Prepared Witness Testimony of William J. Keese, Chairman
California Energy Commission to the
Committee on Government Reform
Subcommittee on Energy Policy, Natural Resources and
Regulatory Affairs
(May 28, 2004)

Mr. Chairman and members of the Committee:

I welcome the opportunity to discuss California's experiences with gasoline and diesel price and supply problems during the last few months and to share some ideas that may help direct us to finding some solutions to those challenges. I will try to briefly summarize what factors have contributed to these price increases, what the impacts have been, and what measures the State of California believes would help alleviate those impacts.

Recent Fuel Price Trends and Causes

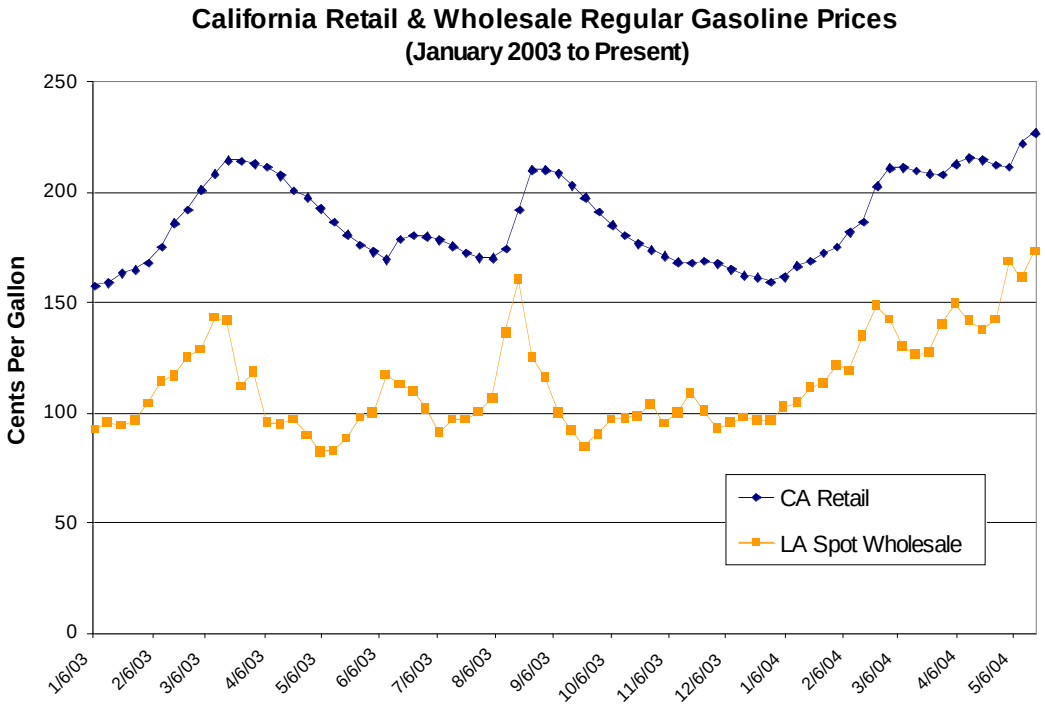
The price of crude oil to a very large degree determines the price of transportation fuels. Although California receives about 48 percent of its crude oil supply from in-state oil fields, it is not protected from increases in oil prices caused by events elsewhere in the world. The price of Kern River crude oil, a benchmark California heavy oil, has risen 26 percent, from $27.13 per barrel on January 1 to $34.25 per barrel on May 19. Likewise, Alaska North Slope crude oil has risen 29 percent, from $31.34 per barrel on January 1 to $40.28 per barrel on May 19.

The reasons for these high crude oil prices include:

- A war premium on oil that developed during the buildup to the Iraq War continues today along with continued sabotage of pipelines and other facilities in Iraq;
- OPEC implementation of production limits, even as prices have exceeded the group's preferred price range;
- Devaluation of the U.S. dollar, in which most oil is traded, against other currencies;
- Very high demand for oil in the U.S. and Asia, particularly in China, with accelerating economic growth;
- Relatively low inventories of crude oil in the U.S. for much of the spring;
- Continued diversion of oil into the Strategic Petroleum Reserve; and
- High shipping rates.

Crude oil price increases, however, only explain part of the large increases in California fuel prices. At the start of the California refinery maintenance season

earlier this year, inventories of transportation fuels were unusually high because the planned maintenance schedule was particularly heavy. Problems that developed during restart procedures at several facilities, combined with unplanned outages at other refineries, caused a severe depletion of these inventories. As companies sought to cover their obligations with purchases on the spot market, wholesale prices increased sharply and retail prices soon followed. Difficulties obtaining shipments of imported gasoline have been compounded by instances of port congestion that slowed deliveries or, in one reported case, even forced the diversion of a tanker to another port. According to the U.S. Energy Information Administration, the wholesale and retail prices of regular-grade reformulated gasoline in California reached $1.73 and $2.27 per gallon, respectively, on May 17, compared to $1.03 and $1.62 per gallon on January 5 (see figure below).



Source: U.S. Department of Energy

Ordinarily, as facility maintenance is completed and operations are restored, fuel prices eventually decline. This year, however, problems persisted and new outages occurred, particularly in diesel-producing units. These problems occurred just as agricultural diesel demand began to rise with good weather and the start of spring planting, and with refiners primarily focused on maximizing gasoline production and imports. Adding to the uncertainty were the rupture of

the Kinder Morgan pipeline near Suisun Bay and erroneous rumors that the Energy Commission had declared an energy emergency based on supply shortages rather than a regional distribution problem. As a result, retail diesel prices in California rose to $2.34 per gallon on May 17, 2004.

California's fuel prices are also linked to national trends. Gasoline demand in the U.S. has risen to high levels, helping generate record-high U.S. gasoline prices. Although California is considered somewhat of an island as far as its gasoline and diesel markets, it is still very much affected by conditions in other regions. We routinely require imports from out-of-state, and 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 essential blendstocks. Typically, this competition also requires paying additional transportation premiums to bid supplies away from regions closer to sources of supply. The higher cost of these imported fuels sets the price of all barrels of similar product, even if only relatively small amounts are imported.

The Use of Ethanol and Transition to Summer-Grade Gasoline

The shift away from MTBE in gasoline has necessitated the use of ethanol because the U.S. Environmental Protection Agency (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. As stated in my testimony before this Committee in July 2003, the cost of ethanol has not been a direct cause of recent price spikes in the state. The price of ethanol purchased by refiners under typical contracts has usually been less than that of gasoline. There were no shortages of ethanol or significant difficulties blending the new gasoline.

The oxygenate requirement has, however, complicated the process of blending gasoline that meets air quality rules. Phase 3 reformulated gasoline for ethanol blending is a more difficult formulation to produce for refiners outside the U.S. The market price has risen for premium blending components with the appropriate properties of high octane, low sulfur, and low volatility. The recent phase-out of MTBE in New York and Connecticut has increased competition for these premium components. This is particularly true during the low-volatility summer gasoline season 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.

The value of an oxygenate waiver, as California has requested from the EPA, would be primarily due to longer-term gains in flexibility in refining operations, rather than short-term insulation from the ethanol spot market. Most of the volume of ethanol used in California gasoline production is purchased by

contract, with prices fixed or indexed to gasoline prices. If enough California refiners decided that production of non-oxygenated gasoline made economic sense and adequate storage was available to segregate it from oxygenated gasoline, California purchasers of ethanol would be able to take advantage of changes in the relative prices of ethanol versus gasoline and other blendstocks.

Shell Bakersfield Refinery Closure

Shell plans to cease refining operations at its Bakersfield refinery by October 2004. The company intends to continue operating its terminal at the facility beyond that date. This refinery currently produces much of the gasoline and diesel consumed in the region by processing heavy San Joaquin Valley crude oil. The refinery also produces other petroleum products, such as butane, petroleum coke, and unfinished oils that are primarily exported out of California.

Shell has committed to supplying enough fuel to meet their contractual obligations following the closure of the Bakersfield refinery, either from their facilities, other companies' refineries, or imports. Independent marketers without contracts are an important supply source for local agricultural users and municipalities and could be negatively impacted by the Bakersfield refinery closure. This independent demand could be supplied by other California marketers expanding their presence in Bakersfield, increased production from the Kern and San Joaquin refineries, or from out-of-state.

Increasing deliveries from outside the region requires resolving a variety of logistical issues regardless of whether these supplies arrive by truck, rail, or pipeline. Increasing truck deliveries to Shell's Bakersfield terminal would be the least difficult. Additional truck traffic and increased vehicular air pollutant emissions could be issues of concern for residents and environmental groups, but this would be partially offset by reduced emissions and reduced refinery truck traffic following the refinery's closure. Shell's terminal currently receives some rail shipments of crude oil, but modifications would be required to handle gasoline and diesel. Remaining questions include whether other parties would have access to the terminal and whether segregation capability, storage capacity, and truck rack capacity are adequate. Additional volumes of fuels could be shipped to the Fresno terminal on Kinder Morgan's North Line, but this would be only a portion of lost output from the refinery, would require modifications at the Fresno terminal and Concord pump station, and would take one to two years to complete. Access to the pipeline could be constrained, as well, especially during summer. Expansion of the Fresno terminal to receive additional truck traffic could also be an option.

Impacts of Fuel Price Increases in California

California drivers consumed about 15.7 billion gallons of gasoline in 2003, almost 12 percent of U.S. demand, or about 43 million gallons per day. Compared to early January 2004, the price of gasoline has risen about 65 cents per gallon. This increase costs California consumers about $28 million per day in additional expenditures compared to January just for gasoline. The state also consumes about 2.7 billion gallons of 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 prices have also increased sharply, compelling airlines to add surcharges to their ticket prices to cover increased fuel costs.

The price impacts of supply problems in California extend beyond the state's borders as well. California supplies substantial levels of transportation fuels to neighboring states. Nearly all of Nevada's gasoline, diesel and jet fuel, about 150 thousand barrels per day, comes from California. California also supplies most of Arizona's transportation fuels (almost 140 thousand barrels per day), and much of Oregon's (about 37 thousand barrels per day). Total gasoline delivered to these states from California amounts to nearly seven million gallons per day. Put another way, for every six gallons of gasoline consumed in California, one gallon is delivered to these neighboring states. The price impacts resulting from the dependence of these states have been amply demonstrated during the last year, especially during outages of pipelines delivering products from California.

Short- and Long-Term Responses

On top of the immediate problems of fuel supply in the face of unusually high short-term demand growth, the long-term demand for gasoline in California is expected to grow at about 1.4 percent per year and diesel at 1.9 percent per year. Refinery production capacity growth is only expected to average about 0.5 percent per year over that period. Three general approaches can be applied to address this growing shortfall between what we consume and what we produce: increase refinery production capacity, increase imports, and reduce demand. Each of these approaches can be further divided into short-term and long-term responses.

Short-Term Options

As discussed above, California has pursued a waiver from the federal oxygenate requirement in order to increase refinery flexibility. California's request for a waiver is based on several studies, including the EPA's own Blue Ribbon Panel

finding that a minimum oxygen content is not necessary to make gasoline that meets emission reduction requirements. Furthermore, due to the volatility of ethanol, refiners have to adjust gasoline blending practices by reducing other volatile components in the production of gasoline, and replacing them with more costly blendstocks. California's refineries need the ability to make gasoline with or without oxygenates, as situations warrant.

Otherwise, little can be done about increasing refinery production capacity in the short-term. There are provisions under state law, however, for the California Air Resources Board (CARB) to grant an emergency variance from certain state-mandated fuel specifications to enable a company to produce fuel while it makes unscheduled repairs. The variance requires the payment of a mitigation fee for each gallon of fuel that does not meet CARB specifications. Revenues from the mitigation fee would be placed in an escrow account that is used to fund clean air projects.

The variance can be granted in response to a request from a refinery making unscheduled repairs. If a refiner requested a variance, CARB would contact the Energy Commission for a current assessment of the market conditions, inventory, and production levels as part of their determination of the conditions of the variance. The ability of a fuel specification variance to increase supply would depend on the time of year and market conditions at the time of the variance. The increase in Reid Vapor Pressure (RVP), a measure of gasoline volatility, may increase supplies during summer months but have no impact later in the year.

Increasing imports in the short-term could potentially be accomplished by relaxing throughput limits at marine bulk terminals, or by expanding capacity of pipelines moving fuel from wharfs to inland facilities. Throughput limits do exist as part of California's air district permit conditions. The lifting of these limits would not typically increase the actual throughput substantially without modifications to equipment or facilities. These types of modifications take time and may not make economic sense unless made permanent. Facilities have been built with capacities exceeding throughput limits, but these capacities are not substantially higher than the throughput limits. Procedures exist, however, for seeking relief from air district regulations through administrative processes.

Southern California petroleum marine terminals are highly utilized, particularly during periods of high demand for imports. We are 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 pertaining to this area are unclear. The Federal Energy Regulatory Commission can regulate pipeline rates, but has determined that it cannot force a pipeline 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.

Reducing fuel demand in the short-term can be problematic because of the high cost of rapidly-changing energy-using technologies, such as purchasing a high-mileage vehicle, and because much driving is non-discretionary. However, the Energy Commission has assessed several potentially useful options for voluntary fuel conservation and has made this information available on its website. These options include: using public mass transit, car pooling, 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. If the Governor declares a state of emergency, other measures, including requiring large employers (500 or more employees) to operate emergency transportation management programs to increase ridesharing that would result in fuel savings, could be invoked as part of a state of emergency declaration. However, declaring an emergency comes with the considerable risk that motorists will immediately respond by filling up their gasoline tanks, worsening the actual fuel shortage, and that traders will see it as a signal to bid up the price of supplies.

Long-Term Options

In the long-term, more substantial changes in the way we supply and consume transportation fuels can be considered. To enhance the industry's long-term ability to import finished fuels and blendstocks, expansions of marine terminal, pipeline, and storage infrastructure may need to be encouraged. The Commission has sponsored a study of the state's marine infrastructure to assess its ability to accommodate imported petroleum products. The study identified current and future constraints within the system of wharves, storage tanks, and pipelines that could impair the ability of importers to deliver cargoes to the state. The Commission believes that these constraints do impact imports of gasoline and diesel, and that this may reduce the supply of gasoline available during a disruption. The potential problems are most serious in Southern California, where the bulk of the increased quantities of imported crude oil and finished petroleum products would be received.

The time and complexity of acquiring permits to construct facilities were identified in our study as a major impediment for adequate marine and storage facilities. The high costs of the permitting process result in a shortage of storage capacity that leads to higher lease rates for tanks, with gasoline suppliers holding lower inventories than they might otherwise choose. The Commission has also sponsored a detailed study on the permitting of petroleum product storage facilities, which identified some redundant and burdensome regulatory processes, and recommended improvements to the permitting process. The

most critical action would be to provide 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. These timelines are frequently not met, without penalty to the permitting agency. Little effort appears to be made to comply with the PSA, since it is not well known among stakeholders in the permitting process. No agency within California is responsible to implement the PSA, and this appears to be a fundamental problem. This issue is very complex, but a permitting process solution could yield significant benefits by eliminating duplicative efforts and providing a time-certain process with decision-making authority.

Finally, the Energy Commission and CARB are jointly addressing the long-term impacts of petroleum dependence on the California economy and environment. Several long-term options that could be used to reduce petroleum demand include:

- Doubling the fuel-use efficiency of light-duty vehicles, including cars, pickups and sport utility vehicles, to 40 miles per gallon;
- Using Fischer-Tropsch fuel, which is derived from natural gas at remote production facilities and has very clean and useful blending properties, as a 33 percent blending agent in diesel fuel in order to extend distillate supplies;
- Introducing fuel cell light-duty vehicles in 2012, increasing to 10 percent of new sales by 2020, and to 20 percent by 2030.

This study found that improving fuel efficiency using existing and emerging technologies could dramatically reduce petroleum demand. For most options studied, fuel savings for consumers would exceed the costs of more fuel-efficient vehicles. Increased fuel use efficiency requires the exercise of federal authority, however, and would obviously have the greatest cumulative benefits implemented at a national level. The Commission encourages Congress to propose legislation that would advance this strategy, in particular increases in the Corporate Average Fuel Efficiency (CAFE) standards.

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

Recent Transportation Fuel-Related Reports from the California Energy Commission

Report Title	Status	Date
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
Feasibility of a Strategic Fuel Reserve in California	Final Commission Report	July 2003
Reducing Petroleum Dependency in California	Joint Agency Report	August 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