

**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**

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Presented at:

Long Beach, California
May 9, 2005

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STAFF TESTIMONY

May 9, 2005
CEC-999-2005-010

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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

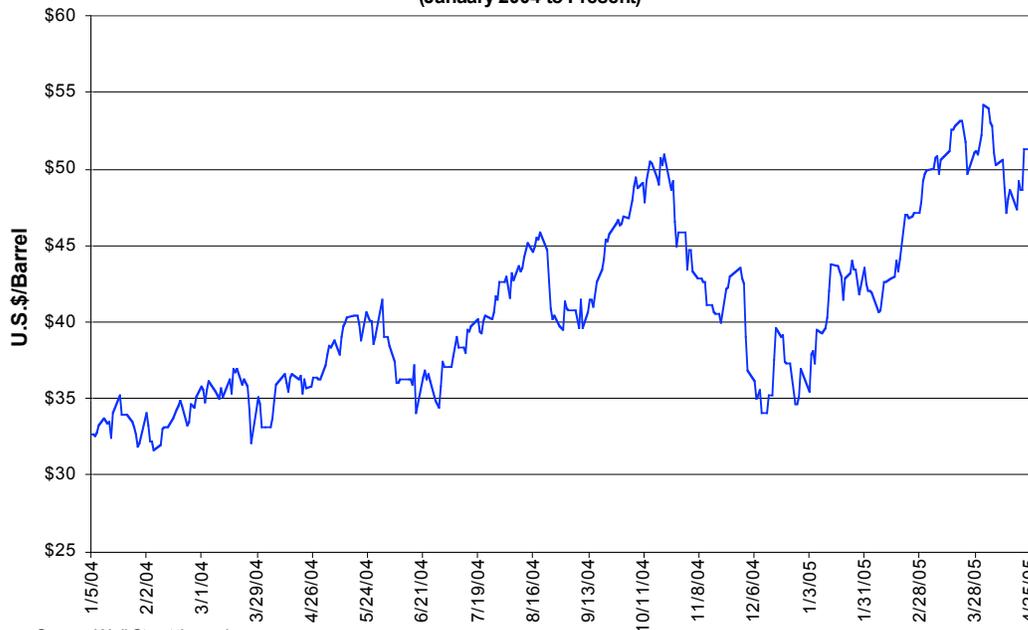
The price of crude oil on world oil markets to a very large degree determines the price of transportation fuels, even though California received about 42 percent of its crude oil supply from in-state oil fields during 2004. The price of Kern River crude oil, a benchmark California heavy oil, has risen 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)

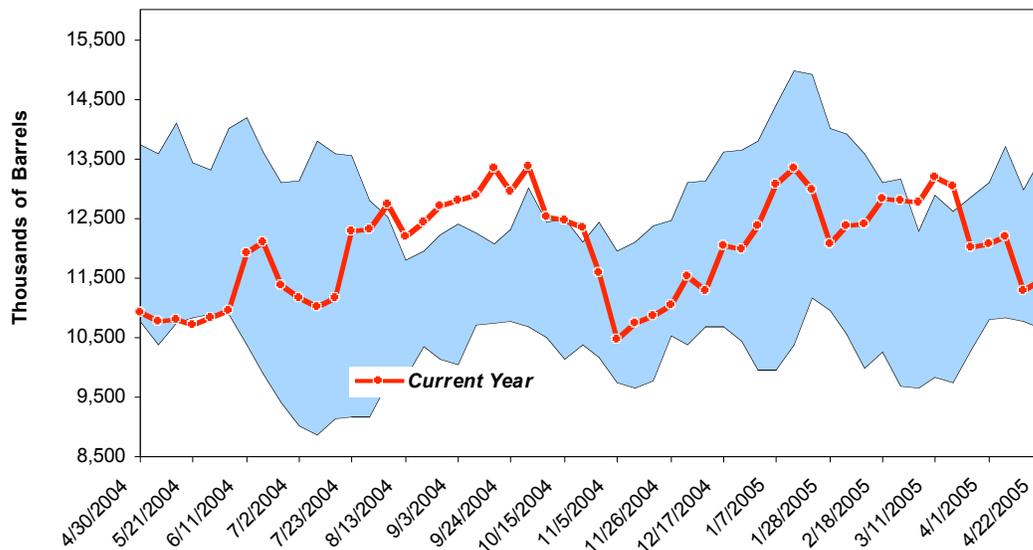


Source: Wall Street Journal

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.

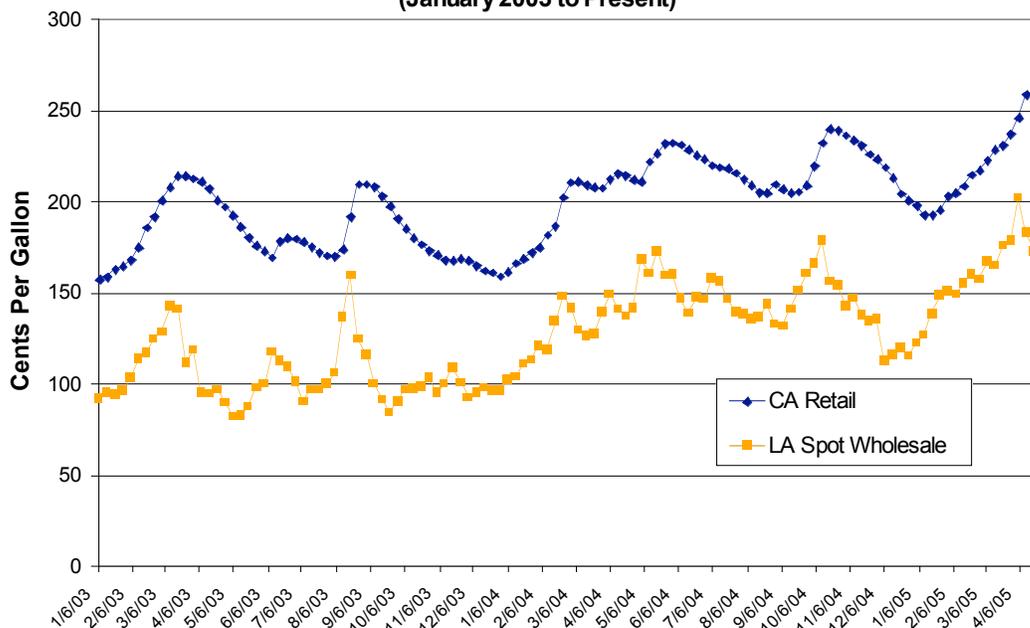
Although the majority of recent fuel price increases results from rising crude oil costs, the operations of California refineries and related infrastructure also impact state fuel prices. As was the case last year during the late winter, California refineries underwent an intensive schedule of planned 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)



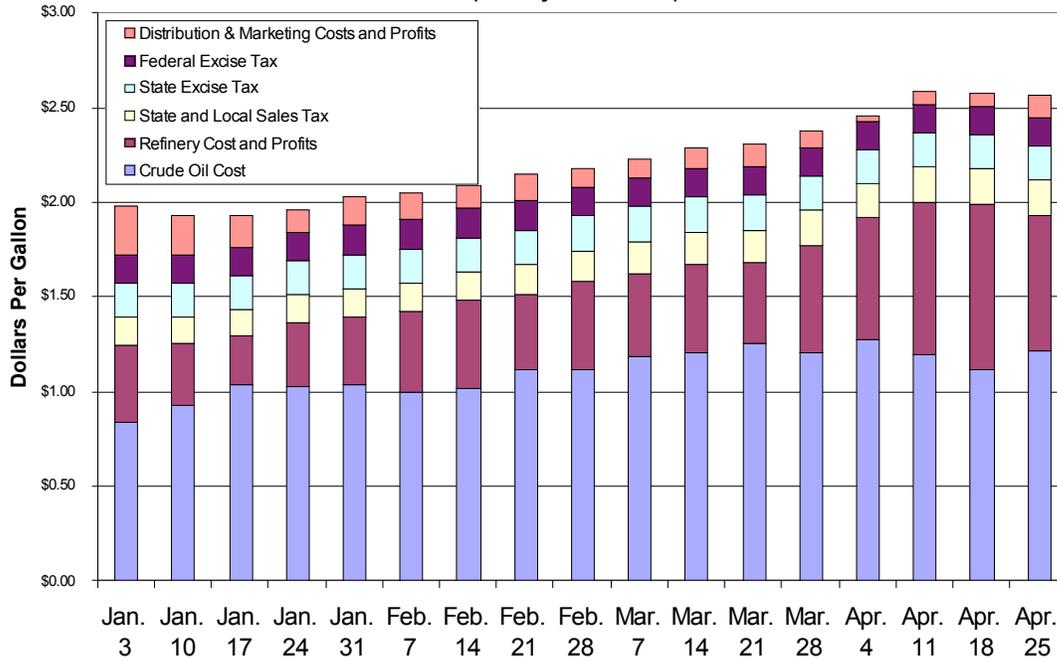
Source: U.S. Energy Information Administration

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

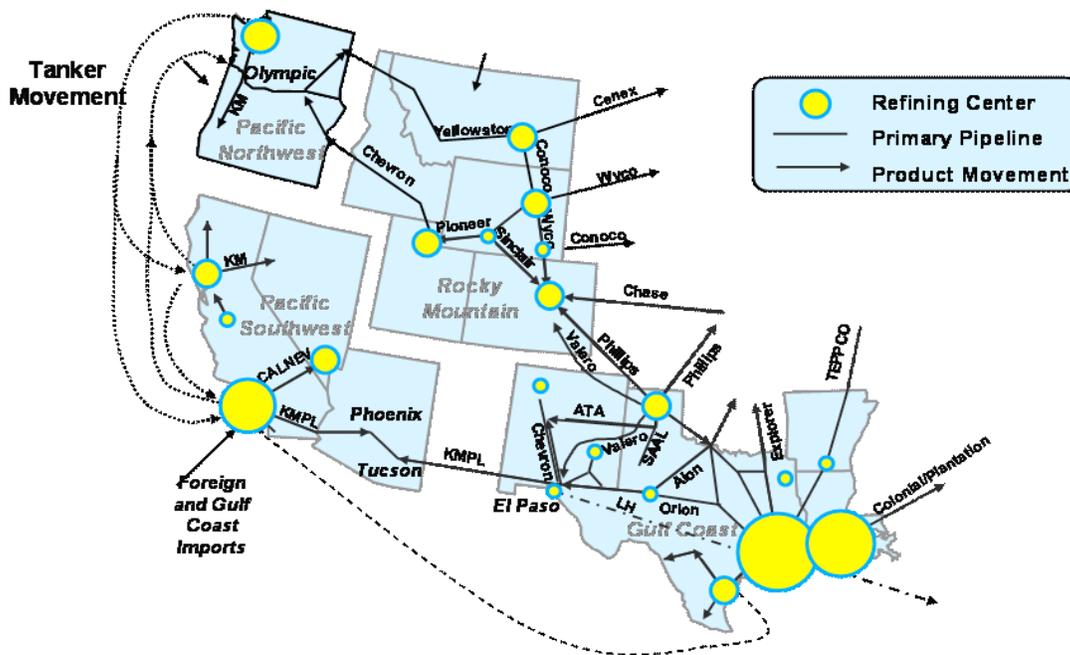
California Petroleum Markets and Neighboring States

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.

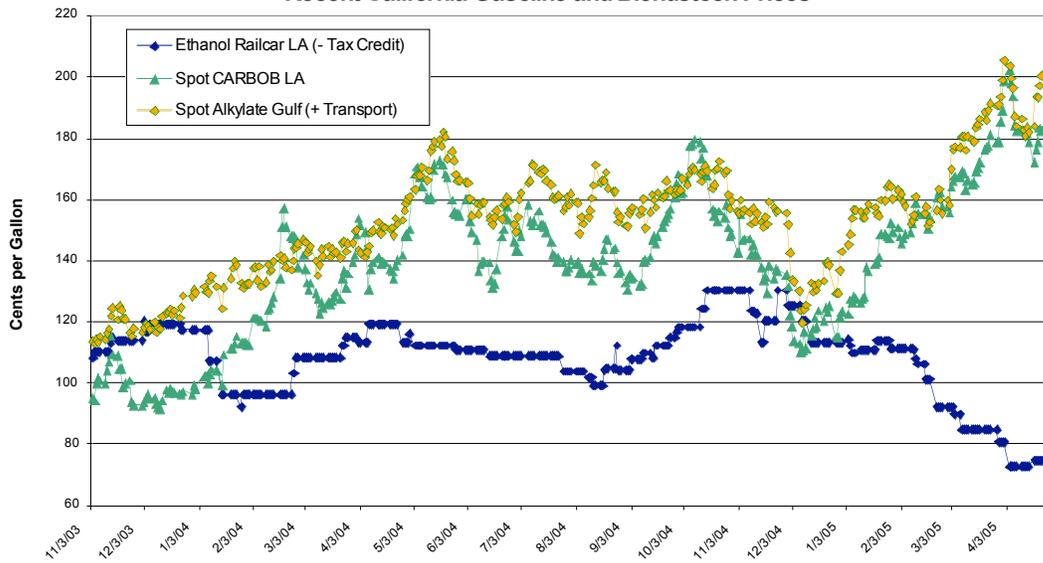
Refinery modeling analyses performed on behalf of the Energy Commission estimated that phasing out the use of MTBE and transitioning to ethanol would increase average production costs by 3.4 to 6.4 cents per gallon. This estimated cost impact accounted for the necessary capital expenditures, increased 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 alkylate 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.

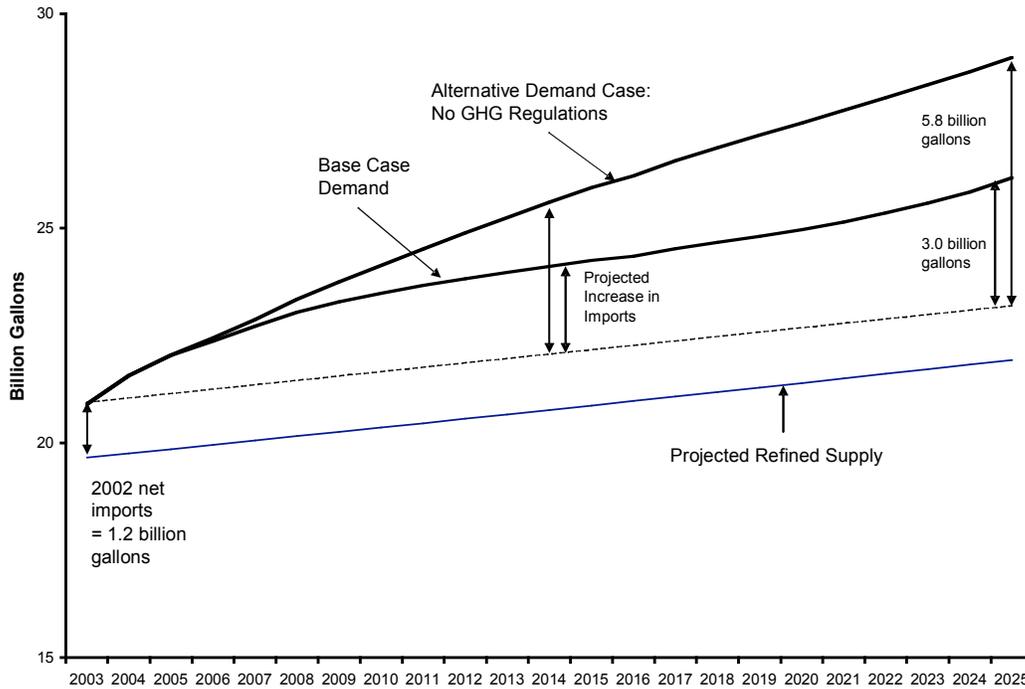
This refinery currently produces much of the gasoline and diesel consumed in the region by processing heavy San Joaquin Valley crude oil. It also produces other petroleum products, such as butane, petroleum coke, and unfinished oils that are primarily exported out of California.

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