

# Sustainable aviation fuel and West Coast energy security

The West Coast fuel exposure and need  
for renewable fuels beyond climate

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# Executive summary

With energy at the core of today's global geopolitical and market uncertainty, the need to strengthen the access, availability and affordability of jet fuel along the West Coast is more critical than ever. California and Washington are home to some of the nation's busiest airports, largest cargo operations, and most significant aviation infrastructure, all of which rely almost entirely on jet fuel derived from globally traded crude oil. This dependency creates significant exposure to supply disruptions, price volatility, and the ongoing reduction of domestic refining capacity on the West Coast, further decreasing the margin for error in regional fuel supply.

Sustainable Aviation Fuel (SAF) offers a different model. SAF produced via the [HEFA pathway](#), the dominant commercial production technology in use today, is derived from feedstocks including used cooking oil, animal fats, and agricultural residues whose supply chains are regional and whose pricing reflects local market conditions rather than OPEC production decisions or Pacific shipping constraints. Over the past month, [crude oil prices](#) have increased substantially while [renewable feedstock costs](#) have remained comparatively lower. This decoupling is the core of SAF's energy security value. It does not eliminate all supply risk, but it fundamentally diversifies the feedstock base for aviation fuel and reduces the correlation between jet fuel supply and the geopolitical events that most commonly disrupt it. Many new innovative technologies for SAF are also rapidly developing and offer significant opportunities for scale beyond HEFA. The West Coast already has refinery-scale

renewable fuels infrastructure capable of producing SAF. These facilities operate within existing permitted footprints, served by established workforces, operational pipelines, and permitted and regulated terminal infrastructure. In some cases, the capital required to bring SAF to scale [is being deployed](#).



*To reduce risk and strengthen the availability and accessibility of aviation fuel along the West Coast, **it is essential to increase policy and market alignment in California and Washington**, two states with major fuel production facilities.*

Airlines are constrained by global commodity fuel costs and require price parity between SAF and traditional jet fuel. [To accelerate the commercial deployment of SAF](#), policy and market forces need to align and efficiently stack incentives to more rapidly reach price parity.

The opportunity to reduce risk associated with the West Coast's structural fuel vulnerability while advancing the energy transition is strategically valuable for the Pacific Coast and beyond.

# 01 The West Coast's fuel supply vulnerability

## Dependence on global crude markets

Unlike the Gulf Coast, which benefits from extensive pipeline connectivity and refinery redundancy, the West Coast operates at the far end of a complex global fuel supply chain. There are no crude oil pipelines crossing the Rocky Mountains at meaningful volume and every barrel refined on the West Coast must be produced locally, shipped from Alaska, or delivered by tanker from markets that are frequently subject to geopolitical disruption.

Global crude oil markets have experienced significant price spikes in recent years tied to geopolitical conflict, OPEC production decisions, and post-pandemic demand dynamics, and [jet fuel prices](#) have followed closely. For states whose economies depend heavily on the aviation industry, these fluctuations affect airline operating costs, freight logistics, and consumers. The West Coast's geographic distance from major domestic refining centers and limited import flexibility means that disruption in one part of the system can translate quickly into regional scarcity.

## The cost of chokepoint dependency

The Strait of Hormuz closure illustrates how exposed California's jet fuel supply is to events entirely outside the state's control. Prior to the closure, [California was importing](#) approximately **52,000 barrels** per day of jet fuel from Asia Pacific refineries, with Korea alone supplying 40,000 barrels per day to the West Coast. After the closure [reduced Arab Gulf crude](#) to Asia Pacific refineries from 10 million barrels per day to 3 million barrels per day, import volumes **dropped below 5,000 barrels** per day, all while demand for jet fuel remained steady.

52K

Barrels of imported jet fuel in California per day

90%

Reduction in import volume due to 2026 Strait of Hormuz closure

California's airports continue to serve tens of millions of passengers and billions of pounds of cargo annually, and that demand must be supplied from somewhere. The market will backfill the gap to an extent, but at a cost, as fewer available barrels competing for the same demand drive up prices for carriers, shippers, and consumers across the state. Airlines around the world are already raising cabin fares, canceling routes, and cutting food and beverage service to compensate. In the case of Spirit Airlines, high jet fuel prices left the struggling carrier no choice but to cease operations.

Additionally, West Coast refineries are not configured to process WTI or Permian light sweet crudes, and there are no crude oil pipelines connecting the Permian or the midcontinent to the West Coast.

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### **Pacific supply chain exposure**

The same Pacific connectivity that makes Los Angeles, San Francisco, and Seattle major global aviation hubs also creates supply chain exposure. Disruption to Pacific shipping lanes, whether from geopolitical conflict or natural disaster, limits the region's ability to source replacement fuel quickly, and marine terminal capacity on the West



*As long as California's jet fuel supply depends on the same chokepoints and the same globally traded crude, **the state will remain exposed** to these dynamics each time geopolitical conditions shift.*

Coast is geographically concentrated enough that disruption can constrain supply across the region.

West Coast aviation fuel security depends disproportionately on local production capacity and the resilience of regional supply chains as a result. Investments that strengthen those supply chains, particularly those that utilize domestic feedstocks and reduce reliance on globally traded commodities, directly support the region's energy security.

## The contraction of West Coast refining capacity

On top of the external vulnerabilities, the West Coast has experienced a sustained [reduction in domestic crude oil extraction](#) from California and Alaska and in conventional refining capacity over the past decade. Several California refineries have reduced throughput or [closed entirely](#) as a result of aging infrastructure, rising compliance costs, and competitive pressure from imported refined products. Each closure reduces the region's ability to process fuel domestically, extending reliance on imports and narrowing the buffer available when supply disruptions occur. SAF investment should be evaluated in this context.

*Converting or expanding existing refinery-scale assets to produce SAF from domestic feedstocks is not only a response to the energy transition, but a **practical contribution to the resilience of the West Coast fuel supply**, preserving regional production capacity while reducing exposure to global crude oil dynamics.*

### Bay Area renewable fuels at scale: A California case study



The [Rodeo Renewable Energy Complex](#) in the Bay Area represents one of the most significant renewable energy infrastructure investments in California in recent years. Instead of closing the facility as conventional petroleum economics shifted, the operator invested in [renewable fuel production](#), demonstrating the critical role of the refining industry in the energy transition. Fuels are now produced from used cooking oil and agricultural residues, criteria pollutant emissions [have been reduced over 50%](#), and California has in-state production of both [renewable diesel and SAF](#) with direct pipeline access to major airports.

The strategic significance of this facility extends beyond climate. It is a Bay Area-based asset with existing pipeline and terminal connectivity that preserves union, industrial employment, and anchors a regional supply chain grounded in diverse feedstocks rather than imported crude. The capital invested in a new SAF refinery represents years of permitting, engineering, and construction work. Utilizing existing infrastructure while simultaneously supporting new builds is therefore the fastest path to diversified jet fuel and a decarbonized aviation sector.

# 02 Why SAF feedstocks change the security calculus

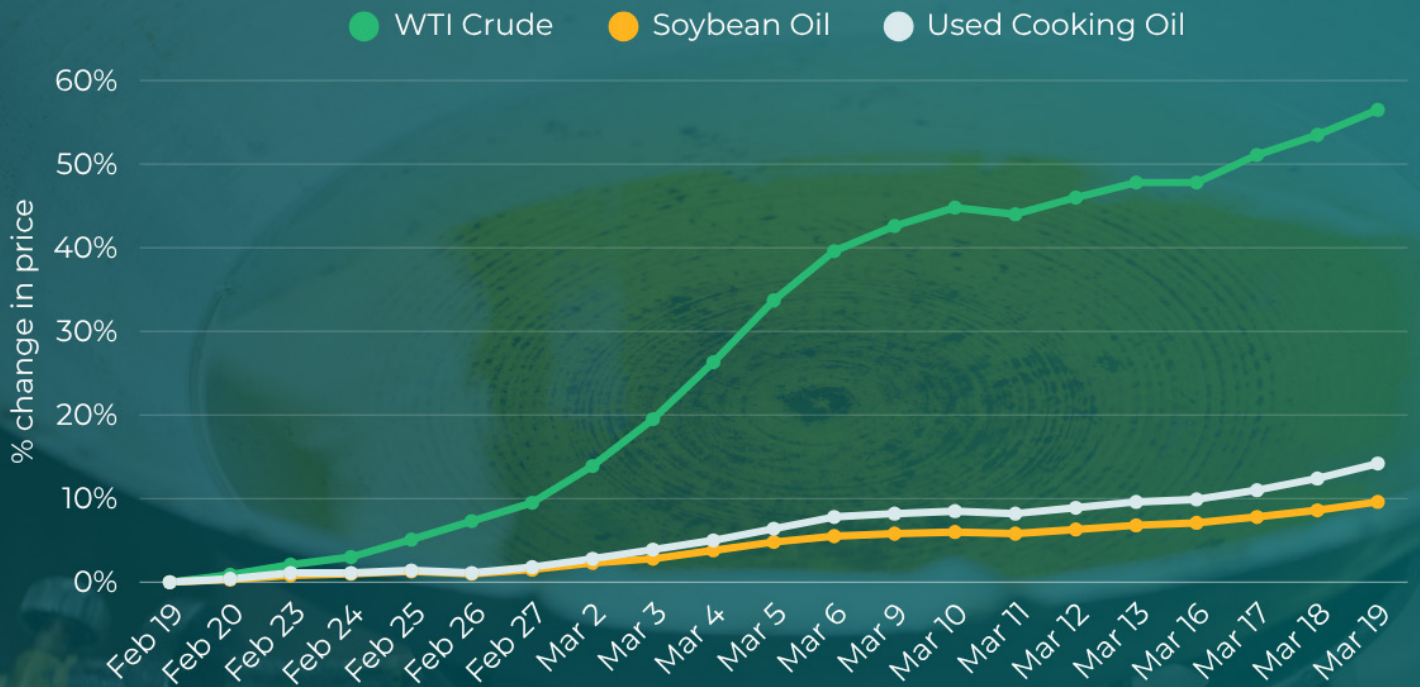
## A supply chain that starts domestically

Conventional jet fuel is a direct derivative of crude oil, and its pricing moves with the global commodity market, which creates exposure for regions like the West Coast where the aviation industry is a significant economic driver. SAF today is produced primarily using scaled [HEFA refining technology](#) with feedstocks like used cooking oil, crop-based feedstocks, and agricultural residues that are collected from diverse regions and processed domestically.

This supply chain operates outside the global oil market, offering economic protection. A gallon of SAF made from Northern California used cooking oil does not face the supply and pricing dynamics that conventional jet fuel does. For example, the cost of crude oil increased **by over 50%** between February and March following the Strait of Hormuz closure, while renewable feedstocks remained relatively stable.

# Renewable feedstocks versus WTI crude oil

Price growth from February 19 to March 19



Price growth of renewable diesel feedstocks versus WTI crude oil driven by Strait of Hormuz disruptions, with % growth indexed to 0 on February 19. Data calibrated to USDA, WASDE, EIA, and ASA March 2026 anchor points.

Decoupling fuel production from crude oil is a [core value proposition](#) that SAF offers. While it does not eliminate all risk, it diversifies the feedstock base and derisks the aviation fuel supply chain. As [additional production technologies](#) including Fischer-Tropsch, alcohol-to-jet, and eventually e-fuels scale, a diverse range of reliable feedstocks and maturing supply chains will further address energy security risks. The regional policy landscape will be critical in supporting the scale of these production technologies and reaching commercial production levels.



# 03 West Coast renewable fuels infrastructure

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## Pacific Northwest fuel supply infrastructure

Washington's existing refinery infrastructure, connected to the region's marine terminal and pipeline network, plays a central role in the Pacific Northwest fuel distribution system. The proximity of Northern Washington refineries to the [Olympic Pipeline](#), which provides the primary fuel supply route into Seattle-Tacoma International Airport, further underscores the value of existing refining infrastructure to the region's aviation ecosystem.

Expanding Washington's existing refinery-scale capacity into renewable fuels production would increase regional supply resilience and create a [Pacific Northwest hub](#) capable of serving the growing SAF needs of Washington's aviation sector, consistent with the state's [clean energy commitments](#) and its interest in reducing exposure to global crude oil markets.

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## A West Coast network built on existing infrastructure

Combined with the conversion of petroleum assets like the Rodeo Renewable Energy Complex in California, these facilities represent the opportunity for refinery-scale renewable fuels capacity on the West Coast with existing permits, established workforces, utility connections, and pipeline and terminal access. The industry now needs a [policy environment](#) that supports continued capital investment, provides long-term demand certainty, and develops the feedstock supply chains these facilities depend on.



# 04 The policy opportunity for California and Washington

## The role of state leadership

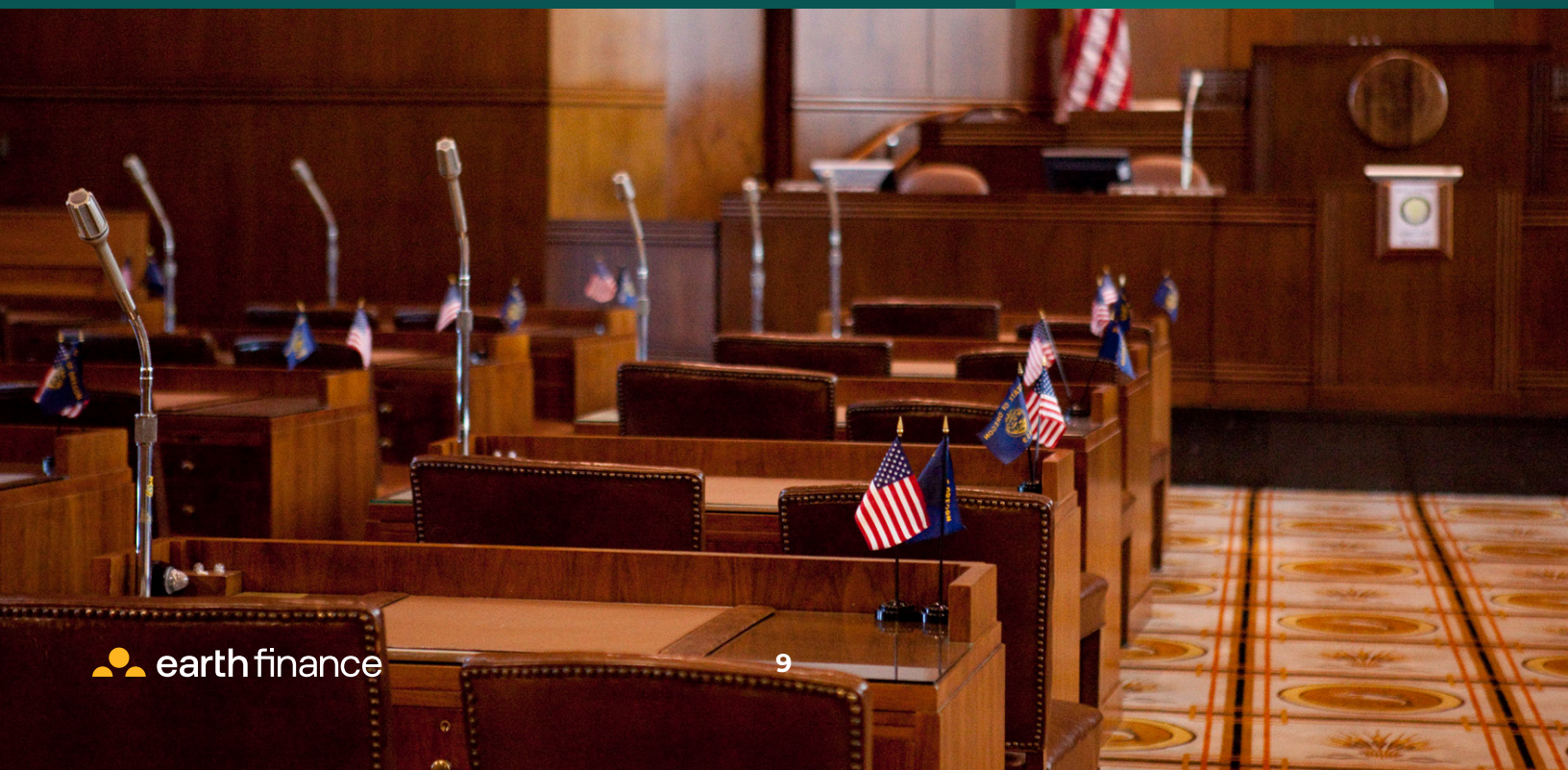
Federal policies including the [Renewable Fuel Standard](#) and [Inflation Reduction Act](#) have created a baseline of financial support for the industry but alone are not sufficient to build the infrastructure, feedstock supply chains, and long-term demand certainty that the West Coast SAF industry needs. State governments are well positioned to provide place-based, sustained support that aligns production capacity, regional feedstock development, airport offtake, and workforce investment. California and

Washington both have established [low-carbon fuel standards](#), carbon pricing mechanisms, and a shared interest in reducing the structural vulnerability of their regional fuel supply.

However, critical state policy support for SAF is modest relative to the cost scenarios it is designed to help avoid, the first being the escalating cost of climate inaction, and the second, the more immediate cost of crude oil price volatility. Between 2021 and 2022, jet fuel [prices more than doubled](#) as demand rebounded post pandemic and the Russia-Ukraine conflict disrupted markets,

imposing billions of dollars in added operating costs on U.S. carriers. The policy investment required to build a resilient West Coast SAF industry offers a strong return for both states, offering protection against both crude oil price volatility and the escalating costs of climate inaction.

By coordinating implementation of a [SAF Tax Credit](#) and moving forward with [carbon market linkage](#), California and Washington can build on the existing strong Clean Fuel Programs and develop a synchronized SAF policy landscape to scale incentives and bring down costs.



# Building West Coast energy security through SAF

The West Coast's exposure to global crude oil markets, Pacific supply chain disruptions, and the ongoing contraction of domestic conventional refining capacity is a structural challenge. Aviation fuel supply for the region will remain vulnerable as long as it depends on a commodity subject to geopolitical and market forces that are largely outside the region's control.

SAF offers a meaningful path toward reducing that exposure. The feedstock supply chain is diversified, often domestic and regionally sourced, and priced by local supply-and-demand conditions. The production technology is established

and commercially proven, and the infrastructure and workforce to produce SAF at meaningful scale on the West Coast is already in place in the form of converted and expanding refinery assets.

California and Washington have the tools, the policy frameworks, and the strategic interest to build and lead this industry. Our team looks forward to working with state leaders along the West Coast to develop the feedstock supply chains, demand frameworks, and long-term investment conditions that will allow SAF to deliver on its promise for the region.

## Earth Finance helps transportation stakeholders develop strategies to accelerate the adoption of lower-carbon fuels like SAF.

Our team brings deep expertise in the policy, science, finance, and strategy landscape of the SAF ecosystem. We can help you work with stakeholders across the value chain to forge relationships that support a viable, lasting market for SAF.

[Get in touch](#)

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