September 2022

PETROLEUM WATCH

CALIFORNIA ENERGY COMMISSION

INSIDE

REFINERY NEWS

- No refinery news

CALIFORNIA GASOLINE RETAIL PRICES BY BRAND

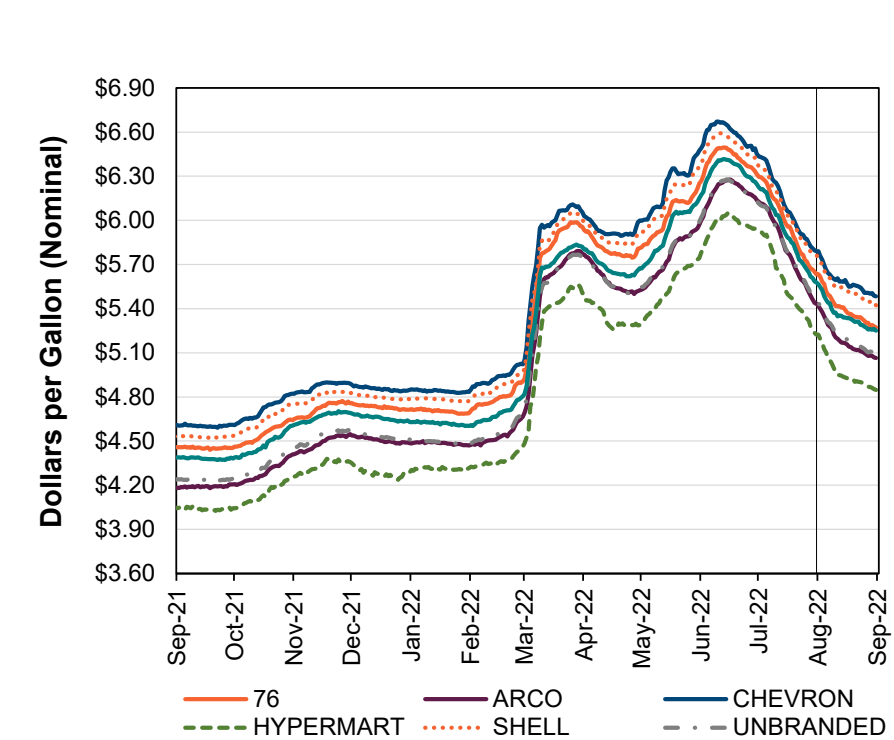
August 2022 vs. 2021

(Percentage Change)

76	21% higher
ARCO	24% higher
Chevron	21% higher
Hypermart	22% higher
Shell	22% higher
Unbranded	23% higher
Valero	22% higher

August 2022 Averages

76	$5.40
ARCO	$5.18
Chevron	$5.59
Hypermart	$4.97
Shell	$5.54
Unbranded	$5.21
Valero	$5.35



Source: California Energy Commission (CEC) analysis of Oil Price Information Service (OPIS) data

CALIFORNIA DIESEL RETAIL PRICES BY REGION

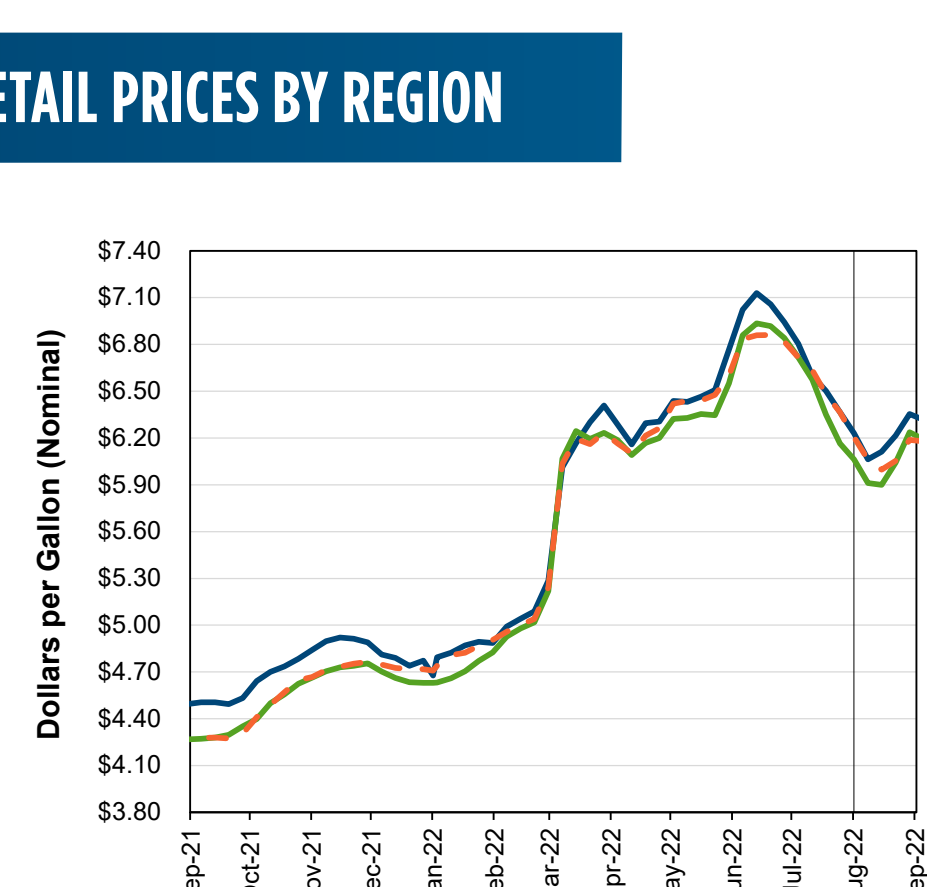
August 2022 vs. 2021

(Percentage Change)

Northern CA	37% higher
Central CA	41% higher
Southern CA	43% higher

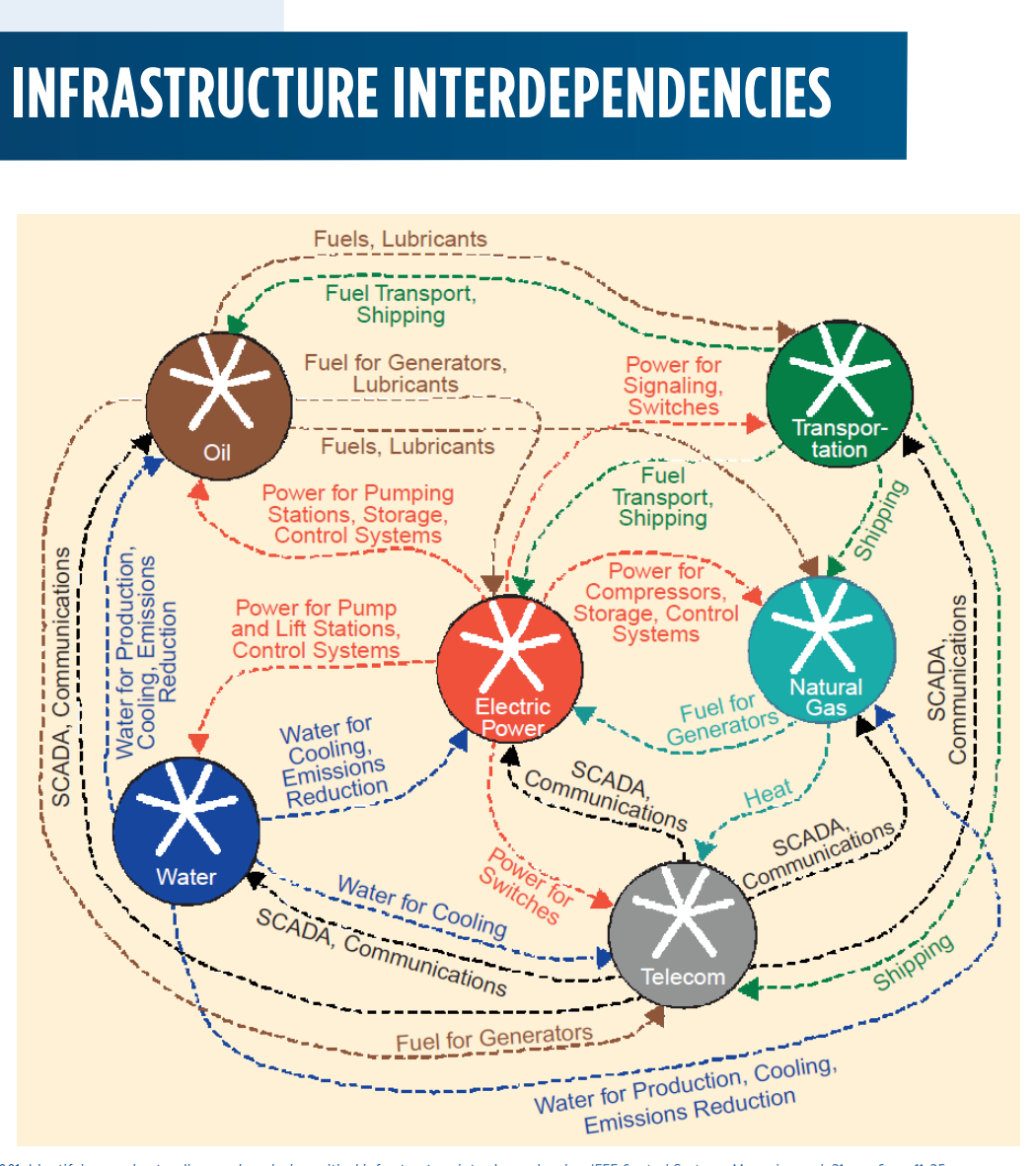
August 2022 Averages

Northern CA	$6.18
Central CA	$6.01
Southern CA	$6.09



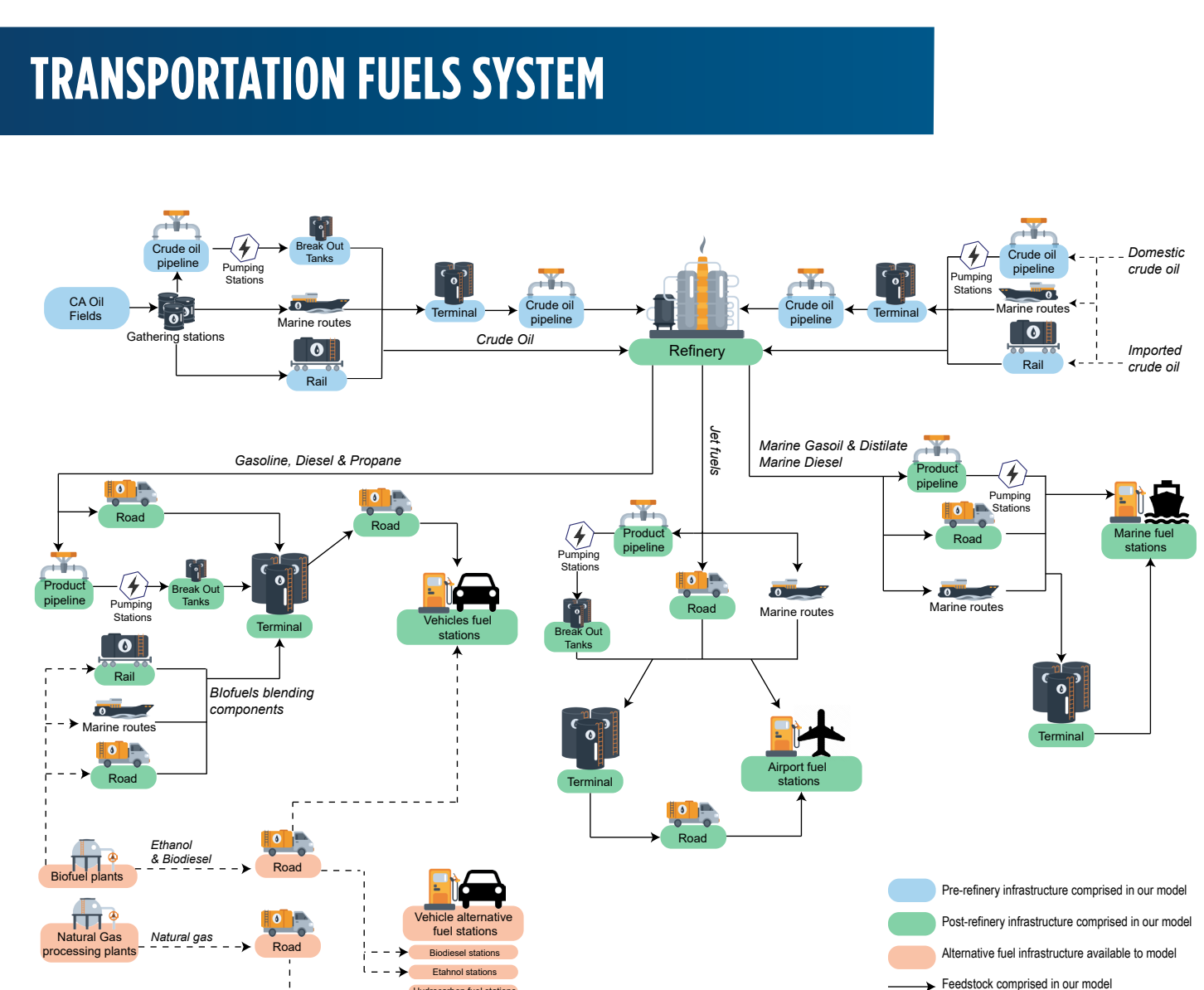
Source: CEC analysis of OPIS data

ENERGY INFRASTRUCTURE INTERDEPENDENCIES



Source: Rinaldi, S. et al. 2001. Identifying, understanding, and analyzing critical infrastructure interdependencies. IEEE Control Systems Magazine, vol. 21, no. 6, pp 11-25

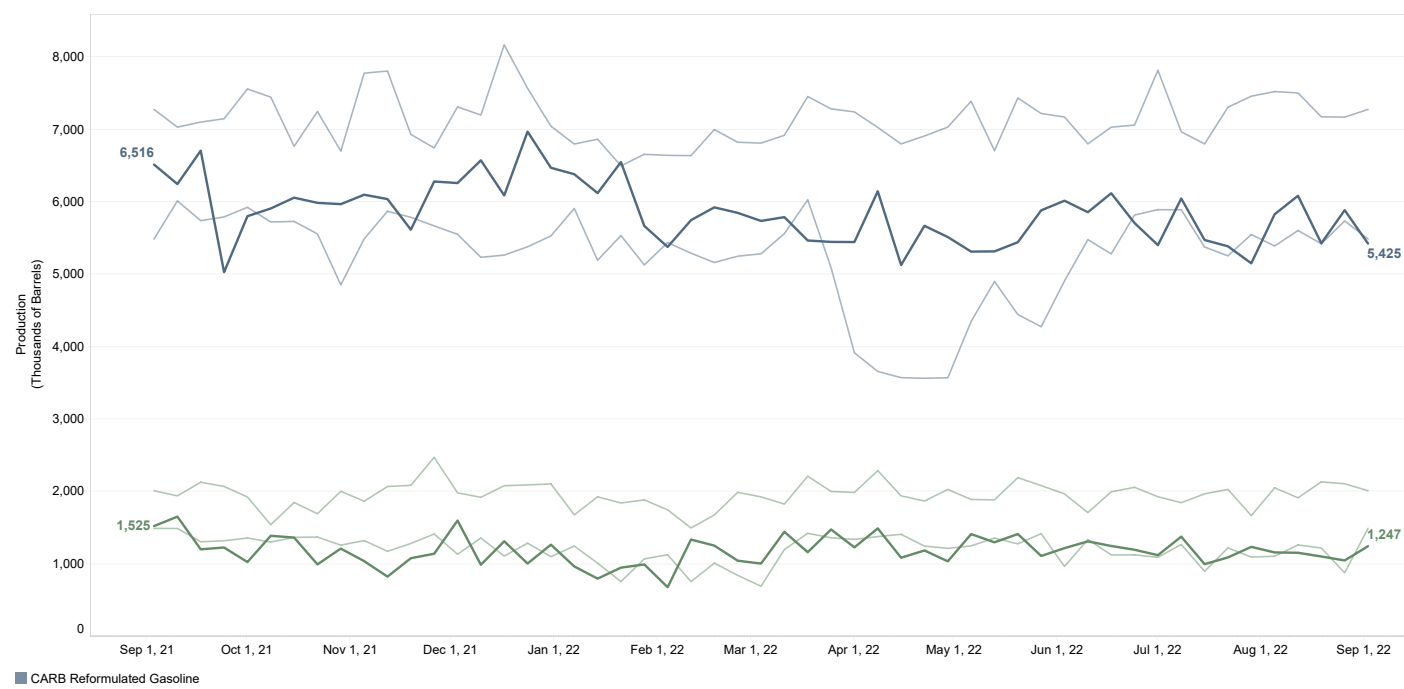
TRANSPORTATION FUELS SYSTEM



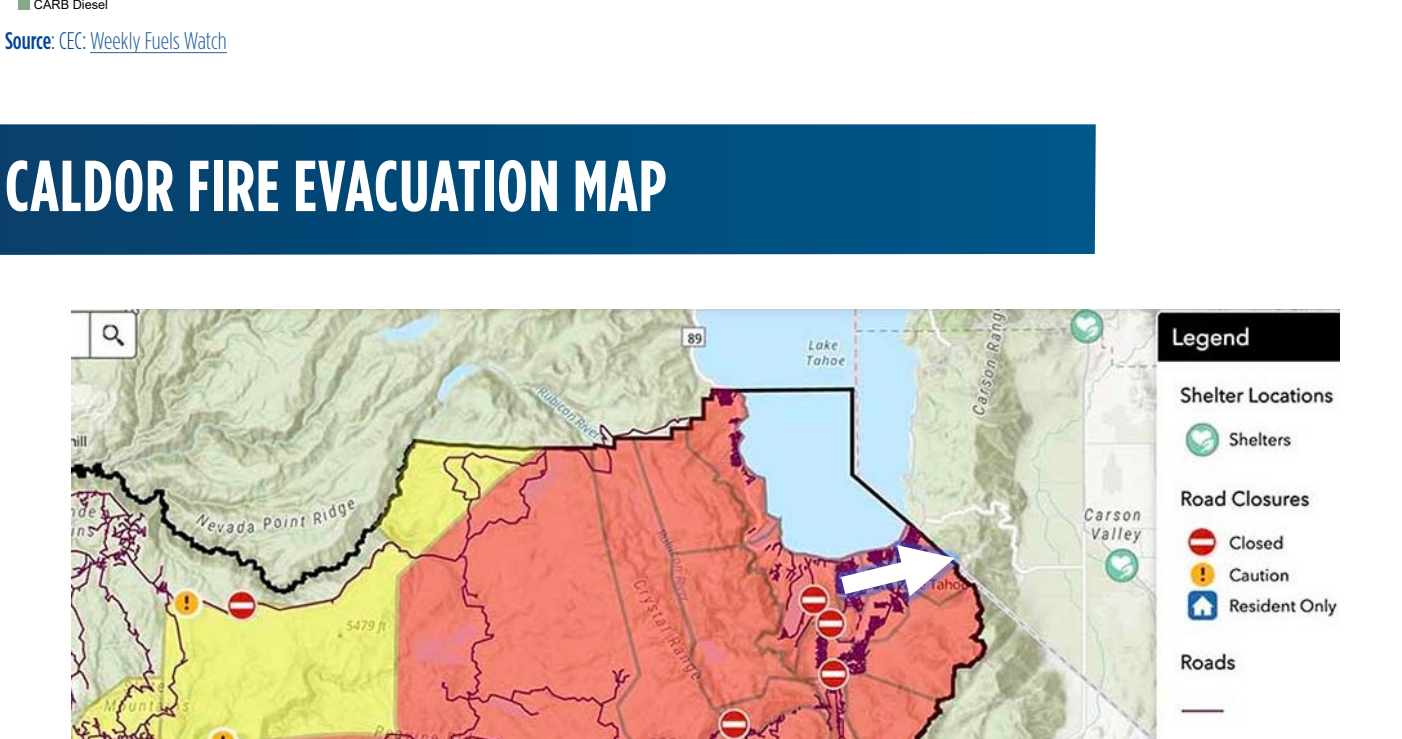
Source: University of California, Berkeley – Center for Catastrophic Risk Management

WEEKLY FUELS WATCH

STOCKS

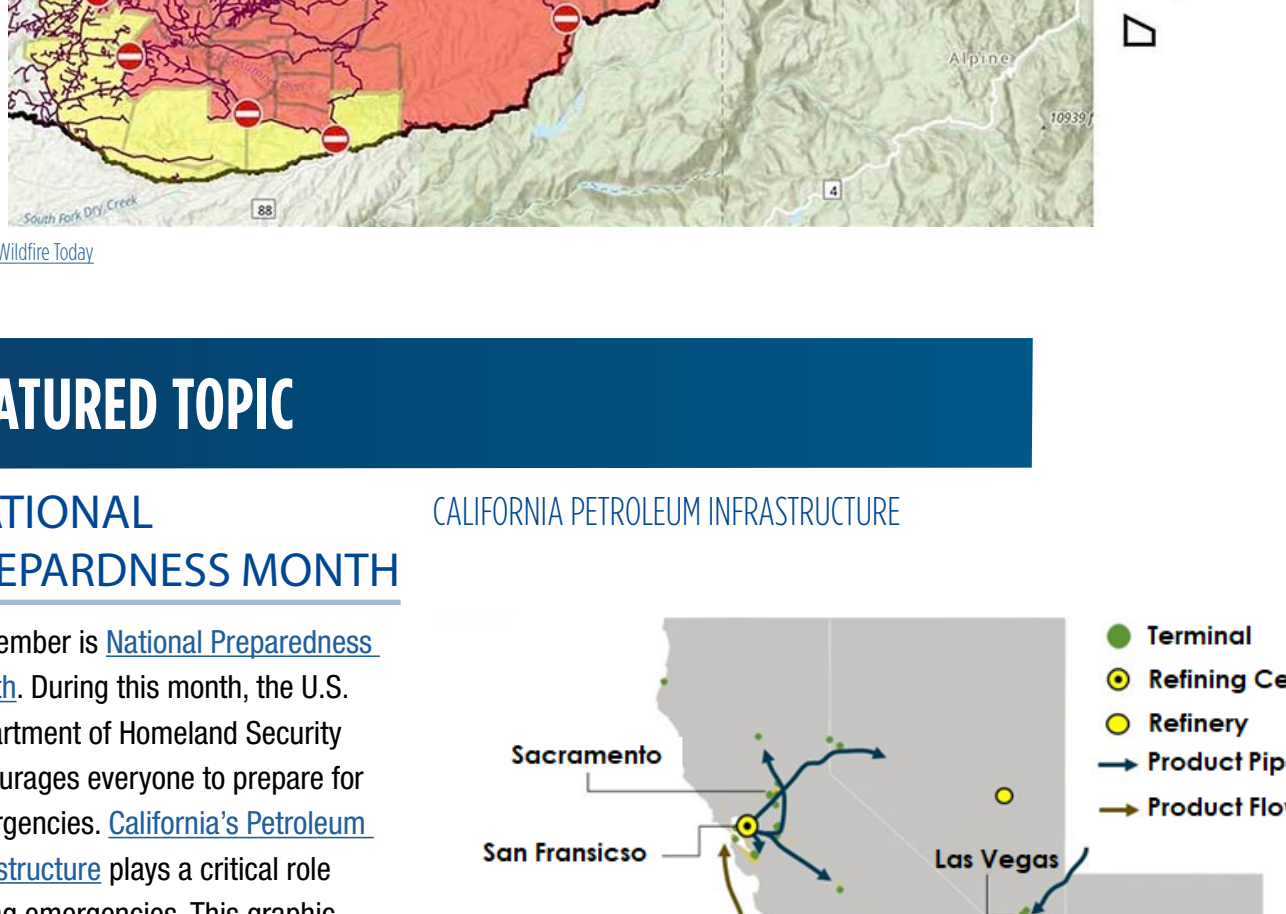


INPUTS AND PRODUCTION



Source: CEC: Weekly Fuels Watch

CALDOR FIRE EVACUATION MAP



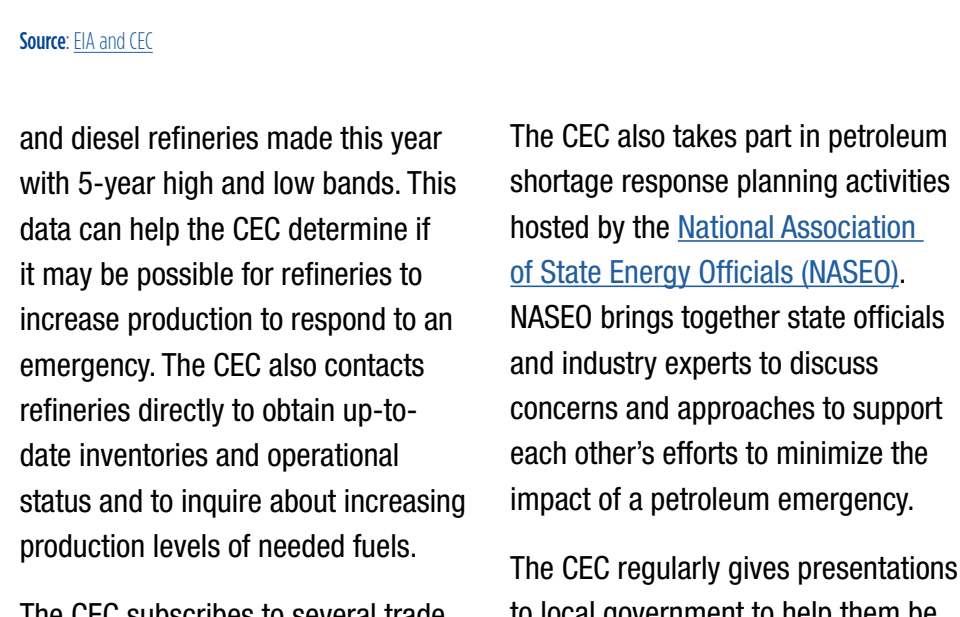
Source: Wildfire Today

FEATURED TOPIC

NATIONAL PREPAREDNESS MONTH

September is National Preparedness Month. During this month, the U.S. Department of Homeland Security encourages everyone to prepare for emergencies. California's Petroleum Infrastructure plays a critical role during emergencies. This graphic shows that there are two refining centers in California that connect to product pipelines that carry fuel through California and on to Nevada and Arizona. The image also shows that there are no pipelines bringing fuel into California. A major disaster could knockout one of the refining centers leading to devastating fuel shortages that affect not only California but also Nevada and Arizona. This Petroleum Watch discusses the CEC's role and how the CEC prepares for and responds to petroleum emergencies.

CALIFORNIA PETROLEUM INFRASTRUCTURE



Source: EIA and CEC

CEC'S ROLE

The California Governor's Office of Emergency Services (Cal OES) is the lead agency that responds to California emergencies. The CEC serves in an advisory and coordination role and provides support with energy information, energy expertise, and transportation fuel response planning. If a fuel shortage occurs, such as after a major earthquake that shuts down half of the state's fuel production, the CEC has the authority to have private stakeholders hold a portion of their fuel inventory. This fuel is held for use by first responders and other critical fuel needs. That emergency authority is referred to as the Fuel Set-Aside Program and can only be initiated by an executive order from the Governor. To date, the CEC has not needed to use this authority. Instead, CEC staff works with Cal OES, other government agencies, and private companies to provide guidance to lessen the likelihood of a fuel supply problem developing because of impacts to refineries or distribution infrastructure from natural or human-caused disasters.

PREPARING FOR EMERGENCIES

Petroleum infrastructure is complex and depends on other infrastructure as shown in Energy Infrastructure Interdependencies. It is essential that CEC staff maintains expertise in petroleum infrastructure and operations, but staff must also understand the impacts of issues with other infrastructure. For example, most people do not think about petroleum infrastructure when the electricity goes out. A large or prolonged electricity outage may mean pumps at gas stations cannot be used to fill vehicles or pumps for petroleum pipelines cannot bring fuel to different regions. It may also mean that a refinery must stop producing fuel as it cannot operate its equipment. These parts of petroleum infrastructure are not independent of each other. Transportation Fuels System shows the flow of crude oil and fuel through the system. For example, if pumping stations (blue square) lost electricity, pipelines could not push fuel to terminals, affecting both downstream and upstream operations. Downstream, pipelines could not be used to refill tanks at terminals, leading to regional fuel shortages. Upstream, refineries would have to keep fuel onsite as they would no longer be able to send fuel through the pipeline. If refineries were to run out of storage capacity, they may have to reduce or stop fuel production until electricity is restored to the pumping stations. While tanker trucks could be used as an alternative to transfer fuel to terminals, they would move less fuel and are much slower than pipelines.

DATA AND INFORMATION

To be prepared for emergencies, the CEC must maintain extensive knowledge of the California petroleum market and fuel supply. A major source of data for CEC efforts is the Petroleum Industry Information Reporting Act (PIIRA). PIIRA requires petroleum companies that ship, receive, store, process and sell crude oil and petroleum products in California to submit weekly, monthly, and annual forms. Most PIIRA forms report the type and quantity of fuels involved in the activities described.

The Weekly Fuels Watch Stocks and Inputs and Production use data submitted on the CEC W800 form. Stocks show this year's gasoline and diesel inventories at refineries and the 5-year high and low bands. Stocks above the 5-year high band indicate ample fuel supply. Stocks below the 5-year low band indicate tight fuel supply. This data provides the CEC a snapshot of current supply and can help identify areas that may develop fuel shortages when disaster strikes. Inputs and Production shows how much gasoline and diesel refineries made this year with 5-year high and low bands. This data can help the CEC determine if it may be possible for refineries to increase production to respond to an emergency. The CEC also contacts refineries directly to obtain up-to-date inventories and operational status and to inquire about increasing production levels of needed fuels.

The CEC subscribes to several trade publications. OPIS Intraday News Alerts keeps the CEC informed about refinery and pipeline issues. The CEC's subscription to Industrial Information Resources' IIR PetroCast Live is especially helpful in keeping the CEC informed about equipment maintenance at refineries as refineries that are undergoing maintenance may be limited in their ability to help in responding to an emergency.

The CEC also relies on several government reports and alerts to stay informed about events that may affect fuel supply. The Cal OES Spill Report lists hazardous material spills that occur throughout the state. The report includes spills and emission of gasses at refineries. Individual reports include the facility, location, substance spilt, and may include the quantity spilt, cause, injuries, and affected waterways. This timely report gives important details and can help the CEC decide if the spill and its cause may affect fuel supply and if further research is needed.

The South Coast Air Quality Management District (SCAQMD) regulates air emissions from refineries in the Los Angeles area. In this district, refineries are required to report both planned and unplanned flaring events that exceed a certain size, described in more detail on SCAQMD's webpage. Planned flaring is usually related to maintenance and the shutdown and startup of equipment and does not usually call for concern. Unplanned flaring, sometimes called emergency flaring, may be a result of equipment breakdown. Equipment breakdown may affect fuel supply if the refinery cannot repair the equipment quickly. The CEC will check other sources to see if further investigation or action is needed.

The CEC also subscribes to many emergency alerts for communities where petroleum infrastructure is located, such as the Contra Costa County Community Warning System. Emergency alerts are a great way to make the CEC aware of events occurring at or near petroleum infrastructure that may affect fuel supply.

The California Department of Forestry and Fire Protection (CAL FIRE) has a webpage that has information on fires. The CEC watches this webpage to see if any fires start near petroleum infrastructure, particularly pipelines which pass through areas of elevated and extreme fire threat. It is important to note that pipelines are typically able to continue operating during wildfires because of actions taken by operators as described in Kinder Morgan's The Responder.

WORKING TOGETHER

The CEC works closely with other agencies to prepare for emergencies. The Cal OES hosts tabletop exercises that to bring state agencies together to practice working through emergencies. It gives agencies an opportunity to talk through concerns, to see how each agency runs, and to use Cal OES' software. The CEC also serves as lead agency for Cal OES' Fuels Task Force. The task force works through various mock emergencies to find ways to improve response by identifying which agencies would have to work together, which private companies would need to be contacted, who would be supplying fuel, who would be transporting fuel, and other critical details. These activities help make the CEC more agile in responding to actual emergencies. In 2021, Cal OES activated the Fuels Task Force to make sure firefighters had access to the fuels they needed to respond to fires. Cal OES regularly relies on the CEC's expertise to help inform their various emergency contingency plans such as the Southern California Catastrophic Earthquake Response Plan.

The CEC also takes part in petroleum shortage response planning activities hosted by the National Association of State Energy Officials (NASEO). NASEO brings together state officials and industry experts to discuss concerns and approaches to support each other's efforts to minimize the impact of a petroleum emergency.

The CEC regularly gives presentations to local government to help them be prepared for petroleum emergencies. During these presentations, one of the most common conversations is that local agencies need to consider emergency contracts for fuel. During a major disaster, regular fuel deliveries may not be available and multiple groups will be competing for the same fuel, so an alternate source of fuel during emergencies is essential.

The CEC also meets with other agencies, such as the California Air Resources Board and the California Public Utilities Commission, to discuss how new or proposed regulations will affect refinery operations, fuel supply, fuel costs, and emergency response. Agencies want to make sure that their regulations do not have unintended effects on emergency response. Discussions also include how agencies can work together to respond to emergencies efficiently.

Outreach is an important aspect of the CEC's work. The CEC regularly checks in with other agencies and private companies to keep communication lines open and to confirm emergency contacts. Having current contact information is essential to be able reach the proper people quickly during an emergency.

RESPONDING TO EMERGENCIES

The CEC advises and coordinates efforts for many kinds of emergencies such as power outages, earthquakes, and wildfires. In 2021, the Dixie, McFarland, River Complex, and Monument fires burned over 1.5 million acres in Northern California. To support CAL FIRE's efforts, Cal OES activated their fuels task force to find more sources of jet fuel. Local airports did not have enough fuel onsite nor enough deliveries to keep up with the CAL FIRE's fuel needs. Through the task force, the CEC worked with private companies to identify and secure more jet fuel. These efforts helped to ensure that CAL FIRE had the fuel it needed, as close as possible to their operations. Without the CEC's efforts, CAL FIRE would have quickly drained fuel at local airports, leading to them having to fly further to refuel their planes and helicopters, reducing their time actively fighting the fires.

In 2021, the Caldor fire burned over 220,000 acres and led to the evacuation of more than 20,000 people from South Lake Tahoe and the surrounding area. Road closures and the fire's eastward movement meant that residents had to evacuate east into Nevada as shown in Caldor Fire Evacuation Map. The CEC partnered with the Nevada Governor's Office of Energy (GOE) to find evacuation routes that included access to hypermarts. Hypermarts are large retail suppliers of general merchandise or groceries that also sell gasoline. Examples of hypermarts include Costco, Safeway, and Sam's Club. These companies design their gas stations to serve a large volume of customers. The CEC and GOE also worked with the Nevada Petroleum Marketers and Convenience Store Association to ensure extra deliveries of fuels to support evacuations efforts. Selecting an evacuation route that included access to hypermarts ensured that the more than 20,000 evacuees could get the fuel they need to keep moving east.

CONCLUSION

Disasters are unavoidable. The CEC takes many actions to prepare for and to quickly respond to emergencies. These actions help minimize the impacts disasters have on Californians. Whether it is making sure CAL FIRE has jet fuel available to fight fires or evacuees have gasoline to be able to drive away from danger, the CEC will continue to work diligently to lessen the likelihood and impacts of a fuel supply problem.

The CEC welcomes feedback on Petroleum Watch.
Please contact Media and Public Communications Office at mediaoffice@energy.ca.gov.

FOR MORE INFORMATION
California's Petroleum Market
Weekly Fuels Watch
Subscribe

SPECIAL THANKS
Transportation Fuels Data Analysis Unit

CALIFORNIA ENERGY COMMISSION

Twitter LinkedIn Instagram Facebook YouTube Flickr