

Why California Gasoline Prices are So High?

by

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For the past year, retail gasoline prices in California have averaged close to two dollars per gallon, and slightly higher in large metropolitan areas. These prices are 30 cents per gallon higher than average retail prices in the rest of the United States. What are the causes higher prices in California and what should California policymakers do it?

The factors causing high gasoline prices are almost exactly analogous to the factors that caused extremely high electricity prices during the summer and autumn of 2000 in California. They are: (1) The primary input to the production of gasoline has increased substantially, (2) The margins above the variable cost of production earned by both gasoline refiners and wholesalers have increased, (3) There is a very thin forward market for gasoline in California, (4) There has been continued growth in gasoline demand over the past ten years with no new construction of gasoline refining facilities, (5) The regulatory process for the approval of new refinery and storage facilities is extremely costly in terms of both time and money.

Substitute the word “electricity” for “gasoline” and “generation” for “refining,” and this describes the important factors causing market outcomes during the summer and autumn of 2000 in the California electricity market. Therefore, it is not surprising that many of the lessons from the electricity industry have analogues that apply to the gasoline industry. I will now describe each of these factors in more detail and note which ones California policymakers can impact.

The spot price of crude oil has increased almost \$10 per barrel since its lowest point during the autumn of 2003. This translates into roughly a 30 cents/gallon increase in the price of gasoline, purely because of the increased cost of the primary input to gasoline production. There is an integrated world market for oil. The production decisions of members of the Organization of Petroleum Exporting Countries (OPEC) play a major role in determining oil prices. California is a small player in the world oil market, so there is little California policymakers can do to impact oil world prices.

However, this input cost increase does not explain all of the retail gasoline price increase in California. Over the past year, the margin earned by refiners and gasoline wholesalers—the difference between the price of oil and the price retailers pay for wholesale gasoline—has increased substantially. Virtually all of the differences between retail gasoline prices in California and those outside of the state can be attributed to higher values of these margins in California.

There are two primary explanations for the higher wholesale margins that have parallels to the causes of high margins in wholesale electricity production and sales during the summer and autumn of 2000. The first is the increased cost of producing gasoline. Many refineries are currently operating close to capacity. In addition, California refiners are required to produce California Air Resources Board (CARB) gasoline, the cleanest burning gasoline in the world. Finally, California refineries are required to satisfy stringent environmental standards. All of these factors are likely to increase the cost of producing gasoline.

The second possible explanation for higher wholesale margins stems from the fact that the gasoline refining industry in California is highly concentrated. Six refiners own more than 90 percent of the refining capacity in the state and four refiners own almost 70 percent. This limits the

number of suppliers that retailers in California can buy from. In addition, CARB gasoline can currently be produced by only a few refineries outside of California, which further limits the competition in-state refiners face.

For both of these reasons, there are fewer independent refiners able to supply retailers in California relative to other parts of the US. Less competition among suppliers typically means that these suppliers are able to achieve higher selling margins. This market outcome appears to be the case for the California gasoline market, although it is very difficult to determine precisely how much of the increased margin between the price of oil and the price paid at the pump is caused California's less competitive wholesale gasoline market. As I discuss below, there are number of steps California policymakers can take to increase the competitiveness of the refining and wholesaling industry in California.

As someone who has studied in detail the issue of wholesale margins for electricity, many features of the gasoline industry make measuring these market inefficiencies considerably more difficult for gasoline than for electricity. However, that does not mean these calculations should not be performed. In fact, I believe that such a study would provide valuable input into the formulation of a solution to the current problems in the California gasoline market.

I want to emphasize that I do not believe this study will reveal violations of state or federal laws by gasoline refiners, wholesalers or retailers. This study will quantify how much of the increased refining and wholesaling margins are due to insufficient competition in the California gasoline industry, and how much are due to the increased cost of refining and selling wholesale gasoline. Knowing how much more California consumers pay for gasoline as a result of a highly concentrated refining industry will allow policymakers to formulate the appropriate response. For

example, if a highly concentrated refining industry allows refiners to raise wholesale prices by five cents per gallon relative to a less concentrated industry, this implies that California consumers pay roughly \$750 million more for gasoline each year or slightly more than \$20 per person, as a result of insufficient competition in gasoline refining.

Although California's demand for gasoline is roughly one million barrels per day, the volume of daily trading in the forward market is estimated to be approximately one tenth of that amount. Other parts of the US and the world have forward markets for gasoline with daily volume levels comparable or exceeding the level of daily consumption.

One feature of the California forward market that limits its ability to reduce gasoline price volatility is the fact that trading in the forward market typically extends only one to two months ahead of the delivery date. Both the thinness of the market and the short delivery horizon for forward contracts makes it difficult for distant suppliers, or, more generally, suppliers with long delivery lags to sell in the California market because they are unable to hedge the spot price risk associated with selling in California. For example, foreign suppliers willing to produce gasoline for the California market face significant revenue risk because they are unable to lock in prices for their deliveries far enough into the future to justify the investment in the technology necessary to produce gasoline to California's quality standards and deliver it to California.

Approximately 70% of the California gasoline retail outlets are operated under station-lease agreements with a major California refiner. These leases are usually conditional on long-term supply agreements that require retailers to purchase their gasoline exclusively from their branded refiner. Although roughly 15% of the stations in California are independently owned, a large fraction of these retailers have long-term supply agreements with a single refiner. These contractual

arrangements make these retail outlets less interested in participating in the forward market. The remaining 15% of the stations in California are both owned and operated by refiners, which also make these retailers less interested in participating in the forward market. As discussed below, there are a number of steps California policymakers can take to foster a more active forward market for gasoline.

The lack of new refinery construction has caused California to become increasingly reliant on gasoline imports. California is also a net importer of electricity. Similar to the case of electricity, extremely large price increases in California are often required to attract the necessary quantity of gasoline imports to meet California demand.

Finally, the high cost of obtaining the necessary environmental approvals for constructing new refinery and storage capacity implies that higher prices can be sustained for longer periods of time before new entrants find it profitable to pay these entry costs. The study of the competitiveness of the California gasoline market described above will help to quantify the cost of California's complex and lengthy regulatory approval process for new refining and storage capacity.

Given the many parallels to the electricity industry during the summer and autumn of 2000, a number of the solutions to high California gasoline prices have parallels to the case of electricity. The first is for the State of California to collect more information on the operation of the gasoline market. It is hard to see how closer monitoring of the industry could harm market performance. For example, collecting information on both planned and unplanned refinery outages would allow the state to study the often-debated question of whether refiners use planned and unplanned outages to raise gasoline prices in California. The California electricity industry provides an excellent example

of how this might be done for gasoline. Every day the amount of unavailable capacity from each generation unit in California is reported on the California ISO web-site.

The process of siting new gasoline refineries and storage facilities should be streamlined and standardized, similar to the current process used for siting electricity generation facilities implemented following the autumn of 2000. Given California's growing dependence on gasoline imports, a glaring need exists for more refining capacity in California. In addition, gasoline in storage can be an important source of additional supply when spot prices begin to rise.

Entry of independently-owned new refinery capacity should be encouraged. Steps should also be taken to increase the liquidity of the forward market for gasoline in California. One way to accomplish both of these goals is for the state of California and other local government agencies to offer up a long-term contract over a 5 to 10 year time horizon at a gasoline price indexed to the spot price of oil in exchange for the signer of the contract constructing a new refinery facility.

Existing firms should also be given financial incentives to divest themselves of refining capacity and retail outlets they own or with which they have long-term supply agreements in order to increase the competitiveness of the refining and wholesaling segments of the markets. Depending on the outcome of the study of the competitiveness of the California gasoline market described above, more extreme remedies may be justified by the expected benefits from a more competitive market in California. For example, if the costs of a concentrated gasoline refining and distribution sector in California are sufficiently high, these costs might be enough to justify vertical divestiture of gasoline retailing outlets from refineries. Large independent retailing sector in California would create many willing buyers of the longer horizon forward contracts necessary to allow distant suppliers to produce for the California market.

In conclusion, the ultimate solution to a lack of competition in the California gasoline industry, is lowering the barriers to new independent entry and fostering an active forward market for gasoline in California. A study of the competitiveness of the California gasoline market is a necessary first step toward formulating a comprehensive solution to this potentially very costly problem.

