're facing higher cost, and I'm going to discuss a little bit about how we got here, supply and demand, and what we can do about it.

As we heard earlier it's really the forces of supply and demand on the international marketplace for crude oil. Those prices are set by the world's demand and the world's supply. And right now we have very limited spare capacity, and under these circumstances small changes have a big impact on prices. And what we've seen over the past year, especially if you look at the highest bar, 2004, you'll see a big bump-up in the world's demand. And the current high prices we're experiencing are in large measure due to this surge in demand.

And if you look at 2005 and 2006, the forecasts by EIA are for an additional 2 million barrels a day. This is twice as much as what we had been growing in the 1990's and early 2000's. And under these circumstances there's a lot of factors then that will affect the price in addition to the fact that capacity is very limited on the world's market. We used to have 6 million barrels a day extra capacity a few years ago, and now we're down to about 1. And this is in a world that's consuming 84½.

So under these circumstances any one or more of these factors—and we saw all of these last year—will have an impact on prices and continue to affect the marketplace as we move forward.

Well, if I can move the next slide forward, we'll be OK.

OK. This you've already seen, but I've put an extra line here with crude oil prices. And it just shows fundamentally how the gasoline prices are mirroring what's happening in the crude oil marketplace. And again, more volatility and higher prices in California are for some of the reasons already discussed.

This is just a simple chart. It was a moment in time, I think it was April 25th, and those prices do change somewhat, but I wanted to show you between April of last year and April of this year the price of crude oil is really what's moving the price at the pump more than anything else.

And I wanted to turn a little bit to earnings because there's a lot of frustration and misunderstanding about earnings in the oil industry.

It's a big industry, maybe the biggest in the world. This industry earns billions of dollars, but they spend hundreds of billions, even trillions bringing their product to market. So when you put it in the context of how much money is the industry making on every dollar of sales, last year they made 7 cents on every dollar of sales. The rest of U.S. industry—and this is just from a survey that Business Week does—earned 7.2 cents. Over the past 5 years the industry earned 5.6 cents on the dollar and the rest of U.S. industry 5.4.

This quarter, we only have preliminary figures for this quarter, but I think the oil and gas segment of what I'm showing above is pretty good. It's about 8.4 percent right now, 8.4 cents on every dollar of sales. And these others are just from a flash survey from Business Week and it's usually the early reporters with the higher results will report first, so that the U.S. oil industry average is high and ought to come down when Business Week publishes their corporate scoreboard in a couple of weeks. And we keep this data on our Internet and on our Web site.

Turning to the refining sector. The rate of return in the refining and marketing industry has been disappointing for a long time now. The bars show what the refining and marketing have earned in relationship to that backdrop, which is the S&P industrials. And they've been earning about, oh, half or less than half of what the S&P has earned. And beginning in 1990 with the Clean Air Act Amendment required massive investments in environmental expenditures to bring cleaner burning gasolines to market. Those investments were made, but smaller, less efficient refineries had a tough time keeping up, and a lot of them closed down.

You do hear a lot about no new refinery in the United States since 1976; that's true. Back in 1980 we had over 300 refineries. Today we have 148 operating refineries. But over this timeframe we have continued to produce even greater amounts of gasoline. We produce about 90 percent of what we use in the United States, and this is—we've been able to do this because of efficiency improvements and also because we're expanding the capacity and the utilization of that capacity. We're at 93 to 95 percent right now.

And there's a lot of misunderstanding, too, about the mergers that took place in the late 1990's. Part of the reason for these mergers really was to realize efficiencies and economies of scale. And this is just a simple figure that shows—that's calculated by subtracting taxes and refiner's composite price for crude oil from the retail price of gasoline. And it shows back in 1980 a cost of 95

cents to refine and market and distribute gasoline. By 1990 on average it came down to 61 cents. By 2000 it was at 52 cents. And it has varied quite a bit since then, in the 40's, up to over 50, 60 right now, but on average for a 5-year period it's been at 52 cents. These are real savings.

So in the near term the market outlook is for continued strong world oil demand. OPEC remains near capacity. There's spare capacity in Saudi Arabia and limited ability for non-OPEC to bring new product to market quickly. And geopolitical concerns remain, a lot of political instability in oil-rich nations and that continues to affect us. However, the market does work. It does respond to price. It does stimulate demand and it does dampen supply.

What do we need? We need a lot. We need additional exploration and development of production of fossil fuels. We need to increase our energy efficiency. We need greater penetration of hybrid vehicles, for example. We need a lot of R&D and alternative fuels, including fuels like tar sands, and shale and renewables, hydrogen.

And I don't need to tell you, the American Petroleum Institute is very gratified by passage of H.R. 6, and we do look forward to working with you to see comprehensive national energy legislation passed this year.

Thank you very much.

[The prepared statement of Ms. Dougher follows:]

Statement of Rayola Dougher, Manager, Energy Markets, on behalf of the American Petroleum Institute before the House Government Reform Subcommittee on Energy and Resources

May 9, 2005

Mr. Chairman, I am Rayola Dougher, manager, energy markets, for the American Petroleum Institute, which is the national trade association for the U.S. oil and natural gas industry. API represents all sectors of the industry, including companies that make and market gasoline.

API welcomes this opportunity to discuss why gasoline prices are so high and what can be done about it. Obviously, your constituents, like Americans everywhere, are concerned about the continuing rise in prices, and the impacts on their wallets and on the U.S. economy.

I believe America's oil and natural gas industry shares common values and concerns with you:

- We share your commitment to finding workable solutions to our nation's energy problems;
- We are committed to providing consumers with reliable energy supplies;
- We work hard to support economic growth;

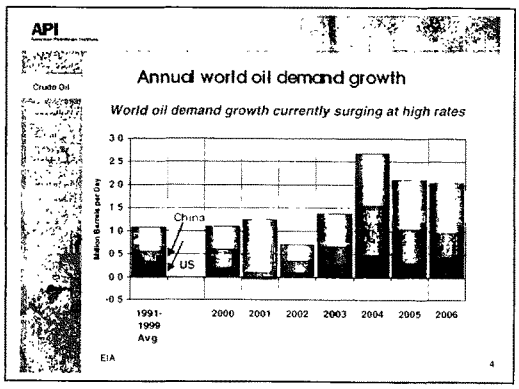
- We believe our domestic oil and natural gas resources can be developed in a responsible way -- technological advances enable us to produce energy while protecting the land and the environment; and
- We want to work with you in building support in Congress for urgently needed comprehensive energy legislation.

Why Have Gasoline Prices Risen?

The price of gasoline has risen in California, as it has across the nation, primarily because U.S. refiners are paying more for crude oil, the principal cost component of a gallon of gasoline.

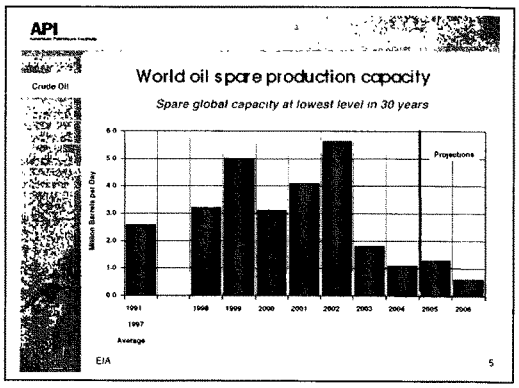
Over the past year, crude oil has risen more than $18 per barrel, the equivalent of more than 42 cents per gallon. However, the crude price remains well short of the inflation-adjusted high of $80 per barrel in 1981.

Prices are rising because of the forces of supply and demand in the global crude oil market. Supply and demand is in a razor-thin balance in the global market. Small changes in this market have a big impact.



World oil demand continues to grow. Demand reached unprecedented levels in 2004. Strong economic growth, particularly in China and the United States, is fueling a surge in oil demand. The U.S. Energy Information Administration (EIA) reports that global oil demand in 2004 grew by 3.4 percent – the strongest growth since 1978 – and projects growth to increase by about 2.6 percent this year and next. By comparison, world demand between 1993 and 2003 grew at an average rate of 1.6 percent.

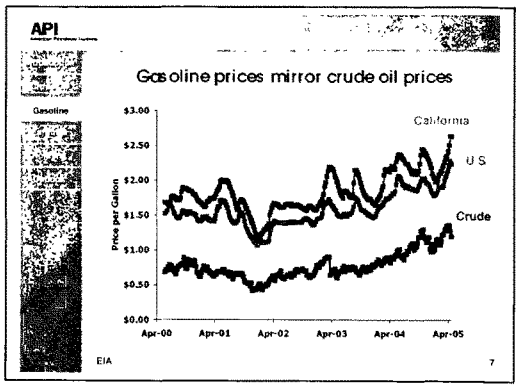
At the same time, world oil spare production capacity -- crude that can be brought online quickly during a supply emergency or during surges in demand -- is at its lowest level in 30 years. Current spare capacity is equal to about 1 percent of world demand. EIA projects spare capacity for 2005 at just over 1.0 million barrels a day. Thus, the world's oil production has lagged, forcing suppliers to struggle to keep up with the strong growth of demand.



The delicate supply/demand balance in the global crude oil market makes this market extremely sensitive to political and economic uncertainty, unusual weather conditions, and other factors. Over the past year, we have seen how the market has reacted to such diverse developments as dollar depreciation, an unusually cold winter, the post-war

insurgency in Iraq, the continued impact on the Venezuelan sector from the oil workers' strike in 2002-03, ongoing ethnic and civil strife in Nigeria's key oil producing region, and decisions by OPEC.

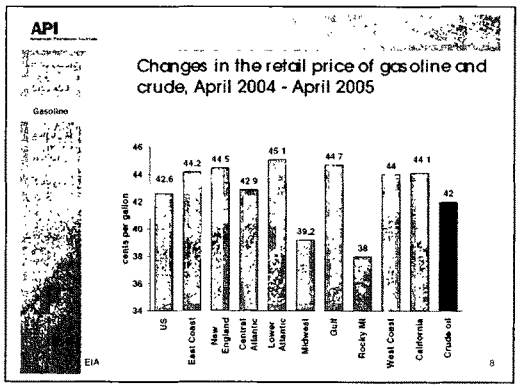
Gasoline Prices Mirror Crude Oil Prices



While consumer concern about high gasoline prices is very understandable, we must recognize that gasoline prices mirror crude oil prices. Crude oil costs make up more than 50 percent of the cost of gasoline. Retail gasoline prices and crude oil prices have historically tracked, rising and falling together. We import more than 60 percent of the crude oil and petroleum products we consume. American refiners pay the world price for crude and distributors pay the world price for imported petroleum products. U.S. oil companies don't set crude oil prices. The world market does. Whether a barrel is produced in Texas or Saudi Arabia, it is sold on the world market, which is comprised of hundreds of thousands of buyers and sellers of crude oil from around the world.

Gasoline Prices: California and U.S.

As crude prices rise, so, too, do prices at the pump. Gasoline prices have risen 42.6 cents per gallon over the past year, averaging $ 2.28 as of April 25. Here in California, the impact has been just as severe, with prices rising 44.1 cents since last April, averaging $ 2.61 as of April 25.

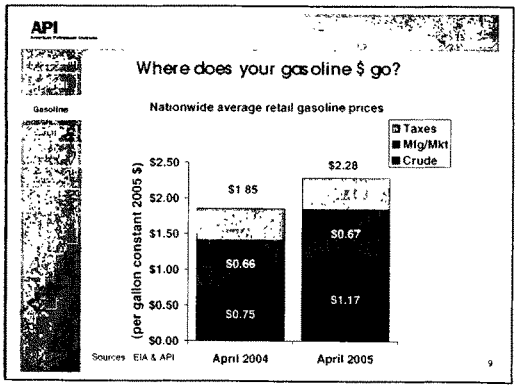


Meanwhile, U.S. gasoline demand continues to grow along with the U.S. economy, showing a moderate 1.3 percent increase over the level of a year ago. Gasoline production is running at record levels, averaging 1.2 percent above last year. Inventories have built up in recent weeks and are 5.5 percent above average for this time of year. U.S. refineries are operating at 92.3 percent of capacity.

Gasoline prices here in California are higher than elsewhere in the country because taxes are higher—about 13 cents per gallon more than the average for the rest of the nation—and because of the unique aspects of the state's gasoline market. That market was well described at the American Bar Association's 2005 spring meeting by Margaret E. Spencer, senior Deputy with the Antitrust Section of the California Attorney General's Office:

"The state of California is an 'island,' with its own boutique fuel and few sources of outside supply. It is an island with a petroleum infrastructure that at all levels is stretched to the breaking point. Its refineries are fewer than they were, and producing at capacity to respond to an ever increasing demand. Its refined product pipelines are full. Its storage terminals are full. Its marine docks are operating near or at maximum capacity. Local political pressure is eliminating critical marine and storage facilities to make room for container storage, parks, and 'windows to the water.' The end result is that when a single refiner or pipeline operator suffers a disruption, it can be difficult to make up the slack in the short term." (Margaret E. Spencer, "Increasing Gas Prices: A California Perspective," March 2005)

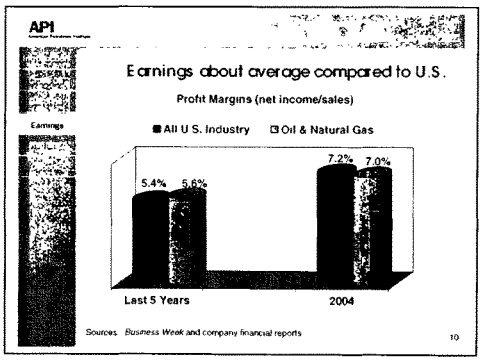
California gasoline supply has struggled to keep up with gasoline demand even though gasoline production is at record levels, averaging 3.4 percent above average so far this year. West coast inventories are 0.7 percent below average for this time of year, but 12.5 percent above where they were a year ago.



Despite the tight market in California for refined products, the most significant shift here and across the country in the price of gasoline is due to the change in the price of crude. When the price of crude oil is $49 per barrel, as it was recently, a refiner paid about $1.17 cents for a gallon of crude oil in order to make a single gallon of gasoline. A year ago, it was just 75 cents a gallon. In addition, other costs affect the pump price, including the cost of running refineries, transporting the finished gasoline to

markets via pipelines and trucks, and operating retail outlets. These costs account for about 67 cents per gallon of the price at the pump nationwide, or a penny more than last year. In addition, there are taxes, 44 cents per gallon nationwide.

Earnings

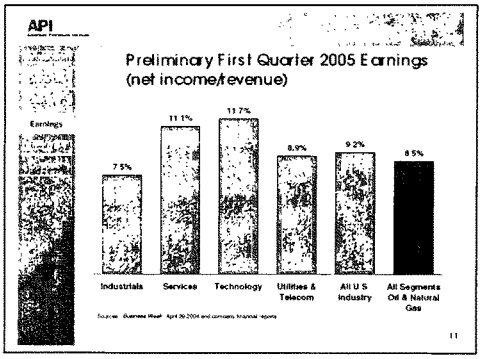


There is a lot of misunderstanding about the oil and natural gas industry's earnings and how they compare with other industries. The oil and natural gas industry is probably the world's largest industry. Its revenues are large, but so are it costs, both the cost of finding and producing oil and natural gas and the costs of refining, distributing and marketing it. Oil companies are making billions of dollars in earnings, but they are spending trillions bringing crude oil and petroleum products to market.

The industry's profitability is not out of line with other industries and often it is lower. This fact is not well understood, in part, because reports typically focus on only half the story—the profits earned. Profits reflect the size of an industry, but they're not necessarily a good reflection of financial performance. Profit margins (measured as net income divided by sales) provide a better measure of a company or an industry's health,

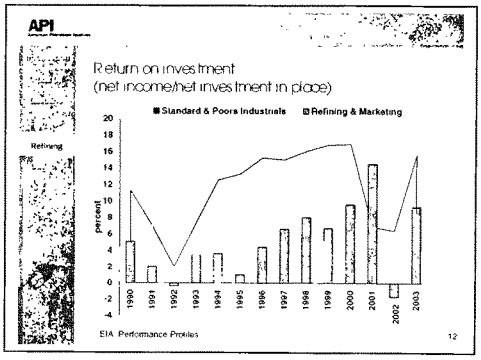
and also provide a useful way of comparing financial performance between industries large and small.

The latest preliminary data for the first quarter of 2005 shows the profit margins of the oil and natural gas industry averaged 8.5 percent compared to an average of 9.2 percent reported by *Business Week* for other major sectors of U.S. industry.[1] Last year the oil and natural gas industry realized earnings of 7 percent compared to an average of 7.2 percent for all U.S. industry. Over the last five years, the oil and natural gas industry's profit margin averaged 5.6 percent compared to an average for all U.S. industry of 5.4 percent, or just over a nickel for every dollar of sales.



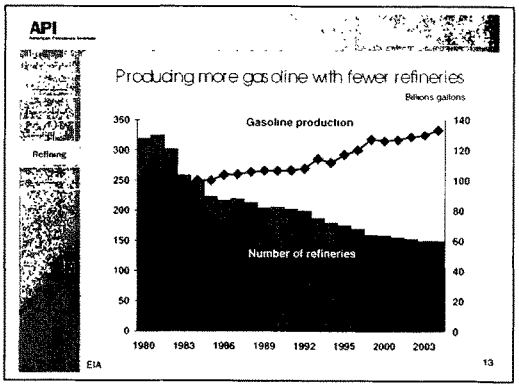
Refineries

During the 1990s, the oil industry earned relatively poor rates of return on their investments. This was especially true in the refining sector, which was hard hit with the need for



[1] "Flash Report," *Business Week*, April 28, 2005. Includes Industrials, Services, Technology, Utilities & Telecom.

new investment in technology and equipment to produce cleaner burning fuels to meet clean air standards set by the Clean Air Act of 1990. The act had a major impact on the operation of refineries in the U.S. and the return on investment realized at the time.



Technological advancements have helped refineries produce more from existing facilities than they did in the past. In addition, the elimination of subsidies under the government price and allocation controls in 1981 led to the closure of many smaller, less-efficient refineries throughout the 1980s and 1990s. Those refineries left standing did a better job of bringing product to market for less. This consolidation benefited consumers. We can see this in the decline in the refiner/market margin (measured as the difference between the retail price of gasoline minus taxes and minus the refiner's composite crude oil price). Back in 1980, the cost to refine and market and distribute gasoline averaged about 95 cents per gallon (in inflation-adjusted terms). By 1990, it averaged over 61 cents per gallon, and, by 2000, it was 52 cents per gallon, which is about where it has averaged over the last five years. Multiplying these reductions by the 330 billion gallons of petroleum products consumed translates into billions of dollars of savings for consumers. We all benefit every day from these improvements and efficiency gains.

Outlook

Energy analysts generally agree that the near-term market outlook is for continuing strong world oil demand, with limited spare capacity to meet growing demand. The political and economic concerns remain, contributing to continued volatility and uncertainty in the global market. However, as the forces of supply and demand respond to price, the market should adjust accordingly.

We understand the frustration of consumers with high gasoline prices. The price increases have generated calls for investigations. However, some 30 different state and federal government investigations over several decades have found no evidence of wrongdoing. They all conclude that market forces of supply and demand are at work.

What Can Be Done?

The solution to high gasoline prices is more supply of crude oil and gasoline and less demand, but there is no simple strategy to make that happen.

The sad fact is that the current approach to national energy policy has failed U.S. consumers. The net effect of current oil and natural gas policy is to decrease reliance on domestic production and increase dependence on foreign imports. Moreover, while crude oil imports have been growing for some time, product imports are also growing rapidly due to constraints on U.S. refining capacity.

The problems we face are very real. Growing world demand for energy, failure to enact energy legislation, and a lack of commitment to developing our domestic resources have resulted in a tight supply/demand balance for U.S. consumers, including industrial users. This has led to recurring price spikes, greater market volatility, and overall strain on the nation's energy infrastructure. The big losers are America's consumers who depend so heavily on affordable, available energy to heat and cool their homes, fuel their vehicles, and power their businesses.

While we must focus on producing more energy here at home, we do not have the luxury of ignoring the global energy situation. In the world of energy, the U.S. operates in a global marketplace. What others do in that market matters greatly.

For the U.S. to secure energy for our economy, government policies must create a level playing field for U.S. companies to ensure international supply competitiveness. With the net effect of current U.S. policy serving to decrease U.S. oil and gas production and increase our reliance on imports, this international competitiveness point is vital. In fact, it is a matter of national security.

Meeting Future U.S. Energy Demand

Today's soaring energy prices are an outgrowth of years of restrictive government policies that have rendered it increasingly more difficult to find, produce, and process the U.S. energy reserves needed to keep pace with our nation's growing economy. We cannot

solve a problem that has been years in the making with less than comprehensive answers and remedies.

This comprehensive approach must include additional exploration, development and production of fossil fuels; additional increases in energy efficiency, such as greater use of hybrid vehicles; and increased research and development related to alternative fuels, such as tar sands, shale, renewable fuels, hydrogen, and methane hydrates.

Our already massive U.S. energy needs will continue to grow as we move into the 21st century. We do not have the luxury of focusing on just one source of energy and neglecting others. What is needed is a comprehensive effort to produce more domestic energy of all kinds, modernizing and expanding our energy infrastructure, and increasing our reliance on energy efficiency and alternative fuels.

In an industry with huge capital demands and where long lead-time investments are necessary in order to increase volumes of delivered products, short-term fixes are not the answer. Nor is inaction, which burdens consumers and producers, as well as those seeking increased energy efficiency and expanded use of renewable and alternative fuels. Only comprehensive solutions are capable of addressing the long-term supply and demand imbalances that threaten America's security and economic prosperity.

API and its member companies are committed to working with the Congress to achieve passage of comprehensive energy legislation that provides long-term solutions to our

energy challenges. Our industry has a long, proud history of meeting the needs of consumers, your constituents, but we cannot solve the nation's energy problems alone. That is why we are delighted that the House of Representatives passed H.R. 6, the comprehensive energy legislation that we strongly support. We hope the Senate will act expeditiously on this urgently needed legislation.

While the energy legislation is no short-term remedy to high gasoline prices, it is a major step forward in addressing the energy problems that have contributed heavily to high prices. Had we enacted such legislation four years ago – when President Bush first proposed it – our nation would be in a much stronger energy position today.

Enactment of this legislation will ensure diversity in energy supplies; promote energy efficiency, new technologies, conservation, and environmentally responsible production; modernize America's energy infrastructure; strengthen our economy; and create new jobs.

Such legislation will also address three vitally important energy policy areas: refinery capacity, fuels policy issues and boutique fuels.

Refinery Capacity

The expansion of refinery capacity must be a national priority. The recent gasoline price increases, while primarily caused by increased crude oil prices, have underscored the fact that U.S. demand for petroleum products has been growing faster than – and now exceeds

– domestic refining capacity. While refiners have increased the efficiency, utilization and capacity of existing refineries, these efforts have not enabled the refining industry to keep up with growing demand. Even with a projected expansion of product imports of 90 percent, the Energy Information Administration (EIA) forecasts a need for 5.5 million barrels a day of additional refinery capacity by 2025 beyond today's 16.9 million barrels a day of capacity, even with higher utilization rates.

The fact is that -- faced with increasingly more challenging fuels regulations -- only major refineries have the resources needed to expand their capacity. Smaller refineries are increasingly unable to afford to expand. Moreover, local opposition and not in my backyard (NIMBY) attitudes persist here, too, and prevent new refineries from being constructed. The steady growth in U.S. fuels demand must increasingly be met by foreign product imports. Thus, in addition to blocking or delaying refinery expansion, the extensive federal regulatory burden is contributing to increased reliance on foreign product imports. This is a result that neither serves the best interests of U.S. consumers nor bolsters the U.S. economy and American jobs.

Government policies are needed to create a climate conducive to investments to expand refining capacity. The President's innovative proposal to build new refineries on closed military bases deserves serious consideration. The refining situation must be addressed now. The federal government should act as a facilitator for coordinating and ensuring the timely review of federal, state and local permits to expand capacity at existing refineries and possibly even build a new refinery. Enactment of the energy bill would be an

important step by encouraging new energy supply and streamlining regulations, leading to greater production and distribution flexibility.

Fuels Policy Issues

API and its members support the fuels title contained in the energy bill passed by the House last month. The fuels title would repeal the federal oxygenate requirement for reformulated gasoline and require a national phase-out of MTBE. It also provides a renewable fuels standard phasing up to 5 billion gallons, with a credit trading program to allow the use of renewable fuels where most feasible and cost-effective.

The fuels provisions are needed to discourage state MTBE bans and other specialty fuel requirements. Individual state requirements can increase the number of fuels required within supply regions, thereby increasing the potential for fuel distribution and supply problems. Twenty states have already enacted uncoordinated MTBE bans, caps, or other limits; and other states are considering them.

API, the National Petrochemical & Refiners Association, fuel marketers, and numerous farm and ethanol interests support these fuels provisions. They offer carefully considered solutions to the fuels problems that have challenged fuel providers and burden energy consumers.

Boutique Fuels

Passage of the comprehensive energy legislation is the best way to address the boutique fuels problem: the increasing number of localized fuels that significantly complicate gasoline distribution, contributing to higher prices and tight supplies. The fuels title of H.R. 6 would repeal the federal reformulated gasoline oxygenate requirement in the Clean Air Act, a major driver of boutique fuels. It would also require that EPA consult with DOE on the supply and distribution impacts of new state requests for specialized fuels. Finally, the bill would require EPA and DOE to conduct a comprehensive study of the impacts of boutique fuels and make recommendations to Congress for addressing them, within 18 months of enactment. Given these significant changes and the benefit of the study recommendations, we urge members of Congress to resist imposition of any additional fuel specification changes outside the context of the national energy legislation.

Conclusion

We recognize the impact that high gasoline prices have on California's families and on families across the country. The most important thing my industry can do in the near term is to make and market as much gasoline as we possibly can and encourage consumers to use it efficiently. We will continue to do both.

The concerns that Californians and Americans nationwide have expressed about soaring gasoline prices highlight the need for action to address the energy challenges confronting

our nation. You and your colleagues in the House have taken a major step forward in passing the comprehensive energy legislation, H.R. 6, and we hope the Senate will act quickly and send a bill to the President. Too much is at stake for our country, our economy, and our place in the world to delay action any longer on this urgent national priority.

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Gasoline: What's Causing Record Prices at the Pump?

House Government Reform Subcommittee on Energy and Resources, Long Beach, California May 9, 2005

Rayola Dougher

Manager, Energy Markets Issues

www.api.org, www.gasolineandyou.org, www.naturalgasfacts.org

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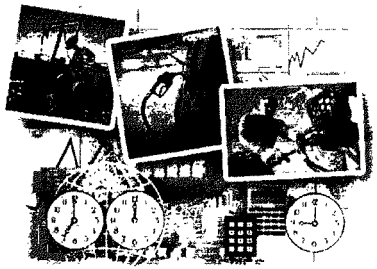

- Why we are facing higher gasoline costs
- How we got here: Supply/ demand/ prices
- What we can do about it

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Crude Oil

- Forces of supply and demand worldwide.
- Limited spare capacity -- >1%
- Small changes have big impact.

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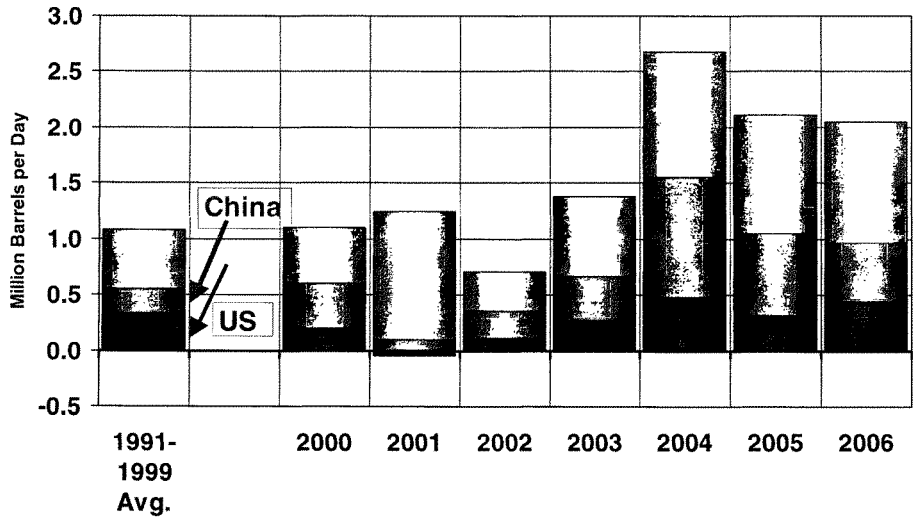
Annual world oil demand growth

World oil demand growth currently surging at high rates



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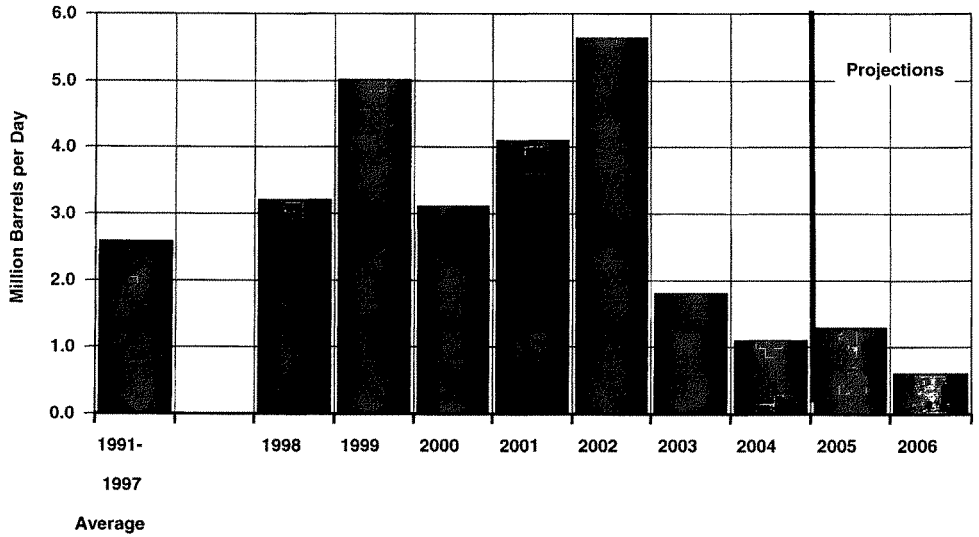
World oil spare production capacity

Spare global capacity at lowest level in 30 years



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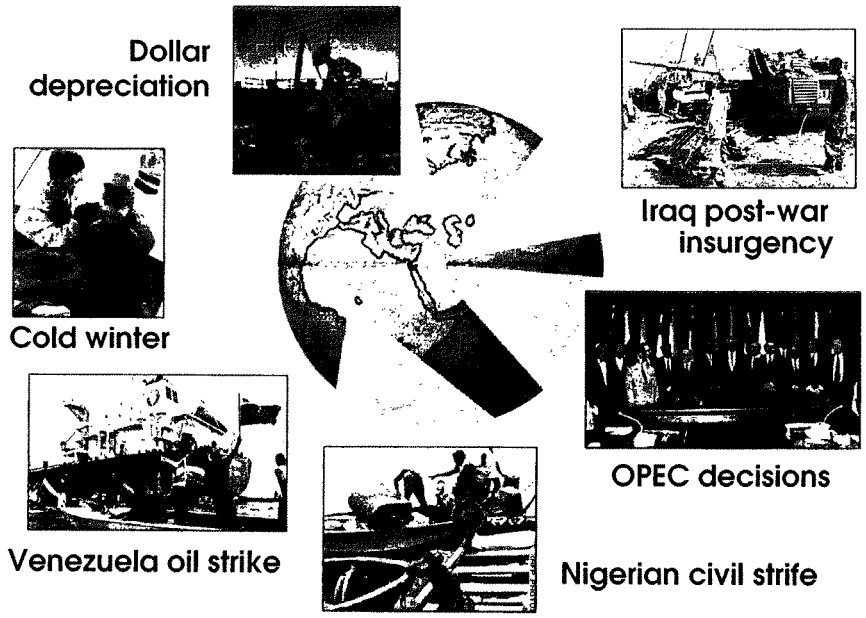
Factors affecting markets—political and economic uncertainty, weather



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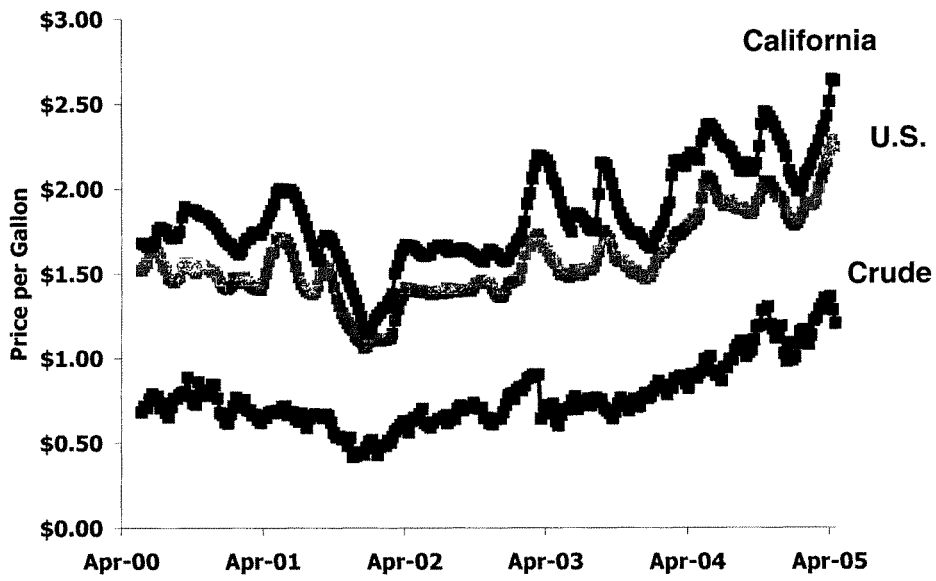
Gasoline prices mirror crude oil prices



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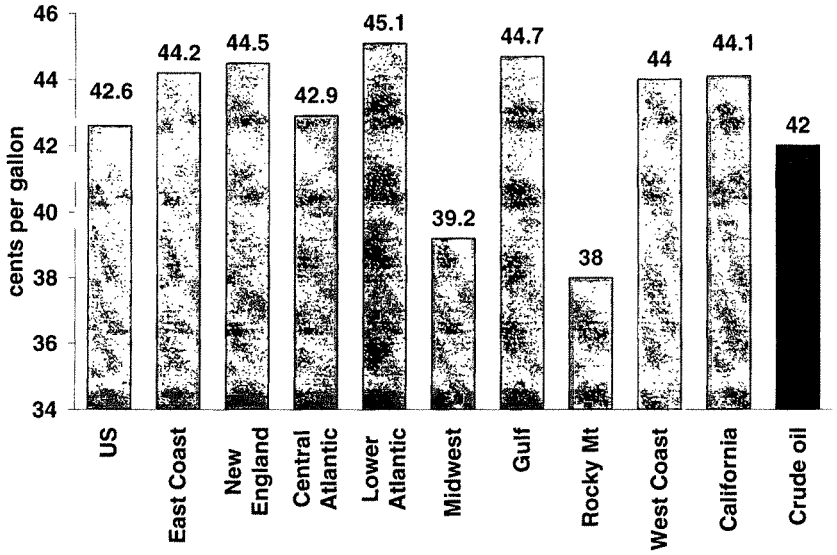
Changes in the retail price of gasoline and crude, April 2004 - April 2005



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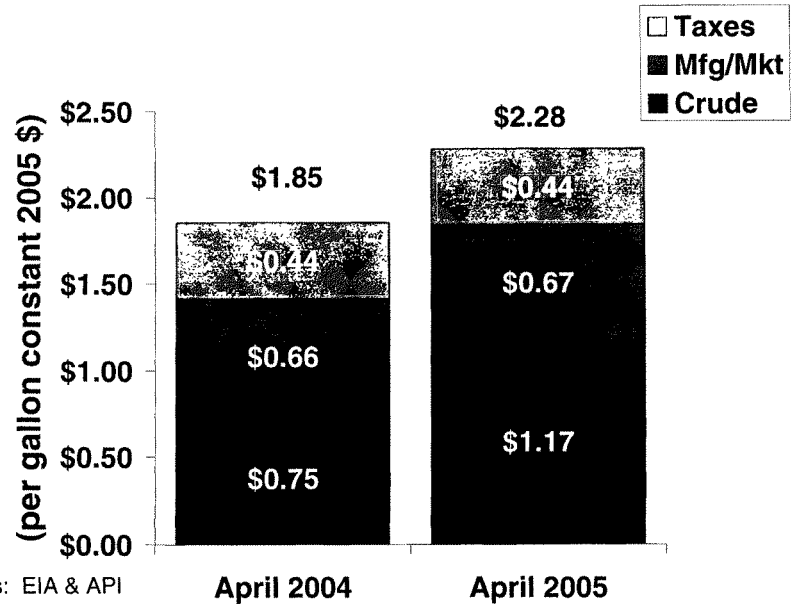
Where does your gasoline $ go?

Nationwide average retail gasoline prices



Sources: EIA & API

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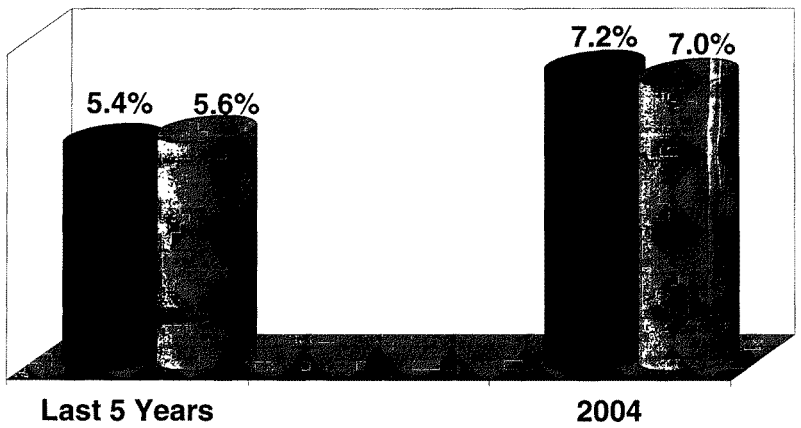
Earnings about average compared to U.S.

Profit Margins (net income/sales)



Sources: *Business Week* and company financial reports

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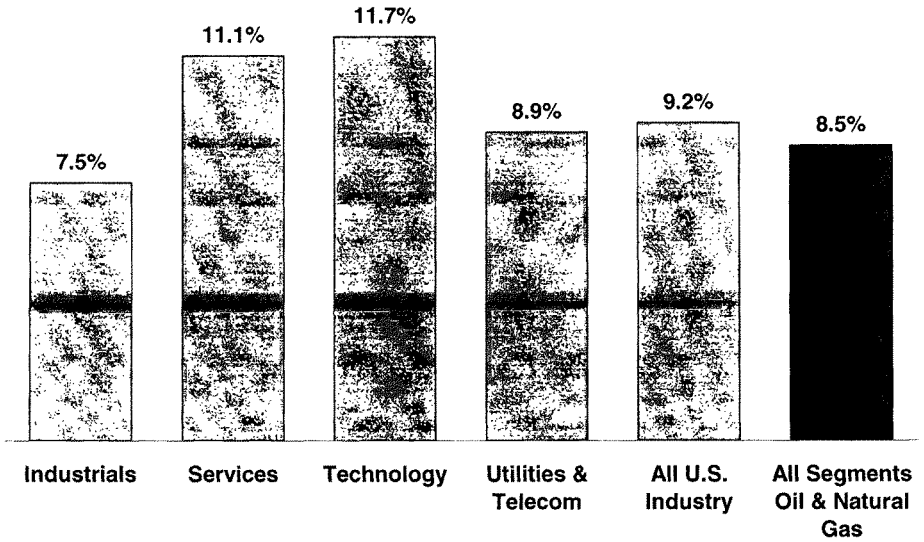
Preliminary First Quarter 2005 Earnings (net income/revenue)



Sources: *Business Week*, April 29,2004 and company financial reports

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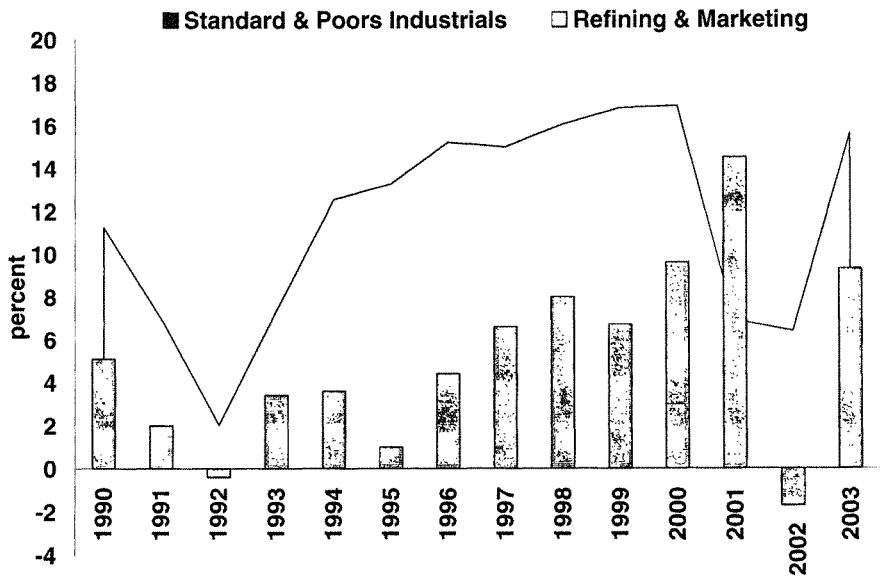
Return on investment (net income/net investment in place)



EIA, Performance Profiles

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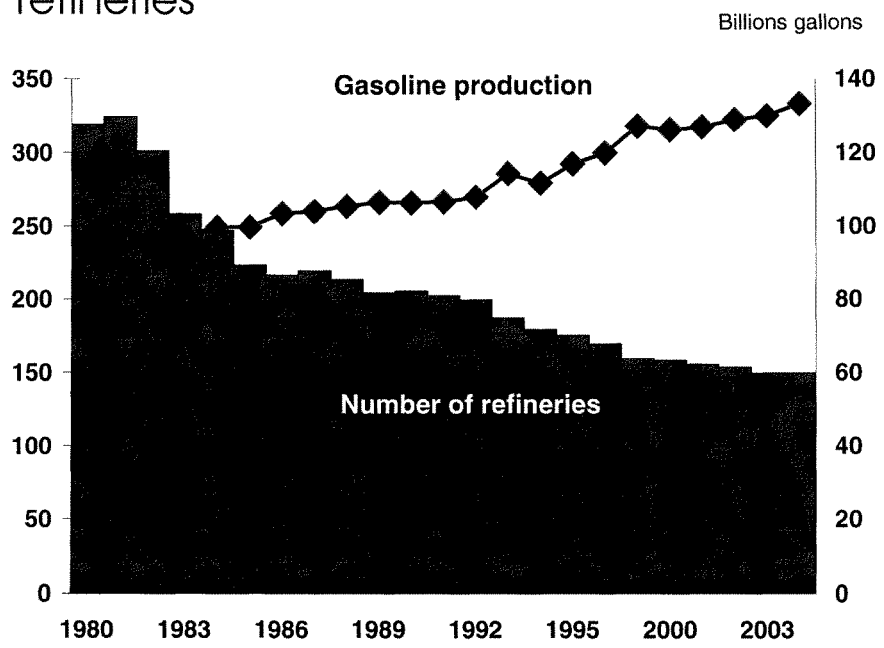
Producing more gasoline with fewer refineries



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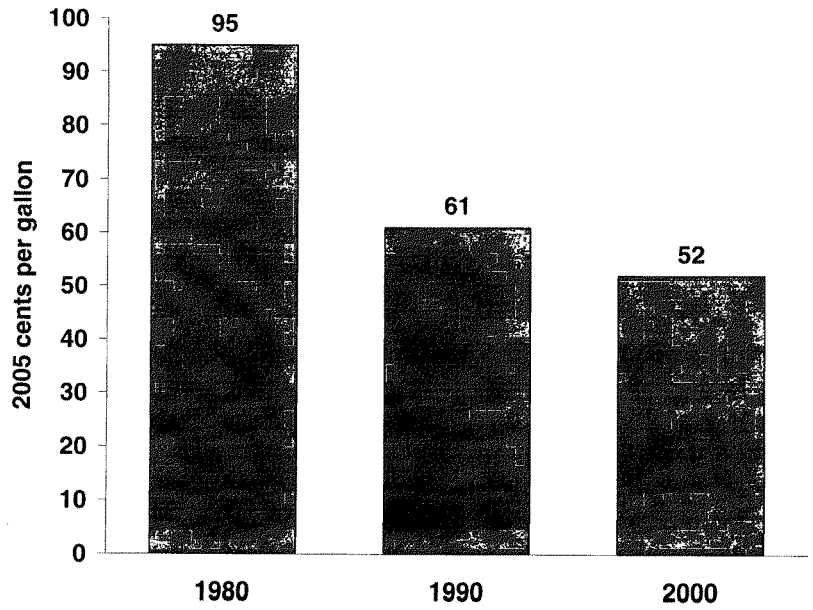
Refining and marketing costs down = savings for consumers



Sources: EIA & API

Near term market outlook

- Continuing strong world oil demand
- OPEC remains near capacity
- Geopolitical concerns remain
- However, supply and demand respond to price, market will work

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To meet future demand need mix

- Additional exploration, development and production of fossil fuels;
- Additional increases in energy efficiency, e.g., greater penetration of hybrids
- In coming decades, research and development of alternative fuels (tar sands, shale, renewables, hydrogen, methane hydrates...)

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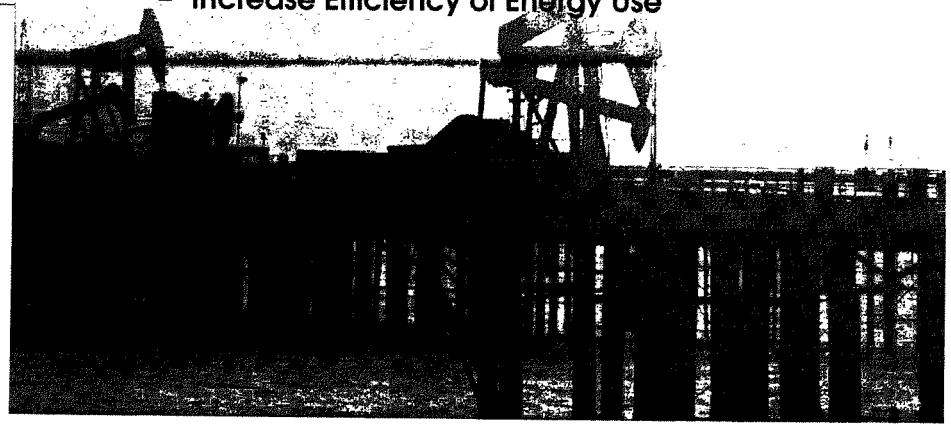
What we can do now? Pass National Energy Legislation

- Increase Domestic Production of Oil and Gas
- Increase Refiner Flexibility
- Increase Renewables/Alternative Fuels
- Increase Efficiency of Energy Use



Mr. ISSA. Thank you. And now the part you've all been waiting for. And I'll start the questioning, but because the two of us will be the only panelists or only questioners of the panelists today, I might ask my ranking member if we alternate questions rather than worry about time. That will give you a variety of questions.

Mr. Cook, I'd like to start with you. You testified that there's been about a 12-cent per gallon increase between the cost of crude oil and retail gasoline prices over the past year: 7 cents due to increased refinery costs and profits, 5 cents due to increased distribution costs and/or marketing costs and profits.

Are you saying that you can't explain this by cost alone and that at least a portion of this increase is greater than can be justified by cost and commensurate percentage profits?

And I'll make it simple for an old businessman, it looks like gouging of some portion of that, doesn't it?

Mr. COOK. With all due respect, I think what I was trying to illustrate—and I think it was figure 6 that did a little better job—as the refining industry and the distribution, the retail segment, operates at higher and higher levels on less and less spare capacity, that tends to raise the marginal costs in producing those last barrels of gasoline, and that turns out to—in fact, is reflected in higher retail prices.

So, no, I would not refer to it as gouging. It's a symptom of an industry that is seeing supplies tighten further and further with a need to have clean fuels, but it does come with a price tag. It does tend to raise marginal costs.

Mr. ISSA. I appreciate that, and on the same question with Ms. Dougher. If I understand, you were showing us percentages, and if I understood correctly, percentage return—and I'm very appreciative that percent of return has been low for this industry—but percent of return over the last year has been significantly higher, about 33 percent higher than they were running. In other words, you go from 5 percent to 8 percent. That's a 30 to 50 percent increase in your return.

Ms. DOUGHER. I'd like to clarify that. I think you were just talking about the profits themselves. And what my chart was showing was profits divided by the revenue. So how much money are you making on every dollar that you get? So that was showing—for example, the most recent quarter was 8½ cents. Last year was 7 cents on the dollar. Now that's a big improvement over a nickel or nickel and a half. So that's a big bump up. I think what happens often is people just look at the profits, not as what's being spent to bring the product to market. You're spending ever greater amounts, and it takes a long lead time and huge investments that this industry has to make to continue to produce more and to bring more product to market.

Mr. ISSA. I wanted to respect that back-and-forth questioning, but in my next round I'd like us to all think in terms of where I came from, the electronics industry. If my costs were rising, everybody after that cost comes in generally found themselves squeezed to try to get to the retail consumer. If you were bringing in something to market that Circuit City was going to sell and they've been paying $2 but your costs went up from $1 to $1.50, you generally

try to figure out how you could still deliver it at $2, which meant you compressed your profit margins.

What I heard here today is that at a time which the raw product price is rising, profit margins are expanding. And no matter how you look at that, that's the opposite of what one would expect. If the beef in a restaurant is going up in price, the restaurant is generally trying to find ways to hold their top price as close as possible to what it was, which means it's compressing somewhere. But we're having just the opposite. We're having an expansion of those margins after the cost of the product.

Ms. DOUGHER. Remember the one slide did show how the refining and marketing and distribution costs in America have been coming down for quite a long time now as efficiency improvements and economies of scale were realized. But on the other end of it the cost that we can't control that's set on the world marketplace is the cost of the crude oil. And that is determined upon hundreds upon—well, millions of decisions each and every single day on that marketplace. So if you're a producer right now in America and the price of crude has gone from $35 a barrel to $50 or $55, than you're realizing good rate to return and searching for new places to explore and develop and bring ever more product to market. You have every incentive to do that, especially at these prices. It's happened quickly and these projects take long lead times to develop.

Mr. ISSA. Sure. And I'm going to respect our back-and-fourth agreement. So, Ms. Watson?

Ms. WATSON. I want to thank you very much, Mr. Chairman. When I look at the list of witnesses and I refer back to the question for the hearing, what's causing record prices at the pump, I hear from our U.S. Department of Energy and I hear from the American Petroleum Institute, and maybe only a couple of the witnesses that really would be more leaning toward the consumer side.

So with that said, I had to—I requested a report, Mr. Chairman, "The Impact of Increased Oil Prices in the Los Angeles Area," and I seek permission to include this in the record.

Mr. ISSA. Without objection.

[The information referred to follows:]

MINORITY STAFF
COMMITTEE ON GOVERNMENT REFORM
U.S. HOUSE OF REPRESENTATIVES
MAY 2005

Prepared for Rep. Diane E. Watson

The Impact of Increased Gasoline Prices in the Los Angeles Area

BACKGROUND

In recent weeks, gasoline prices have increased dramatically, exceeding $2.25 per gallon and reaching record highs in April 2005.[1] The cost of gasoline is expected to remain high, with the United States Energy Information Administration predicting prices at record levels through the summer.[2] This will be the second consecutive summer with record high gasoline prices.[3]

These high gasoline prices have significant impacts on family budgets — and on the economy as a whole. Increased expenditures for gasoline reduce families' discretionary income and can result in inflation in the price of consumer goods. One analyst indicated that "for low-income households in particular, the choice increasingly is becoming: "Do I fill my gasoline tank or do I buy something else?"[4] Although the House of Representatives passed an energy bill on April 21, 2005, President Bush has acknowledged that the bill will offer no relief from high gas prices.[5]

At the request of Rep. Diane E. Watson, this analysis examines the impact of the increase in gasoline prices in the Los Angeles area. It finds that the increased costs could force motorists in the Los Angeles area to pay more than $1.8 billion more for gasoline in the spring and summer of 2005 than they did over the same time period in 2003. For the average family in the Los Angeles area, the increase in gasoline prices could increase fuel costs by approximately $450 over the next six months.

METHODOLOGY

This analysis estimates the increased amount that consumers will spend on gasoline from April 1, 2005, through September 30, 2005, due to rising gasoline costs. It is based upon (1) data from

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1 *Gasoline Keeps On Rising*, CNN Money (Apr. 8, 2005).

2 Energy Information Administration, *Short Term Energy Outlook* (Apr. 7, 2005) (online at http://www.eia.doe.gov/emeu/steo/pub/contents.html).

3 *Id.*

4 Mark Zandi, quoted in *Get Used to High Gas Prices, U.S. Says*, Los Angeles Times (Apr. 8, 2005).

5 *Bush Concedes Energy Bill Offers No Help on Gas Prices*, New York Times (Apr. 21, 2005).

the United States Energy Information Administration that tracks changes in fuel prices and (2) data from the Department of Transportation's Federal Highway Administration that tracks fuel usage and driving patterns at the state and local level. This data is used to estimate total gasoline usage for the state and for the Los Angeles area. Total increased spending on gasoline is determined by multiplying the estimated increase in gasoline prices between 2003 and 2005 by the estimated amount of gasoline that will be used in the area.

FINDINGS

A. Gasoline Prices in the Los Angeles Area

In recent months, gasoline prices have increased rapidly statewide and in the Los Angeles area. On May 5, 2005, the average price of a gallon of regular gas in California was $2.61.[6] Compared to prices one year ago, this represents an increase of 45 cents per gallon.[7] Prices have increased by a similar amount in the Los Angeles area. On May 5, 2005, the average price of a gallon of regular gasoline in the Los Angeles area was $2.58, an increase of 42 cents per gallon compared to prices one year ago.[8]

The U.S. Energy Information Administration has predicted that gas prices will remain at or near record high levels through the summer, the second consecutive year of record gasoline prices.[9] In 2003, from April through September, the average price for a gallon of gasoline in California was $1.83 per gallon.[10] In 2004, over this same time period, the average price of a gallon of gasoline was $2.19 per gallon in California. The United States Energy Information Administration predicts that over the same time period in 2005, the national average price of a gallon of gasoline will be $2.28 with prices on the West Coast "expected to be substantially higher."[11] In past years, average gasoline prices in California have been 26 cents above the national average. If this differential remains the same, the average price in California will be $2.54 from April through September. This is a 71 cent increase per gallon compared to 2003 prices — a 39% increase.

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6 AAA, *Daily Fuel Gauge Report* (March 29 2005).

7 *Id.*

8 *Id.*

9 Energy Information Administration, *Retail Gasoline Historical Prices* (Apr. 2005).

10 *Id.*

11 Energy Information Administration, *supra* note 2.

B. The Impact of Increased Gasoline Prices in the Los Angeles Area

In 2005, drivers in California will purchase approximately 15.8 billion gallons of gasoline, over 1.3 billion gallons per month.[12] Assuming that average gasoline prices are 71 cents per gallon higher this year than in 2003, increased gasoline prices would cost drivers statewide an additional $920 million monthly compared to what they paid in 2003. Over the six-month spring and summer driving period, the total increased cost would be over $5.5 billion.

An estimated 33% of all gasoline used in California is used in the Los Angeles area.[13] This means that Los Angeles drivers purchase approximately 430 million gallons of gasoline monthly. Assuming that gas prices in the region are 71 cents per gallon higher this summer than in 2003, increased gasoline prices will cost Los Angeles drivers an additional $305 million monthly compared to what they paid in 2003. Over the six-month spring and summer driving season, the total increased cost for Los Angeles drivers would be approximately $1.8 billion.

C. Individual Costs of Increased Gasoline Prices in the Los Angeles Area

There are an estimated eight million drivers in the Los Angeles area.[14] On a per-driver basis, the increased gasoline prices will cost the average driver in Los Angeles approximately $225 more in fuel costs between April 1 and September 30 compared to 2003. An average two-car family in the Los Angeles area will spend an additional $450 on gasoline during this six-month period.

CONCLUSION

This analysis finds that increasing gasoline costs will have a significant impact on drivers in the Los Angeles area. In the aggregate, increased gasoline prices could cost area drivers more than $1.8 billion over the next six months, with the average two-car family in the area paying $450 extra for gasoline during this period.

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12 The latest statewide data available from the Federal Highway Administration is for 2003. FHWA, *2003 Monthly Motor Fuel Use Reported by States* (Apr. 2005). This data shows that drivers in California purchased 15.3 billion gallons of gasoline in 2003. According to the Energy Information Administration, gasoline use will increase by approximately 3% between 2003 and 2005. A 3% increase in gasoline use in California would result in California drivers using 15.8 billion gallons of gasoline in 2005. Energy Information Administration, *supra* note 2.

13 Based on Federal Highway Administration estimates that 33% of all vehicle miles traveled in California are in the Los Angeles area. This analysis assumes that gasoline use is in direct proportion to vehicle miles traveled. Federal Highway Administration, *Highway Statistics, 2003* (2005).

14 Federal Highway Administration data show that statewide, there are 639 registered drivers for every 1,000 individuals in California. *Id.* Assuming this ratio applies to the population of the Los Angeles area, which is 12.5 million, there would be eight million drivers in the Los Angeles area.

Ms. WATSON. All right. So let me address my question now to the GAO, probably the only one on this panel that might see the problem differently from the consumer side.

Your May 2004 report found the link between the recent wave of mergers and high gas prices. There is, I think, a relationship there, regardless of what's been said by this panel. But your price analysis ended in the year 2000. Was there another one since then?

Mr. WELLS. There has not been.

Ms. WATSON. OK. So long before the approval at least of the last two large mergers, which was ChevronTexaco and ConocoPhillips, and would it be safe to say that your report understates the price impact of mergers on gasoline?

Mr. WELLS. Congresswoman, we took extensive effort in designing a methodology that had never been used before. We tried to consult with experts and got peer review expertise to look at the type of design model that we were putting together. And I would say that we erred on the side of conservative estimates wherever possible. So I would not say underestimated.

Ms. WATSON. This is 2005. Your report was done in 2000.

Mr. WELLS. That's correct. It looked at mergers that occurred over a 10-year period from 1990 to 2000.

Ms. WATSON. OK. But look at the gasoline prices. And from what I've seen on your charts the prices have gone up within the last 5 years. And we've had mergers since then. So I would say that your data end results are stale. Would you agree?

Mr. WELLS. I'm sorry, our data was what?

Ms. WATSON. Stale.

Mr. WELLS. Stale?

Ms. WATSON. Yes.

Mr. WELLS. I would have to agree.

Ms. WATSON. OK.

Mr. ISSA. Time to ask for your new study.

Ms. WATSON. That's where I'm going. Because I did ask my staff to go out and do a little research. Because we get the complaints. You're getting the complaints. And what I've heard today does not answer the question for me.

Now, capacity has been mentioned, but it seems to me, and this one goes to Ms. Dougher, if you are merging, then you ought to plan for a larger capacity. Why aren't the—why aren't there new refineries being built? Why aren't you anticipating the capacity? California is a State where one person on the average has six automobiles. And people love their SUVs and all these—I mean, you can do the math, and I don't think we're going to get Californians out of their automobiles because we're not building the metrorail systems, and I've been trying in my district since the early 1980's to connect up the basin. And we've tried everything. And we can't get people out of their cars.

We have a Governor that has six—what do you call those things, those armored-looking things?

Mr. ISSA. He's called for hybrid Humvees.

Ms. WATSON. He's got six of these he owns himself.

Mr. ISSA. Actually, he has a dozen.

Ms. WATSON. It's more than I knew.

So we're not going to realistically get them out of those cars. You can only drive one car at a time. So, Ms. Dougher, what is this institute recommending that we do for the future? Apparently, we're not having enough influence on OPEC and—because they keep raising their prices. And, I mean, the fossil fuel is there and we know it's there. We just came back from Qatar a couple weeks ago, and they told us we have enough natural gas and enough crude to service, No. 1, with natural gas, any home for the next hundred years, and to service your need for your automobiles ad infinitum. So it's there.

Now, why is it that we are not building for that capacity?

Ms. DOUGHER. We have been building for that. Capacity has increased and the utilization of that capacity has increased, but it's as an industry as I showed you that it's realizing very poor rates of return for a long time now. It's producing 18 different formulations of gasoline, two different seasons, three different octane levels. It gets complicated fast.

Ms. WATSON. I know.

Ms. DOUGHER. So it's economic and it's also political. There's a lot of "not in my backyard" that goes on. And it's been very, very difficult to expand existing capacity. Never mind building a refinery. The one in Arizona, I think the permitting in there, has been going on for 10 years now, and as we just heard it might get done in another 5.

So it has been difficult economically. It's been difficult politically. And the remainder of what we need we've been importing because it's just been so difficult to get anything done here.

Ms. WATSON. I understand—and then I'm going to throw it back to Mr. Chairman—that the United States is the third largest producer of oil in the world after Saudi Arabia No. 1, Russian No. 2. We're No. 3.

We're producing that oil and you're merging. The oil industry is merging and we're paying the price, these high prices. Something is missing. Maybe we can get to it; maybe we can't. Something is missing in this equation. OK, Mr. Chairman.

Mr. ISSA. And perhaps I can get to it. Following up on my earlier line of questioning, and this, by the way, is very consistent with a lot of the questions that we got from our e-mails. ConocoPhillips has increased profits this first quarter of 2004 versus the first quarter of 2005, by 80 percent. Shell 42 percent. British Petroleum 36 percent. ExxonMobil 44 percent, and so on.

I hate to say this because it was my generation, but a generation ago we had a sudden rise in profits of this sort and Congress passed the Windfall Profits Tax. I looked through the record of how that worked and there's considerable debate, but it appears as though the tax did not go toward new production, new capacity, new—a new direction that prevented us from coming back right where we are again, although the price of the oil went down, and it was phased out and eventually eliminated.

If these kinds of increases—and to be honest, I have a hard time believing that domestically they're not even better than this. Because if I look at $15, $16 a barrel of actual cost to remove something from the ground and you went from getting—and it could be lower in some cases—Bakersfield happens to be a high-cost area.

So we in California know that we have oil wells that require steam. They're a little more expensive to get out, but even if you're spending $17 or $18 a barrel to get it out, when the price gets to $20, you're just breaking even. When it gets to $40, you're printing money. And we're well above printing money. We are now minting gold coins.

This is somewhat of a panel question, but I think it's essential that we ask the question. How are we going to ensure that those dollars, if allowed to be retained by the oil-producing and refining facilities, or for that matter even by the final distributor, that if those funds are allowed to be retained that they're going to be invested and not simply windfalled to the stockholders because obviously the United States, at least in this Member's opinions, has a vested interest in seeing that if it costs $9 to $18 a barrel to take even old oil out of the ground, that would not pay $50 a barrel, and $2.79 a gallon for gasoline. That does not compute.

And, Ms. Dougher, I'll start with you because I want to be very supportive of your position, but all those efficiencies you put on the board still don't change the fact that an oil well sitting in Bakersfield that's been producing for a very long time suddenly has a run up and, if I remember right, Shell announced that they wanted to close the refinery out there. You're talking about an increased refinery, and I personally wrote a letter and weighed in that a profitable refinery was going to be closed in an oil-producing area of the State, and anecdotally for Congresswoman Watson we were also the third largest oil-producing State in the Union. Unfortunately 50 percent of what we consume, we import it.

But I'd like you to respond to that in light of these clear profits. What should we be doing to ensure that those profits are invested so that this long, short, medium term problem comes to an end?

Ms. DOUGHER. Well, if they're not invested, then these companies go out of business. They have to invest for the future or they won't have a product to sell. And they're always looking for opportunities to do just that, and this is a great opportunity for us with these earnings over the past year or more. And what we need now is access to some of the more promising sites so that we can develop them here in the United States, so to that we can keep the jobs and keep the money here instead of flowing abroad.

But we're in a good point in terms of an opportunity and in terms of policy to match the two together.

Mr. ISSA. OK. And I appreciate your input on that and that new site certainly is a point for, again, Congressman Watson, and I, and perhaps certainly Pat, we're a little tainted here in California by the history of our deregulation of electricity.

We do know that is not always in a company's best interest to produce more of something. It may be in their best interest to make more money on what they produce. And to a certain extent that's been the history, certainly, of electricity post deregulation in California. It is also a clear sign of what we're seeing over the last 20, 25 years. We are not producing more in the United States and—nearly as we should. We are—were—not a gasoline importing nation a generation ago. So we have slipped from being gasoline self-reliant. We may not be oil self-reliant, but we were gasoline

self-reliant until today. I think, what is it, Norway that we have to get our gasoline from if we run short in California.

Ms. DOUGHER. We continue to produce about 90 percent of what we use, but each year we use more and we are importing about 10 percent and we are getting to a point that these refineries really are strained to keep up with the extra demand. And we need to simplify some of the refinery fuel specifications which is addressed in H.R. 6, as you know, and that could help add some flexibility to the system, repeal the oxygenate mandate and have a national phase-out of MTBE. All these things would help the refining segment of the industry to move forward in a better fashion.

Mr. ISSA. Excellent. Mr. Perez, you don't have to weigh in, but it's your opportunity.

Mr. PEREZ. Certainly the investment in this State would be something we would desire to see, but through all these consolidations, acquisitions, and mergers over the last 10 to 20 years you're dealing with essentially global giants where decisions are made on a worldwide basis. And when it comes down to investing that money from these profits, they look at the issue from a global perspective. If it's less expensive to build a refinery, process crude oil, and make a variety of products abroad, whether it be in India or another Asian country, they're going to pursue that option, and that's why at the Energy Commission, one of the things that we're most concerned about right now is our import infrastructure, our ability to import, not only more crude oil, but petroleum products as well as the blendstocks to make finished gasoline in this State, and that is the reason we just issued a study, I guess it was about 10 days ago.

We'll be holding hearings next Monday in Sacramento to highlight what some of the challenges are because as we see it, we don't see any significant investments being made in this State beyond what we've seen Paramount is going to do, and certainly Big West in Bakersfield is now pursuing plans to expand their capability, but when you look at overall demand growth in this State, it's only a small portion of that demand growth.

Mr. ISSA. Mr. Wells.

Mr. WELLS. Yes, Mr. Chairman. Clearly the Government Accountability Office has legal access to Federal records and data. When we deal with private sector industry, we rely on a lot of cooperation of the industry to discuss things with us. In the course of doing our work related to gasoline and mergers, we did have the opportunity to talk to some of the industry. Not all the industry would agree to talk with us. But I can tell you sitting in those meetings there's a lot of issues with proprietary information. When we sit in the meetings and any discussion of profit or prices comes up, we have legal people in the room that basically shut the conversation down. But we hear a lot of explanation from the industry as they explain what's going on and we listen, but for me, a country boy, some of the things that I understood would be some issues relating to a discussion that when times are good, you bank the money and you use that money to help in lean times. I sort of understood that conversation.

Anecdotally we're looking at data to look at whether or not the industry is reinvesting right now. And we're not necessarily seeing

that, reinvestment dollars, but we are seeing a lot of dollars being returned to the shareholders. And that's not to say it's anything bad. The industry still has to stay in business and earn a living and produce the product.

Mr. ISSA. So what you're saying is the stockholder gets the money so we can go buy Intel stock. I just want to make sure that's—you know, I would imagine if you're returning dollars, it's not going to be likely to be going into new refineries with one of the competitors.

Mr. WELLS. They're buying back their stocks. There's a lot of rebuying of some shares.

Mr. ISSA. Mr. Cook and then back to you.

Mr. COOK. I'd like to point out that the root of that problem to me appears to be a lack of spare capacity both in crude production and in refining. What that means is that demand growth has accelerated in the last year or two, surprising the industry. Capacity expansions haven't kept up with that. So why haven't they? No. 1, they didn't anticipate the spur in demand growth. And, No. 2, as the API person tried to point out, returns on investment until the last year or so have been half of the levels achieved in other industries.

So this is a situation where even today we think these forces to high prices are permanent until that spare capacity problem is solved, but there's no consensus. You talk to a lot of experts, they're going to tell you it's temporary. What does that mean to the industry investor? This is an industry that's been through cycles of boom and bust time after time after time. So if there are a lot of so-called experts telling these guys, "OK, times are good today, but they won't be 2 years from now," what does that do to the investment signal? The root of the problem is to get more investment out there. It seems to me that if, in fact, this continues over the next few years and the market works, there won't be any problem about that investment flowing back into the industry.

Normal market forces are going to plow that back in. That's what we need now, a period of sustained, reasonable returns on investment. Certainly 8 cents on the dollar is not unreasonable and that's what we're going to have to overcome—the various problems the industry faces in permitting and environmental costs to have that capacity.

Mr. ISSA. Ms. Watson.

Ms. WATSON. I've heard it said that the industry is saying that the reason for rising costs is the demand in China and in India. All of us have known and observed the growth in China. And you can look at the population in India and, you know, I don't understand how the industry has not projected for the future. I mean, I'm baffled. I mean, you guys work with numbers all the time. And OPEC does not set the price. They give you the price for their oil, but they don't set the prices at the pump. And we have plenty of crude oil. Wait till we go into Africa. They've got enough natural resources to serve this planet on into the future beyond our lifetimes.

Now, what I'm seeing and I'm listening very intently, that it's the energy traders in New York who are using their rising demand as an excuse to drive the prices of crude up to return more to their

investors. And we have been the victim of that here in California. We've seen what the middle guy has done to us. They drive the prices up and we don't get our fair share here in California, so we're triply victimized.

Is there anyone at this table that's brave enough to really kind of look deep and give us an answer to these rising costs and the fact that they're going to continue to stay high? I feel they're going to continue to stay high. And somebody said we probably will be around $3.15 a gallon in a couple of weeks. I feel that it is projecting for increased profits rather than the demand. It seems to me that if more people are using crude, that means more money. And, you know, with China and India now having more demands, I don't know why our price is going up when they are putting more money into the oil companies who then can give large—and, we're going to always have that need for oil. We're going to have that need for oil.

And so will anyone want to respond to where you think the real problems are? And don't give me the answer that it's the blends, it's the boutique fuels. I hope that we have greater usage, greater development because we certainly need an alternative, but something is missing in all of your testimony.

Mr. COOK. Again, the bulk of the increase since 2000 is in crude oil. Prices on one of the charts that we showed you are $20 in 1999. Now they're $50. That's $30 a barrel increase because of the lack of spare capacity in global crude markets. $30 a barrel is 75 cents a gallon. Right there is 75 cents off of $1.50. The prices used to run just $2.25.

There's been some additional elevation because of the tightness in refining capacity. I think that would ease if these profits stayed up, but nobody believes they're going to stay up, and that tends to dampen the investment that's necessary.

Ms. WATSON. What do you mean by the prices are not going to stay—the profits are not going to stay up. Can you explain that?

Mr. COOK. I'm saying that I think crude prices and retail prices will stay up, but this lack of spare capacity, this key driver, is going to sustain that. But there are a lot of experts out there that refer to geopolitical risk, speculation on the NYMEX, things that could be temporary that may ease and bring prices back down and take away the extra profits necessary to do the investment that's needed here.

Ms. WATSON. Well, if you're saying that it's capacity, with these mergers why aren't we going after new refineries or increased capacity at the refineries we do have?

Mr. COOK. I think that will happen. It's just all too new. It's only been in the last year or so, and it has been a surprise. Yes, I think the industry forecasts——

Ms. WATSON. What is a surprise?

Mr. COOK. That one chart that showed you the big jump in demand in 2004, over doubled what had been going on the previous year, in the last 15 years——

Ms. WATSON. Why is it a surprise?

Mr. COOK. Who knows exactly when demand is going to spurt because of Asia and China? It's going to grow, but did we see—no one saw that it was going to double overnight.

Ms. WATSON. It started in the 1980's?

Mr. COOK. Pardon.

Ms. WATSON. It started in the 1980's.

Mr. COOK. They started growing, yes, but the increase didn't double and triple until 2004.

Ms. WATSON. They put those bicycles aside and now they're all driving automobiles.

Mr. COOK. I think——

Ms. WATSON. 1.2 billion people in China and 1.3 billion in India. OK.

Mr. ISSA. Thank you. I want to be consistent with the promise to address constituent questions. I've been ticking off a lot of the questions we got on the e-mail as they were answered here without even being asked, but one of them that I don't think has been fairly addressed comes from Martin Reyes in Los Angeles.

It says, "I have noticed that gasoline prices vary from city to city or even block to block. It sometimes varies as much as 10 to 20 cents a gallon at the same name brand stations. Why?"

Ms. DOUGHER. Well, there's lots of different reasons and it depends on where you are, and even myself traveling to work in the morning I'll see different prices on my way into town. Part of it's competition. Part of it's supply. Who's your supplier? Part of it's the contract that you have with that supplier. So it can vary for a whole host of reasons. That's the best I can give you on that.

And within a State, depending on which State you're in, you can have different taxes. For example, Florida has 60 different counties——

Mr. ISSA. No, no. We're only talking a Los Angeles person who drives and at the off ramp it's $2.97, then you go a little further in and it's a dime cheaper. And you go around the corner—and it's all the same brand in some cases. I laughed at this one because I understand somewhat how it happens, but it's got to be the hardest thing for the consumer to believe that if there's really competition, why is there—on four corners they're always the same price, but they're not the same price two blocks away.

Ms. DOUGHER. It's what the consumer's willing to pay, and also the competition, the cost of doing business in the area. It's all those things. If you have a better location, you can probably mark down a little bit or maybe even mark up more. It depends on who your competition is.

Mr. ISSA. Are there any other answers for Mr. Reyes because I'm sure if he reads this one in the newspaper, he's going to say, "And what does that mean?" With all due respect, I don't disagree with your point, but I hope there's another point.

Mr. WELLS. Mr. Chairman, we're preparing a gasoline primer study that we're looking at trying to help explain to that consumer the types of things that cause gasoline to be what it is. We too have been asking the industry this question and the most frequently mentioned answer we get is a corporate industry decision that allows them to do things like zone pricing. We're still attempting to understand zone pricing, but it involves the industry making conscious decisions about selling at the wholesale level to retailers at different prices that will allow certain individual stations to charge a lower price. And that is a market competition decision that the

industry makes to remain competitive in the marketplace and what the market will bear, but there is practices known as zone pricing.

Mr. ISSA. OK. So, I guess, the short answer for Mr. Reyes is zone pricing, and since this is the wrong panel I won't ask why is it that I'm always paying $500 when the person next to me on the United flight is paying $199? That also is a question I'd like to have answered.

Mr. Perez, real quickly, there were two things that you—quite a few things you touched on that sparked my interest. One is you talked about ethanol as a fuel. You may be aware that 53 members out of 53 members of the California congressional delegation signed on repeatedly to an ethanol waiver so that we wouldn't have to put that high cost oxygen into our fuel in hopes that it will lower our cost of gasoline, which we've been assured that it would have an impact, and you can respond to that.

So in that case why would we use ethanol as a fuel if it's a more expensive fuel?

Mr. PEREZ. Right now it's not more expensive, but——

Mr. ISSA. Without subsidies. Yeah, let's forget the fact that's putting a lot of money into sugar.

Mr. PEREZ. One of the things that we feel consumers would benefit out here in California is if we had a waiver. Certainly right now it's very attractive to blend as much ethanol as possible. In fact, the way the air quality requirements work is basically we've got to use oxygenated gasoline with ethanol in about 80 percent of our market, but right now we're using it in roughly 97 percent of the market because ethanol prices are significantly depressed right now. And one of the reasons for that is there is tremendous production that has come on line here in the past year.

There's also another major market in Atlanta that decided not to go down that road right now, rather litigate it. So they're not using ethanol. That frees up about 250 million gallons of ethanol. You got 17 major ethanol production facilities under construction right now that will be adding a lot more capacity.

So there's a great deal of ethanol out there right now. And as a result California refiners are blending a great deal of it. The concern we have is that is not likely to continue forever, that huge surplus that we have right now. Rather, we would like to have the flexibility to let the refiners decide what's the best blend of components to make gasoline. And if you did that—let's say ethanol went up significantly higher than where it is today, then they could decide to use other blending components that might be cheaper to make gasoline. Furthermore, if we have that flexibility, essentially, rather than having a Federal Government mandate, refiners would be in a better position to bargain for those 6 to 9-month ethanol contracts down the road. So it puts them in a stronger driver's seat to negotiate future contracts which we believe would contribute to lower prices and not higher prices for the long-term.

Mr. ISSA. OK. And then just a followup on Unocal, and I didn't come here to pick on any one company. As I understand it you're talking about Unocal's patents?

Mr. PEREZ. Yes.

Mr. ISSA. As I understand the history of the Unocal patents were that the oil companies came together, they talked about the next

generation of gasoline, and then Unocal ran back and patented, basically, what the discussions told them we were going toward. Is that correct?

Mr. PEREZ. Pretty much the way I understand—I wasn't part of those discussions, but they were able to reach agreement on these unique patents for California base gasoline that would be blended with ethanol.

Mr. ISSA. And those patents, if I heard you right, are 3 to 6 cents of cost.

Mr. PEREZ. We believe 1 to 3 cents per gallon.

Mr. ISSA. OK. And, finally, why would this acquisition cause somebody not to keep collecting royalties from their competitors?

Mr. PEREZ. That's a good question. We hope as part of these investigations that question will be raised and discussed at the Federal level.

Mr. ISSA. OK. That's—obviously a good Federal question for us to take home because we'd all love to see opportunistic patents to be kind, not continue to drive up the cost.

Anyone else want to answer on that?

Mr. DOUGHER. No. Mr. Perez did a good job.

Mr. ISSA. Thank you. Ms. Watson.

Ms. WATSON. Mr. Chairman, it appears that we're winding down, and I think this——

Mr. ISSA. I thought we were just warming up.

Ms. WATSON. I think this question from Stephanie Lawrence of Laguna Hills sums up my questions and it may be a recommendation to our subcommittee. And Stephanie says, "What is and what should be the Government's role in gasoline pricing? Should it be regulated?" You know, we do not regulate. And should it be regulated. And that's something I think this committee has to grapple with. "Information only?" She says. "Is that our role?" Or pressure on oil producing countries and companies?

And these are the issues that I think we, as a subcommittee, have to grapple with. I mean, next time we do one of these hearings, I'd like a group on the consumer research side that's not connected to our Government agencies to be at the table so we don't have the pressure, our various departments saying to those that represent them that let's not deal with this. It's political.

I would like to have another voice from the Institute to speak, and I'd like to have another voice from the Commission, in addition, to speak—because Americans want to know what's behind this. Our constituents want to know. And I'm so glad you have these questions here because I think the public sees that there's an issue out there and they want answers.

So with that—and I think we have asked the probing questions already—I feel not completely satisfied that I've gotten the answers, but I think this is just the beginning. And with that I want to say thank you so much more for having the subcommittee here in Long Beach.

Mr. ISSA. Thank you. And the committee there take note and plan on expanding even if it means a second panel for more consumer-oriented. I think it's important that we look toward our Government and quasi-government agencies. But then as you pointed out very rightfully, we have to spread out the witnesses we hear.

I might note that—Congresswoman, I know, remembers—that when we had the founder of Green Peace just a couple of weeks ago, Mr. Moore made an interesting observation. One of them was that if we had built all the nuclear power plants that were planned in 1978 today, we would be Kyoto compliant, but he also noted that we would not be using natural gas at a rate that would allow every vehicle in America to run on natural gas, which was sort of an interesting theory of what fuel should be used where, although he wasn't recommending that. If you remember, he was recommending that we go to electricity.

Ms. WATSON. Yes. Which, apparently, comes out to be 10 cents a gallon of gasoline equivalent if you produce the electricity the way he proposed.

Having said that, I think the committee has opened Pandora's Box, and I don't expect we'll be closing it any time soon. We only touched on tar sands and other domestic production. We only touched on ways in which we could conserve gasoline. We did certainly belabor the point of my hybrid vehicle and the Governor's proposal for a hybrid Humvee.

And with that I want to thank our panel and our audience that came here to see this today. And I want to assure all of you that the record will remain open for at least 5 days. If you look through what you've said or have been asked here today and you want to revise or extend, please feel free to. We can keep the record open for up to 30 days.

And with that I thank you and this hearing is adjourned.

[Whereupon, at 3:16 p.m., the subcommittee was adjourned.]

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