

The Digest's 2026 Multi-Slide Guide to California's LCFS Bioeconomy

A demand basin that converted its own refineries — and now depends on a credit price it helped push down

In 2021 California imported its renewable diesel; by 2025 it held more capacity than any other state.

2021: Consumption outstripped in-state production

- California consumed more than 8× the renewable diesel it produced [2021; regulator-observed — EIA].
- The gap made California a demand basin supplied substantially from outside the state.
- Left visual callout: “>8× consumption vs production [2021; regulator-observed — EIA].”
- US import reliance remained concentrated: Neste Singapore supplied 96% of US renewable diesel imports [Jan–May 2024; regulator-observed — EIA].

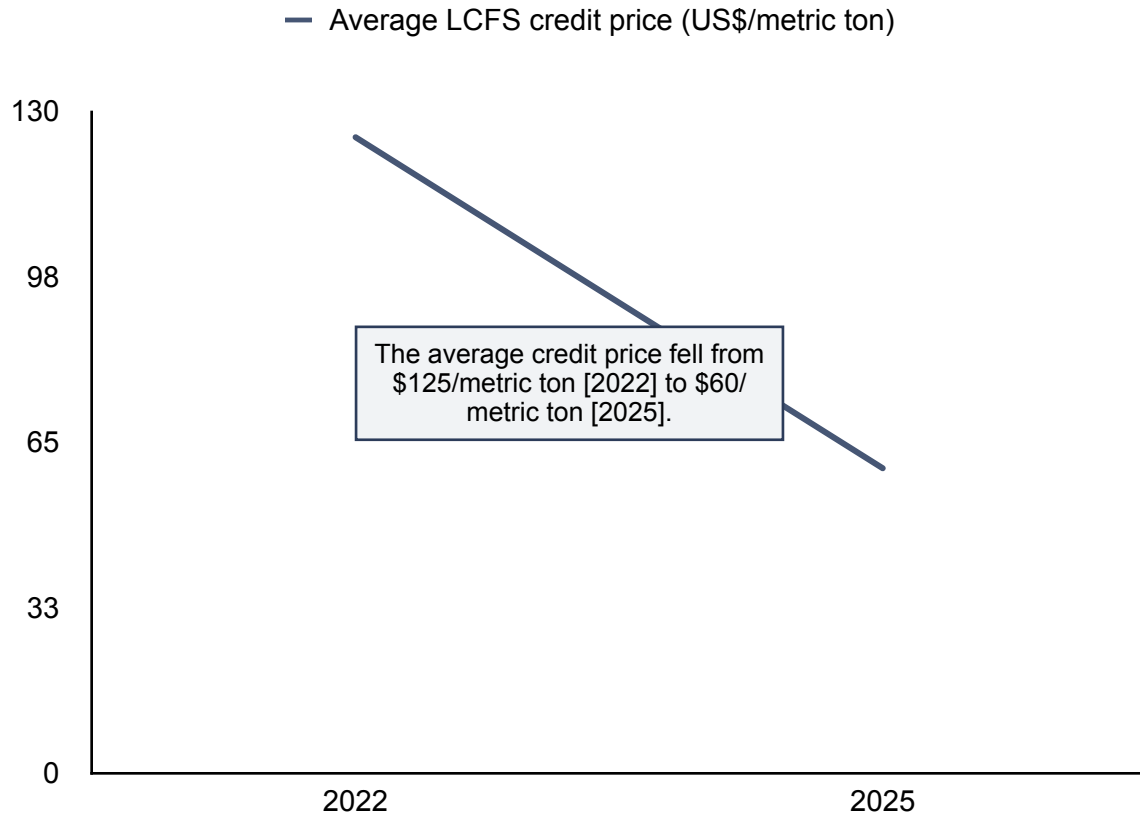
2025: Converted capacity led the states

- California held 1,684 MMgal/yr of renewable diesel capacity [1 Jan 2025; regulator-observed — EIA].
- That was the largest renewable diesel capacity of any US state [1 Jan 2025; regulator-observed — EIA].
- Right visual callout: “1,684 MMgal/yr capacity [1 Jan 2025; regulator-observed — EIA].”
- Capacity is not consumption: no California consumption figure for 2025 is supplied, so show no consumption bar.

California moved from an import-dependent renewable diesel demand basin to the state with the most production capacity. The capacity figure does not establish how much fuel its plants produced or Californians consumed.

The next-decade question is whether converted capacity stays profitable as the credit that justified it falls.

California LCFS average credit price (\$/metric ton)



Profitability signals

- LCFS average credit price: \$125/metric ton [2022; Regulator-observed — CARB] versus \$60/metric ton [2025; Regulator-observed — CARB].
- Renewable-diesel-generated credits fell 37% year on year [4Q2025; Reported].
- Phillips 66 Rodeo operated at reduced rates [Q2 2025; Reported].
- Reduced credit revenue increases the importance of realised output and margins; the reported run-rate change does not, by itself, prove causation.

Profitability signals

California's average LCFS credit price fell from \$125 per metric ton [2022; Regulator-observed — CARB] to \$60 per metric ton [2025; Regulator-observed — CARB]. Lower credit revenue makes utilisation and operating margins more important than nameplate capacity.

California passes two of five cluster tests — it is a demand basin with a converted production layer.

Why California falls short	Cluster-test scorecard [Library screen G.2]			
- California passes inheritance and production; its shared-asset test is only partial [Library screen G.2]. - Cross-firm flows fail, and labour concentration is not measured [Library screen G.2]. - The Gulf Coast passes every test; the Pacific Northwest passes none [Library screen G.2]. - Cluster classification requires at least three passes; California has two [Library screen G.2].	Test	California	Gulf Coast	Pacific Northwest
	Shared asset	Partial	Pass	Fail
	Cross-firm flow	Fail	Pass	Fail
	Labour concentration	Not measured	Pass	Fail
	Inheritance	Pass	Pass	Fail
	Production	Pass	Pass	Fail

California's refinery inheritance and production pass, but shared infrastructure and cross-firm flows do not establish a cluster.

Policy pulled production into California only because convertible refineries were already standing.

LCFS created demand, but standing refinery assets determined where production could respond. That response increased credit supply and weakened the price signal supporting utilisation.

Policy demand

- LCFS rewarded lower-carbon fuel supplied to California.
- Ageing refineries offered existing sites for conversion.

Inherited assets

- Owners reused refinery plots and hydrotreaters.
- Permits and terminals reduced the need to build from scratch.

Rapid conversion

- Converted sites reached full rates within months.
- Reuse, rather than a new network of firms, enabled the ramp-up.

Capacity expansion

- Conversions made California the largest state for renewable diesel capacity.
- Additional production generated more LCFS credits against policy-driven demand.

Price feedback

- Greater credit supply put downward pressure on the credit price.
- A lower credit price weakened margins and run-rate incentives.

The conversions inherited a site each — not a network of firms that depend on one another.

California is a demand basin with a converted production layer, not an integrated network of mutually dependent firms. The reusable assets belonged to individual refinery sites; feedstock procurement extends beyond the region.

Inherited assets at each refinery site

- Existing refinery plots provided the physical footprint for conversion.
- Hydrotreating equipment provided a starting point for renewable diesel production.
- Marine terminals and rail supported inbound feedstock and outbound fuel movements.
- Existing permits reduced the need to establish an entirely new industrial site.

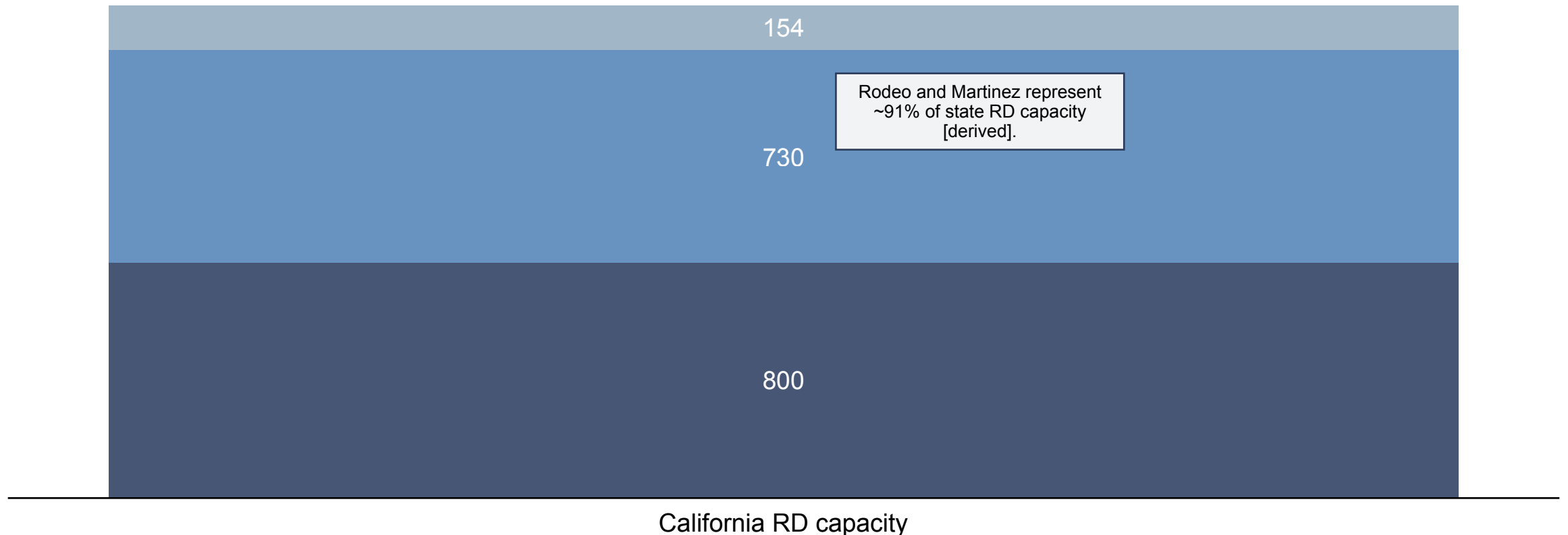
Missing connections between firms

- No shared hydrogen network links the converted sites.
- No shared CO₂ network or cross-firm product flows are evidenced.
- Local feedstock supply is not the basis of the production layer.
- Feedstock is imported or purchased through national and global markets.

About nine-tenths of California's RD capacity sits in two converted refineries.

Rodeo and Martinez account for approximately 91% of California's stated renewable diesel capacity [derived from reported plant capacities and EIA state capacity]. This concentration reflects refinery-site ownership, not a shared regional production network.

■ Rodeo (MMgal/yr) ■ Martinez (MMgal/yr) ■ All other (MMgal/yr)



The next California conversion is an option only for whoever owns a refinery.

California's converted production layer rests on refinery inheritance. The closing sites may create options for their owners, but neither closure establishes another conversion.

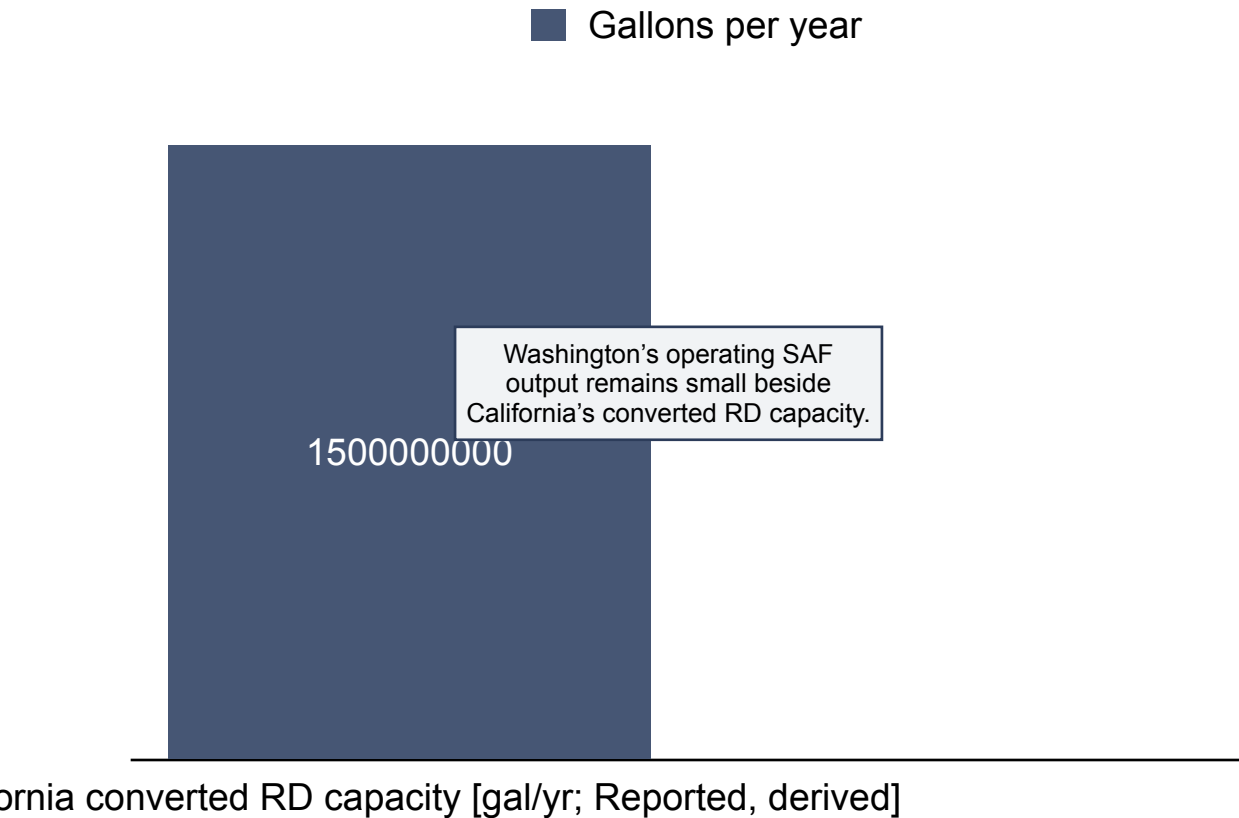
Ownership controls the conversion option

- Phillips 66 Los Angeles and Valero Benicia closures represent 17% of state refining capacity [Regulator-observed / Reported].
- Converted refineries already account for approximately 1.5 billion gallons per year of renewable diesel capacity [Derived — reported plant capacities].
- A closing refinery is not automatically a renewable diesel project: conversion of either closing site has not been evidenced.
- Permits, terminals and existing refinery infrastructure sit with site owners, making the next conversion an incumbent option rather than an open entry route.



Washington shows the same kind of policy without convertible assets: ~50,000 gallons a year.

California converted RD capacity versus Washington operating SAF output



Assets determine the response

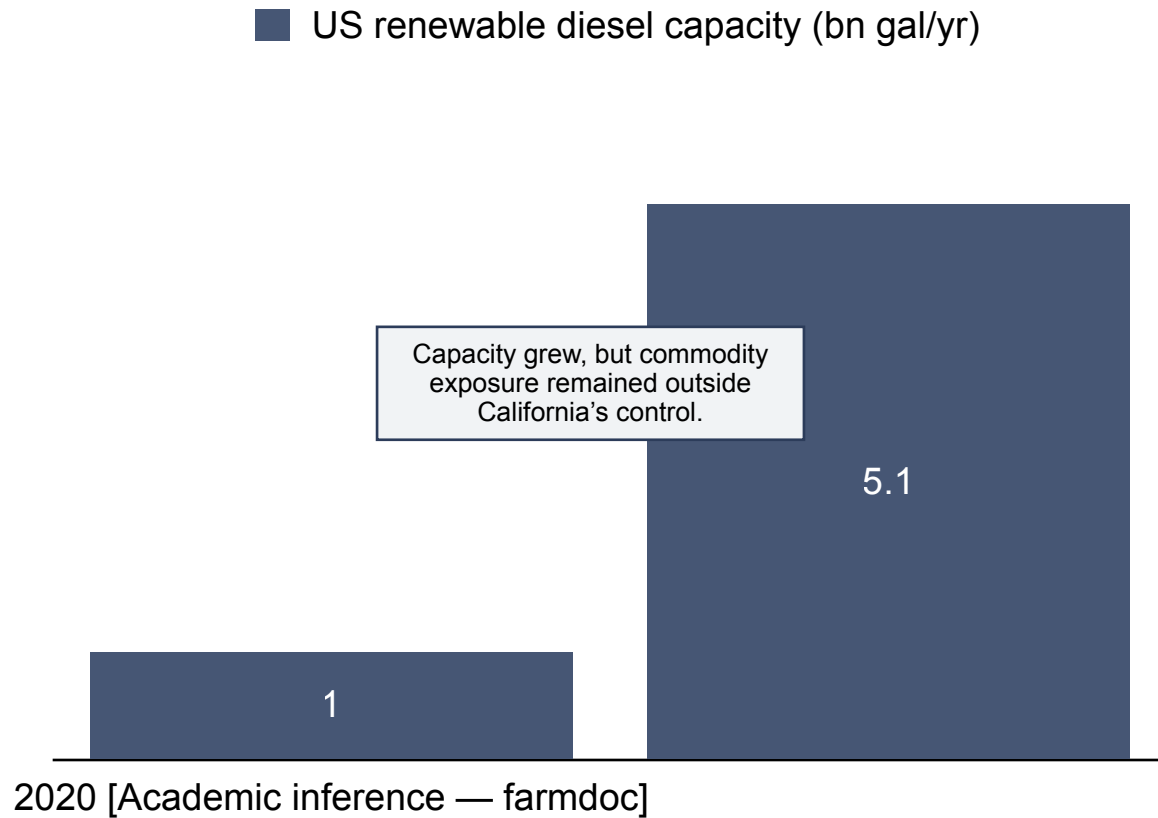
- Washington's SAF credit of \$1–2 per gallon is gated until in-state capacity reaches 20 million gallons per year [Regulator-observed — RCW 82.16.187].
- Washington produces approximately 50,000 gallons of SAF per year against 848 million gallons per year of jet demand [Reported].
- Washington Clean Fuel Standard credits fell from \$91 to \$25 [Regulator-observed].
- The visual compares different fuels and measures: California converted RD capacity versus Washington operating SAF output under credit programmes.

Assets determine the response

Washington's credit incentives have not produced California-scale local fuel production. California's converted refinery capacity and Washington's operating SAF output illustrate the importance of inherited industrial assets, though they are different fuels.

California's feedstock squeeze is global — it is congested by commodity markets it does not control.

US renewable diesel capacity and feedstock-market events



Global inputs, local exposure

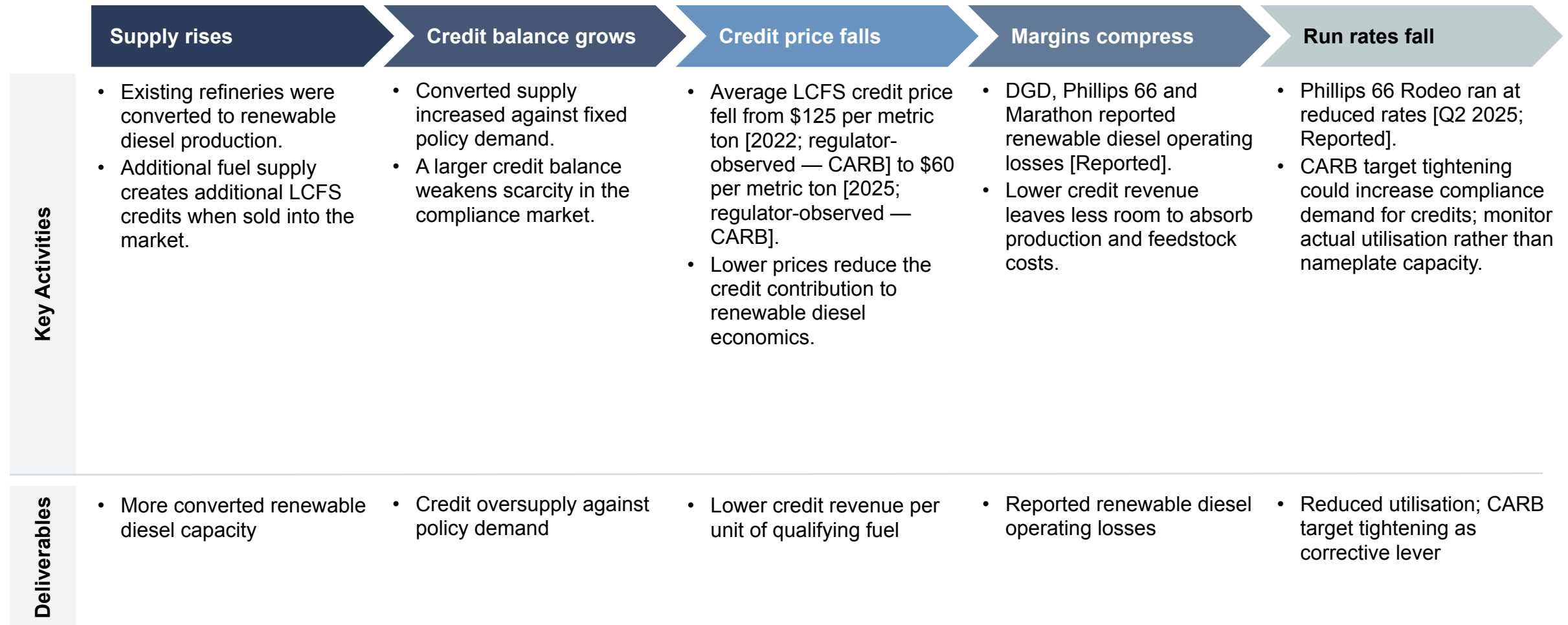
- US RD capacity: ~1.0 bn gal/yr [2020; Academic inference — farmdoc] → 5.1 bn gal/yr [2024; Academic inference — farmdoc].
- Soybean oil: >87¢/lb [May 2022; Measured — USDA ERS]. UCO imports: 0.9 → >3 bn lb [2022–23; Measured — USDA ERS].
- US RD output: –12% y/y [1Q2025; Regulator-observed — EIA]; capacity: ~20% higher [1Q2025; Regulator-observed — EIA].
- Four RD plants idled [2024; Regulator-observed — EIA]. The output drop also reflects the switch to 45Z and weak RIN prices.

Global inputs, local exposure

US renewable diesel capacity expanded as feedstock competition intensified. California's converted refineries purchase inputs in national and global markets, not from a protected local supply.

The tightest constraint is now the credit market the policy itself created.

Converted renewable diesel supply increased credit generation against policy demand, weakening the price supporting production. CARB target tightening is the corrective lever; plant utilisation remains the test of whether margins recover.



Every West Coast credit programme shows the same fragility: prices have fallen in each.

California and Washington show falling stated credit prices. Oregon's stated credit-value range does not establish a decline; California's post-2021 supply balance is unpublished.

California LCFS

- 2022 average: \$125/metric ton [Regulator-observed — CARB].
- 2025 average: \$60/metric ton [Regulator-observed — CARB].
- Converted production faces a weaker credit signal.

Washington CFS

- Earlier observed credit price: \$91 [Regulator-observed].
- Later observed credit price: \$25 [Regulator-observed].
- Supply comes largely from outside Washington.

Oregon CFP

- RD credit value: \$0.48–1.33/gal [Regulator-observed — Oregon DEQ].
- This range does not establish a price decline.
- Supply comes largely from outside Oregon.

One reading says California is a cluster in the making; the evidence so far says two incumbents made two decisions.

Evidence that would decide it: another refinery conversion, or documented sharing of hydrogen, pretreatment or terminals between plants. Until then, the company-level reading fits the observed assets better.

Reading A | A regional transition

- Existing refinery sites can be repurposed for renewable fuels.
- The conversions could mark a refining-to-renewables transition [Library I-05 alternative].
- Inherited permits, equipment and terminals make conversion faster than building from scratch.
- Further conversions would strengthen the case for a regional pattern.

Reading B | Separate company decisions

- The gains sit with the site owners that financed and executed the conversions.
- Each plant inherited its own assets, rather than a shared production network.
- Cross-firm hydrogen, pretreatment and product flows are not evidenced.
- Without shared flows, California remains a demand basin with a converted production layer.

Leaders own a convertible site and underwrite today's credit price; laggards rely on a price or a plant they don't have.

Site ownership is a structural advantage; using current credit prices and disclosing actual output are execution choices. Source: The Digest guide evidence; CARB credit-price data.

What separates leaders from laggards

Observable	Leaders	Laggards	Structural or execution?
Starting asset	Operating refinery, permits, terminals	Greenfield or no convertible asset	Structural
Time to rate	Months	Credit gated on absent capacity	Structural
Underwriting basis	Current credit price and utilisation	2022 [year; Regulator-observed — CARB] price and nameplate capacity	Execution
Disclosure	Output and utilisation	Capacity only	Execution

California's success at building supply is what weakened the price signal that built it.

Supply weakened credits



Converted refinery output added credits against policy demand, putting downward pressure on the price that supported conversion.

Imports remained concentrated



Neste Singapore supplied 96% of US renewable diesel imports in Jan–May 2024 [Regulator-observed — EIA].

Ownership limits replication



Another conversion requires an existing refinery site; the option belongs to its owner, not a network of firms.

California became a demand basin with a converted production layer; added supply weakened LCFS credits without creating a cluster. Source: EIA; CARB.

Underwrite California on credit trajectory and utilisation — and watch CARB, the one actor that sets both.

California has a converted production layer, but installed capacity does not establish profitable output. Credit prices, actual utilisation and CARB target decisions determine what that capacity earns.

Producers and investors

- Use the current LCFS credit price in base-case economics, not the earlier high-price environment.
- Stress-test lower credit revenue alongside reduced plant utilisation.
- Disclose actual output and utilisation separately from operating capacity.

Policymakers

- Calibrate target tightening against operating supply, not announced capacity.
- Track credit generation and deficits before judging whether targets restore the price signal.
- Separate refinery closures from confirmed renewable diesel conversions.

Obligated parties

- Plan procurement around converted incumbents and imported fuel.
- Do not assume a closing refinery will become a renewable diesel plant.
- Treat prospective conversions as options until operating output is evidenced.

Watch list

- LCFS credit price: the immediate signal for project revenue and compliance cost.
- Plant utilisation: the test of whether converted capacity can run economically.
- Closing refinery sites: monitor whether owners commit to and operate conversions.