Gasoline Retail Prices by Brand Diesel Retail Prices by Region Jet Fuel Spot Differentials

Diesel Spot Differentials

Gasoline Spot Differentials

Outright Spot Prices

Featured Topic:

California Spot Markets

Valero

January 2022 vs. 2021

(Percentage Change)

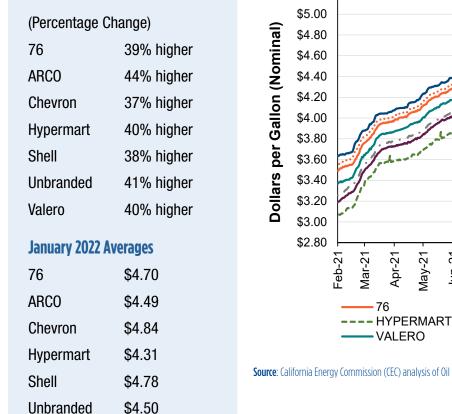
during a startup, resulting in unplanned flaring (Cal OES).

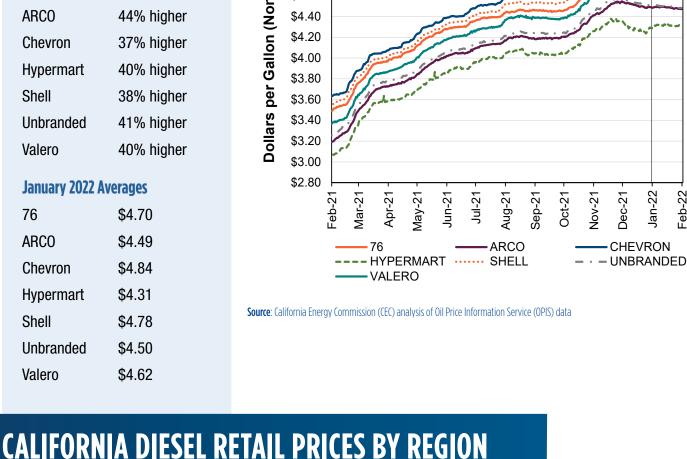
January 1, a unit over pressurized

Phillips 66 Wilmington: On

January 2022 vs. 2021 \$5.20 \$5.00 (Percentage Change)

CALIFORNIA GASOLINE RETAIL PRICES BY BRAND



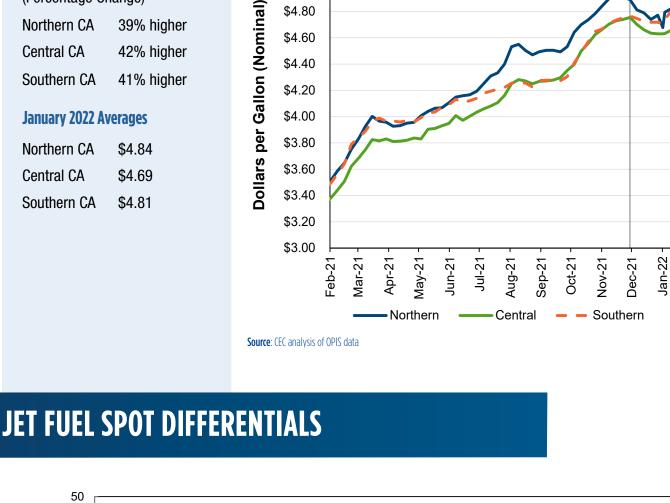


Feb-22

\$4.80 Northern CA 39% higher \$4.60 Central CA 42% higher \$4.40

\$5.20

\$5.00

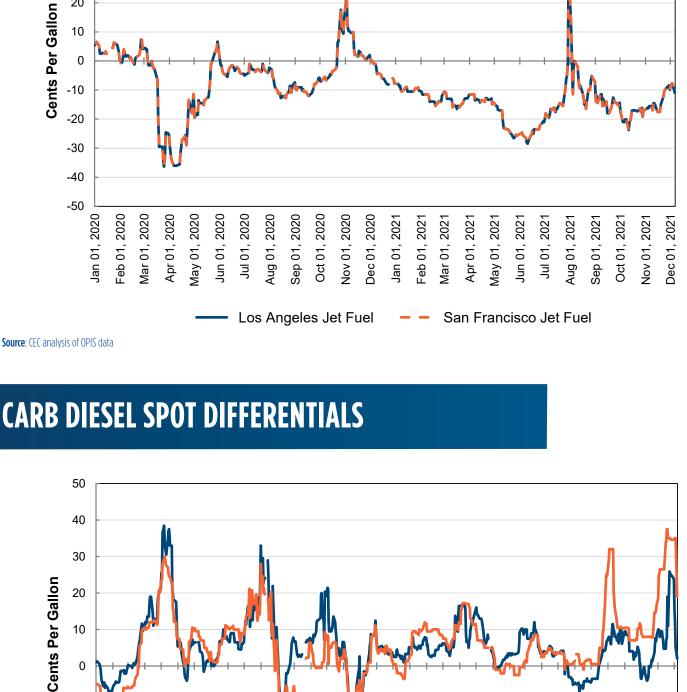


10 0

40

30

20



Apr 01, 2019 Mar 01, 2019

May 01, 2019

Jun 01, 2019 Jul 01, 2019 Aug 01, 2019

CARBOB GASOLINE SPOT DIFFERENTIALS

Sep 01, 2019 Oct 01, 2019 Nov 01, 2019 Dec 01, 2019 Jan 01, 2020 Feb 01, 2020 Mar 01, 2020 Apr 01, 2020 May 01, 2020 Jun 01, 2020 Jul 01, 2020 Aug 01, 2020 Sep 01, 2020 Oct 01, 2020 Nov 01, 2020 Dec 01, 2020

Los Angeles CARB Diesel

=eb 01, 2021

Mar 01, 202

San Francisco CARB Diesel

Jan 01, 2021

Apr 01, 2021

May 01, 202 Jun 01, 202 Jul 01, 2027 Aug 01, 2027 Sep 01, 2021 Oct 01, 2027

Cents Per Gallon 100 75

50

25

175

150

125

10

0

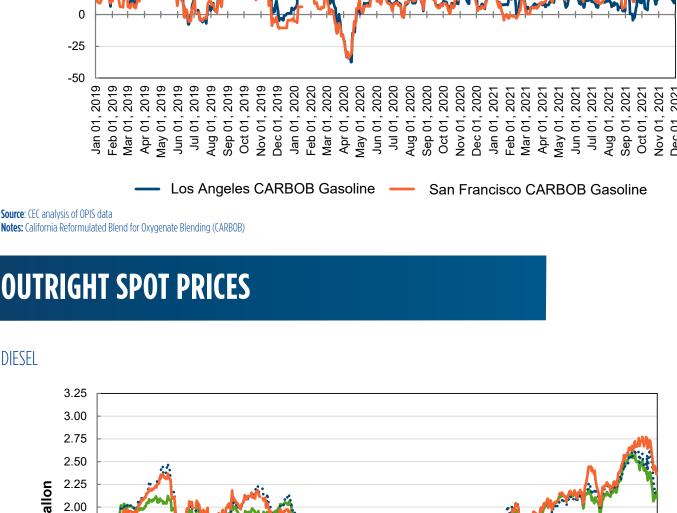
-10

-20

-30

Source: CEC analysis of OPIS data Notes: California Air Resources Board (CARB)





Dollar Per Gallon 1.75 1.50 1.25

NYMEX ULSD Diesel ······ Los Angeles CARB Diesel —

Jan 01, 2020

Reb 01, 2020

Apr 01, 2020

Apr 01, 2020

Jun 01, 2020

Jul 01, 2020

Oct 01, 2020

Oct 01, 2020

Nov 01, 2020

Dec 01, 2020

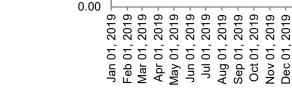
Jan 01, 2021

Feb 01, 2021

Apr 01, 2021

Aug 01, 2021

San Francisco CARB Diesel



Notes: New York Mercantile Exchange (NYMEX), Ultra Low Sulfur Diesel (ULSD)

1.00 0.75 0.50 0.25

Source: CEC analysis of OPIS data

CALIFORNIA

SPOT MARKETS

California's spot markets are regional

markets where contracts for deliveries

of gasoline (CARBOB), diesel (CARB

Diesel) and jet fuel are bought and

markets require delivery within 30

days of the deal. This requirement

for delivery gives the spot market

its name, as market deliveries are

made "on-the-spot" when the deal is

confirmed. Spot market participants

brokers, and traders. While futures

markets reflect supply and demand

also a strong indicator of the direction

where prices at the pump are headed.

California's spot markets trade

contracts in Los Angeles (LA) and

San Francisco (SF). While contracts

for deliveries of fuel are traded at

these locations, actual delivery

Kinder Morgan pipeline system.

Contract specifications, as <u>reported</u>

along the Kinder Morgan West Line

Minimum volume 10,000

barrels (420,000 gallons)

LA jet fuel contracts have

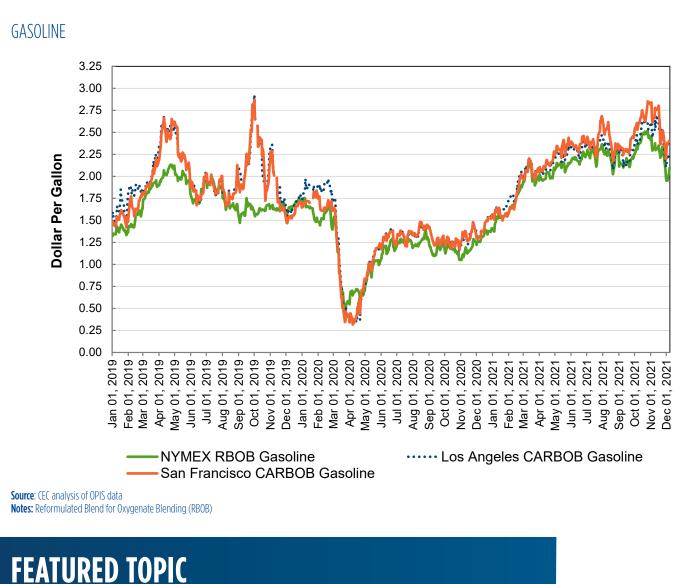
of fuel takes place along the

Specifications and Timing

LOCATIONS

include refiners, importers,

traded. The contracts traded on spot



SPOT DIFFERENTIAL EVENTS

120

100

80

60

40

20

0

-20

May 01, 2019

2019

Jul 01,

2019 2019

Sep 01, Nov 01,

LA - CARBOB

SF - CARBOB

Jan 01, 2020

Mar 01, 2020

Cents per Gal

40

30

20

10

0

-10

-20

-30

-40

-50

Jan 01, 2020

=eb 01, 2020

Mar 01, 2020

Jun 01, 2020

May 01, 2020

Apr 01, 2020

LA - Jet Fuel

SF - Jet Fuel

without locking into a long-term

agreement with a refiner. These

participants might be the long-term

customers of the refinery looking

to sell their own excess supply or

buy more for unforeseen demand.

SPOT PRICES AS AN INDICATOR

The timing requirements of spot

contracts keeps the spot market

limited to participants who need

thousands of gallons of fuel in less

than a month in California. Changes to

spot contract price then gives a short-

term indication of supply availability at

the refinery level. These price changes

eventually make their way down to the

When a refinery stops selling spot

contracts and starts buying in the

indication that it cannot supply all its

Usually, this indicates a serious issue

customers using its own resources

that is needed within the month.

such as an explosion or leak at a

refinery has weakened the refiner's

production. Other participants take

note of this and raise their prices

to match, picking up some extra

revenue by selling to new customers

This supply crunch's effect on prices

is called a price spike: when the spot

market bids go up and spot price

differentials increase drastically.

abandoned by the troubled refiner.

spot market, it is an immediate

retail level.

When Spot Prices Rise

expectations for a future month, spot markets reflect the supply and Source: CEC analysis of OPIS data demand based on material factors and events that are current. This makes Basis Contracts for gasoline, diesel, less expensive wholesale prices spot markets usually more volatile but

and jet fuel spot prices

CARBOB – NYMEX New York

Harbor RBOB one-month-

CARB Diesel - NYMEX New

Jet Fuel – NYMEX New York

Harbor ULSD one-month-

ahead futures contract

The total, or outright price, is

determined by the date of the

contract plus the differential.

"Bid 2 LA CARBOB, 15 over "

Means: Buying 840,000 gallons (2

Most participants are large companies

that have a sizeable wallet. The

minimum size of 210,000 gallons

(420,000 in LA) in these contracts

these deals is upwards of \$300,000

per contract. To scale, the average

service station in California has

a capacity of 17,200 gallons for

regular gasoline (see October 2021

Petroleum Watch for more about retail

stations in California). A minimum SF

contract would fill 13 stations and

have half a station's worth spare.

Under regular market conditions,

there is a set of participants usually

making offers (selling) of contracts

and another set making bids (buys).

with partner service station brands

stations to supply. Refineries look

ahead at what currently is needed

to fulfill their home customers and

weigh selling inventory into spot

markets against the risk of supply

disruptions. Fuel production is planned

weeks in advance using prices from

future market trades for crude oil

and product supplying the long-

term customers. These longer-term

or have their own network of service

means that even the smallest of

contracts of 420,000 gallons) of

Example Quote:

deal's completion, using that dates'

closing price of the basis NYMEX

York Harbor ULSD one-month-

ahead futures contract

ahead futures contract

by the Oil Price Information Service (OPIS), for gasoline, diesel, and jet fuel at each location are: Los Angeles: Any month timing

special cases to include deliveries to Los Angeles International Airport (LAX) San Francisco: Any month timing along the Kinder Morgan North Line Minimum volume 5,000 barrels (210,000 gallons) The term "any month timing" is a requirement for delivery to take place at the buyer's choice of terminal delivery time within the next four pipeline delivery cycles (28-32 days) along Kinder Morgan's pipeline

system. This essentially means that a

spot contract makes delivery within

future month for a futures contract.

For example, a buyer in Fresno who

purchases a CARBOB spot contract

in the LA spot market on December

5, would then further arrange to take

the fuel from a Kinder Morgan Fresno

terminal at any time before January 5.

CARBOB is the gasoline specifically

markets. This is basically gasoline

before it is blended with ethanol

(an oxygenate). This is important

to note because Kinder Morgan

does not allow ethanol into the

pipeline system. Finished product

traded in the LA and SF spot

a month, instead of delivery in a

blended with ethanol bought at the gasoline pump is called California reformulated gasoline (or CA RFG). Because all deliveries are on Kinder Morgan's pipeline system, all

CARBOB gasoline specifications are

determined by the delivery date on

gasoline and affects trades during the

RVP blend transitions in California. All of California's refineries are the primary customers of Kinder Morgan. Customers have the opportunity to bid on pipeline delivery time and bundle this with their fuel as product. The contract includes both the fuel produced by a refinery and the selling time on the Kinder Morgan pipeline system that the refiner reserved weeks to months in advance. THE DIFFERENTIAL AND THE BASIS

Kinder Morgan's Reid Vapor Pressure (RVP) schedule, regardless of the day the trade was settled (see **September** 2020 Petroleum Watch for more information). This is applicable only to

Prices on California's spot market are commonly quoted as a differential, or spread for short. The differential is the difference from the closing price of NYMEX onemonth ahead futures contracts. The differential, quoted in cents per

gallon (cpg), can be over (positive, at a premium to) or under (negative, at a discount to) the NYMEX price. The price of the relative NYMEX futures contract is called the basis. All the regional spot markets throughout the United States use a NYMEX futures contract as a basis. As OPIS explains, NYMEX market prices are transparent, have reliable contract enforcement, and wide anonymous participation. This makes an anchor for spot market prices to reflect their own region's differences

gasoline delivered within the month on Kinder Morgan's West Line at 15 cents plus today's NYMEX basis price.

PARTICIPANTS

Selling Participants Refiners, who own refineries within California, are the prime suppliers of CARBOB, CARB diesel, and jet fuel in the SF and LA spot markets. Many refineries have long-term contracts

contracts are not sold on the spot market, as the refinery has locked in a base price on this. Instead, under normal conditions in California, refineries use the spot market to sell spare inventory, overproduced barrels of fuel, or swap supply locations with other refineries. Importers specialize in finding product overseas that can meet California's strict fuel specifications. Importers have access to storage and pumping facilities at ports in California allowing ships to bring them into California's market. Oftentimes, for gasoline they

bring only additives to save time and cargo space. They use additives to upgrade existing inventories of out-of-spec gasoline to bring it up to California's specifications, which adds Buying Participants Brokers are participants that try taking a commission. They might buyers (remember the minimum contract size), breaking up larger deliveries for small independent networks of service stations, or a trading company looking to profit financially by holding and selling

supply to California's spot markets. to match buyers with sellers while represent a combined set of smaller contracts. Generally, most brokers don't have the infrastructure to take delivery of fuel; those that do are representing a larger participant.

CARBOB Gasoline Spot Differentials shows a price spike beginning on September 18, 2019. CARBOB price differentials saw increases for a whole two weeks. By September 24, Valero Benicia, PBF Refining Torrance, and Chevron El Segundo had reported production issues, while Valero Wilmington had already shutdown for nearly a month for planned

maintenance. Spot prices peaked on

spot at 135.2 cents per gallon and SF

October 1, 2019, with LA CARBOB

CARBOB at 129.9 cents per gallon.

The spreads would settle to more

When Spot Prices Fall

normal levels by October 22, 2019.

A reversed situation called a price

crash can occur when there is too

storage tanks along the Kinder Morgan

much fuel in the system. Usually

system called community storage can be used as a short-term storage for marketers. When the storage tanks are completely full and not enough withdrawals are made from community storage, the marketers are in a glut and fuel can no longer be delivered at that terminal. Marketers stop bidding on contracts and start selling contracts with their excess fuel. An example of a lasting crash occurred in early March 2020. Jet

Fuel Spot Differentials shows the spot

differential at a discount (negative)

and again in December (both LAX

to the NYMEX futures basis in March

and SF spot prices are almost always

equal, they have closed at different

prices on rare occasions). Jet fuel

spot prices crashed falling to -36.3

cpg in response to the COVID-19

flights and grounded planes (see

pandemic as airlines canceled

July 2020 Petroleum Watch).

WRAPPING UP

the direction of supply and demand based on current events. Price spikes can indicate supply issues, especially those at refineries. Price crashes

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the NYMEX prices appealing to use as against a national price. Outright Spot **Prices** shows the outright California spot prices along with NYMEX futures prices for comparison.

Marketers, participants who have terminals, truck fleets, and customer bases large enough to take on the minimum delivery size, are buying for a network of service stations. Some of these buyers might be acting on behalf of large customers, like 7-Eleven or Costco. Smaller independent marketers might participate trying to find The CEC welcomes feedback on Petroleum Watch.

Please contact Media and Public Communications Office at mediaoffice@energy.ca.gov.

about California's Petroleum Market.

CALIFORNIA ENERGY COMMISSION

California's fuel spot markets are made possible with a pipeline system allowing large deliveries of fuel within a month. Prices are quoted as a differential that is added to the basis price from the NYMEX to give the total outright price. Spot market activity provides good indication of

can indicate drastic falls in demand like jet fuel prices during stay-athome orders in California during the beginning of the COVID-19 pandemic. Future Petroleum Watch topics will further explain parts of California's fuel system that can change or influence the spot market price. Visit our website for more information