California Energy Commission
Spring 2006 Price Spike Report

Media Briefing

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Undersecretary of Energy Affairs, Resources Agency
Factors identified that contributed to price spike
Economic impact quantified for California consumers and businesses
Regional extent of price spike analyzed in detail
Statewide variability of gasoline retail prices was characterized
Financial information assessed to identify levels of profitability for petroleum companies operating in California
Recommendations developed to enable more thorough monitoring and analysis of California’s petroleum market
Price Spikes and the Petroleum Market
California Retail Fuel Prices
Gasoline and Diesel Fuel versus
Alaska North Slope (ANS) Crude Oil
January 2005 through July 2006

California Gasoline Monthly Demand
Seasonal Increases
2003-2005 Average

Millions of Gallons per Day

Source: Analysis of California State Board of Equalization taxable gasoline sales figures.
Growth From 1995
California
US
Rest of World
Avg Annual Growth
CA: 0.7%
US: 1.5%
World: 2.0%
Refinery Count

Year

Number of Refineries

Rest of US
California


0 25 50 75 100 125 150 175 200

CALIFORNIA ENERGY COMMISSION
Types of petroleum products that are produced by refineries are influenced by:

- fuel specifications
- quality of the crude oil processed
- complexity of the refinery
- supply/demand balance of the local petroleum markets
California Refinery Output in 2005 by Product Type

- CARB Compliant Gasoline*: 43.1%
- CARB Diesel: 11.6%
- Jet Fuel: 12.4%
- Non-California Gasoline: 7.4%
- EPA Diesel: 4.7%
- Other Products: 1.5%
- Asphalt and Road Oil: 1.7%
- Liquified Refinery Gases: 2.4%
- Residual Fuel Oil: 3.1%
- Still Gas: 5.2%
- Petroleum Coke: 7%

*Note: Does not include ethanol.
2005 Demand for Petroleum and Alternative Fuels (millions of gallons)

- Gasoline (excluding Ethanol): 14,963 million gallons
- Jet Fuel: 3,734 million gallons
- Diesel: 2,960 million gallons
- Ethanol: 955 million gallons
- Other Alternative Fuels: 53.5 million gallons
Market Operational Factors that Contributed to the Spring 2006 Price Spike

• Refinery unplanned outages and planned maintenance
• Refinery production of gasoline and diesel fuel
• Inventory levels for petroleum products
• Pipeline exports to Nevada and Arizona
• Congestion of marine infrastructure operations in Southern California
• March 2006 Alaska North Slope crude oil distribution system leak
• Transition to new fuel specifications
California Refinery Events - Number of Days
(First Six Months of 2005 versus 2006)

Source: CEC Petroleum Industry Information Reporting Act (PIIRA) database.
Average Number of Days per California Refinery Event (First Six Months of 2005 versus 2006)

- **Jan-Jun 2005**
  - Planned Maintenance: 24.3
  - Unplanned Outages: 5.3

- **Jan-Jun 2006**
  - Planned Maintenance: 20.7
  - Unplanned Outages: 9.2

*Source: CEC Petroleum Industry Information Reporting Act (PIIRA) database.*
Number of Event Days for California Refineries
April/May 2005 versus April/May 2006

Source: CEC Petroleum Industry Information Reporting Act (PIIRA) database.
CARB Gasoline Production (with 5-Year High-Low Band)

Source: CEC Petroleum Industry Information Reporting Act (PIIRA) database.
Source: CEC PIIRA database.
California Diesel Production
(with 5-Year High-Low Band)

Thousands of Barrels per Week

Source: CEC PIIRA database.
California Diesel Inventories (with 5-Year High-Low Band)

Source: CEC PIIRA database.
Thousands of Barrels per Week

Weekly Gasoline Pipeline Exports from California
(with 5-Year Hi-Lo Band and Retail Gasoline Price Overlay)

Source: CEC Petroleum Industry Information Reporting Act (PIIRA) database.
Weekly Gasoline Pipeline Shipments to Arizona from Texas (with 5-Year Hi-Lo Band)

Thousands of Barrels per Week

Source: CEC Petroleum Industry Information Reporting Act (PIIRA) database.
Petroleum Product Tanker Arrivals/Activities in Southern California versus LA Spot CARBOB Prices (April-May 2006)

Source: CEC analysis of Marine Exchange of Southern California data.
2006 California Gasoline and Alkylate Prices

Sources: OPIS for spot CARBOB prices in Los Angeles and Platt's for Gulf Coast alkylate values.
Economic Impact on California Consumers and Business

- Price spike increased gasoline costs to California consumers by $1.3 billion from April 25 through July 31, 2006
- The impact on businesses due to higher diesel fuel prices over the same period of time was approximately $170 million
- No attempt was made to quantify secondary costs for the California economy as a whole that occur when increased transportation costs are passed to consumers in the form of higher priced goods and services.
2005 and 2006 Average Weekly Retail Gasoline Price Minus Weekly Alaska North Slope (ANS) Crude Oil Price

Incremental Transportation Fuel Costs
California Consumers & Business

Annual U.S. Household Gasoline and Motor Oil Expenditures

Sources: Energy Information Administration, National Household Transportation Survey, BLS, U.S. Census, California Board of Equalization, Motor Gasoline Taxable Sales Volumes.
Sources: Energy Information Administration (EIA), National Household Transportation Survey (NHTS), and Bureau of Labor Statistics (BLS).
Regional and Statewide Retail Gasoline Price Variations

- Price spike was not isolated to California’s market
- Retail prices in neighboring states that are supplied by California refineries demonstrated the closest correlation
- States more distant from California did not demonstrate a similar relationship
- California retail distribution margins declined and were temporarily negative during the spike in wholesale gasoline prices
Retail Gasoline Price Comparisons
(Arizona, California, and Nevada)

Source: Oil Price Information Service (OPIS).
Retail Gasoline Price Comparisons
(California, Montana, and Wyoming)

Source: Oil Price Information Service (OPIS).
California Gasoline Margins

Source: CEC staff analysis Oil Price Information Service (OPIS) data.
Weekly California Retail Gasoline Prices

Source: CEC staff analysis of Oil Price Information Service (OPIS) data.
California City Analysis of Gasoline Prices (May 2006)

Shaded area denotes 95 percent of the cities measured in the state.

Average Retail Gasoline Price

- Low Prices, Low Variability
- Low Prices, High Variability
- High Prices, High Variability
- High Prices, Low Variability
**Low Prices, High Variability**  
Cities include Buttonwillow, Concord, Dixon, Marysville, Novato, Suisun City and Woodland. These cities tend to be near major roadways, and the stations can be characterized as having increased sales volumes and possibly increased competition.

**Low Prices, Low Variability**  
Very few areas of the state fall into the low-price, low-variability category. Cities such as Antelope, Hilmar, Frazier Park, Foresthill, and Shingle Springs fall into this category. These places may be categorized as being close to major roadways, but not directly accessible.

**High Prices, High Variability**  
Cities such as Beverly Hills, Mill Valley, San Francisco, and South Lake Tahoe fall into this category. These cities can be characterized as having above average land values that may affect the retail price.

**High Prices, Low Variability**  
Cities in more remote regions of the state tend to have above average prices combined with lower variability. These cities are characterized by having fewer retail outlets, lower volume sales, and higher fuel delivery costs. In some cases, these cities may have only one retail outlet. This high-price, low-variability category includes such cities as Baker, Big Bear City, Mount Shasta, and Soledad.

Increasing Retail Price
Financial Data of Petroleum Companies

- Petroleum industry has consolidated over the last 50 years.
- Several measures of profitability were used to compare major oil companies with other integrated oil companies on an international level.
- The companies in the petroleum industry were grouped into the following categories: exploration & production (E&P), integrated, and refining & marketing (R&M).
Source: Used with the written permission of John S. Herold, Inc.
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<th>Company</th>
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Worldwide Net Income and Sources

Profit Margins from Non-U.S. Operations

Profit Margins from U.S. Operations

Summary
Factors that Contributed to Price Spike

- **Refinery Operations & Impact on Production**
  - Gasoline production was lower due to unplanned refinery outages

- **Inventory Levels**
  - Gasoline levels were declining, but that is normal for the spring

- **Pipeline Exports to Neighboring States**,
  - Higher than 5 year average for gasoline
  - Higher than 5 year average for diesel fuel

- **Congestion at Marine Terminals for Petroleum Imports**
  - Increased at time of wholesale gasoline price spike

- **March 2006 Alaska North Slope crude oil distribution system leak**
  - Crude oil production declined by 100,000 barrels per day for 5 weeks

- **Transition to New Fuel Specification**
  - National transition away from MTBE (methyl tertiary butyl ether) to ethanol increased price for important gasoline blendstock - alkylate
  - Switch to Ultra Low Sulfur Diesel (ULSD) on June 1, 2006 created a buildup of inventories that were held in reserve as a precaution against startup problems for the new refinery equipment