

A Refiner's View: Economics, Policy, & Market Realities



**MONTANA
RENEWABLES™**



BRIEF DETOUR INTO CRUDE OIL PRICE HISTORY

1973 Gulf States oil embargo

1979 Iranian revolution

1990 Iraq invades Kuwait

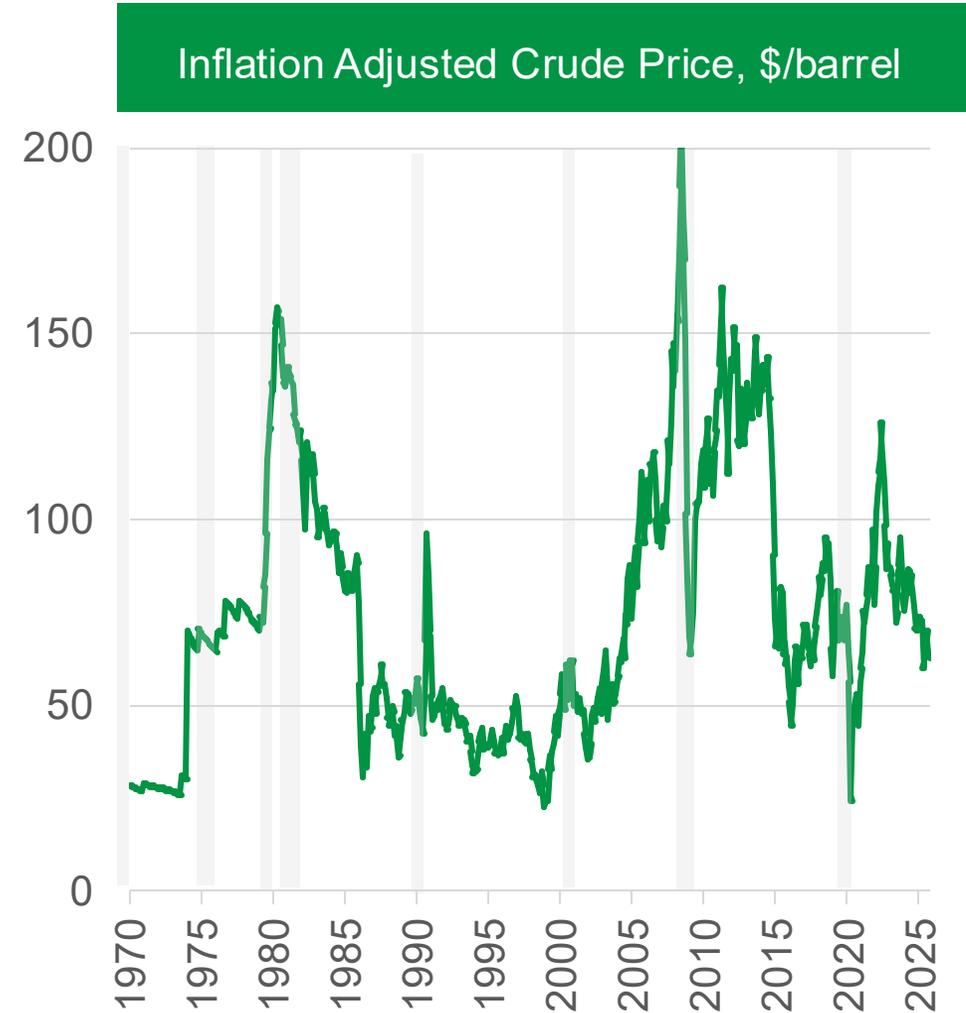
2001 September 11th

2008 Global financial crisis

2020 Covid

The US (and the Northeast) is a net crude importer.
What is it worth to shave the price spikes? And to
temper the recession that follows?

US has replaced almost 1 ½ million barrels per day
of foreign crude imports with domestic ethanol and
biobased diesel



www.macrotrends.net; Shaded areas indicate recession- St Louis FED



ENERGY POLICY INTENTIONS ?

- Domestic energy security (vs. price at the pump)
- Renewable feedstocks (technology forcing vs food/fuel debate)
- National balance of trade
- Emissions (including sulfur, particulates, etc.)
- Union jobs in transportation, logistics, storage and production
- Support for the agricultural sector
- Drive Carbon Intensity of hard-to-abate sectors (heavy diesel, aviation fuel, long haul applications)

Are these really tradeoffs? Or can we have it all?



ABOUT MONTANA RENEWABLES (established 2021)

Presently 230 MM gallons per year (gpy) renewable products capability

- Renewable diesel
- Renewable naphtha (gasoline today, renewable plastics tomorrow)
- Renewable hydrogen
- **SAF**

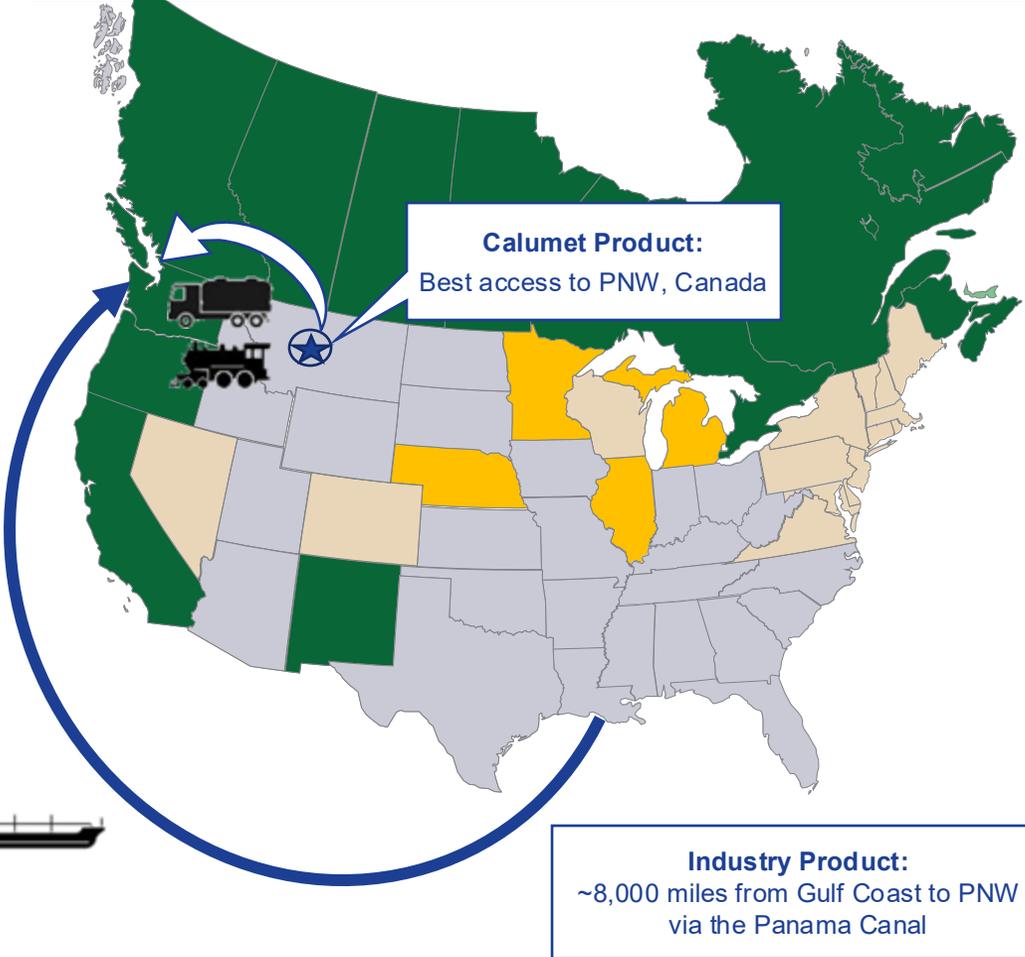
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|-------------|---|
| 2022 | First sales |
| 2023 | Expansion – additional hydrogen, SAF production |
| 2024 | Largest SAF producer in Western Hemisphere |
| 2025 | DOE loan guarantee |
| 2026 | Expand SAF capability to 120-150 MM gpy |

Largest agricultural investment in Montana history
Key Renewable Diesel and SAF supplier to low carbon fuel standard States and Provinces



GEOGRAPHICALLY ADVANTAGED FACILITY

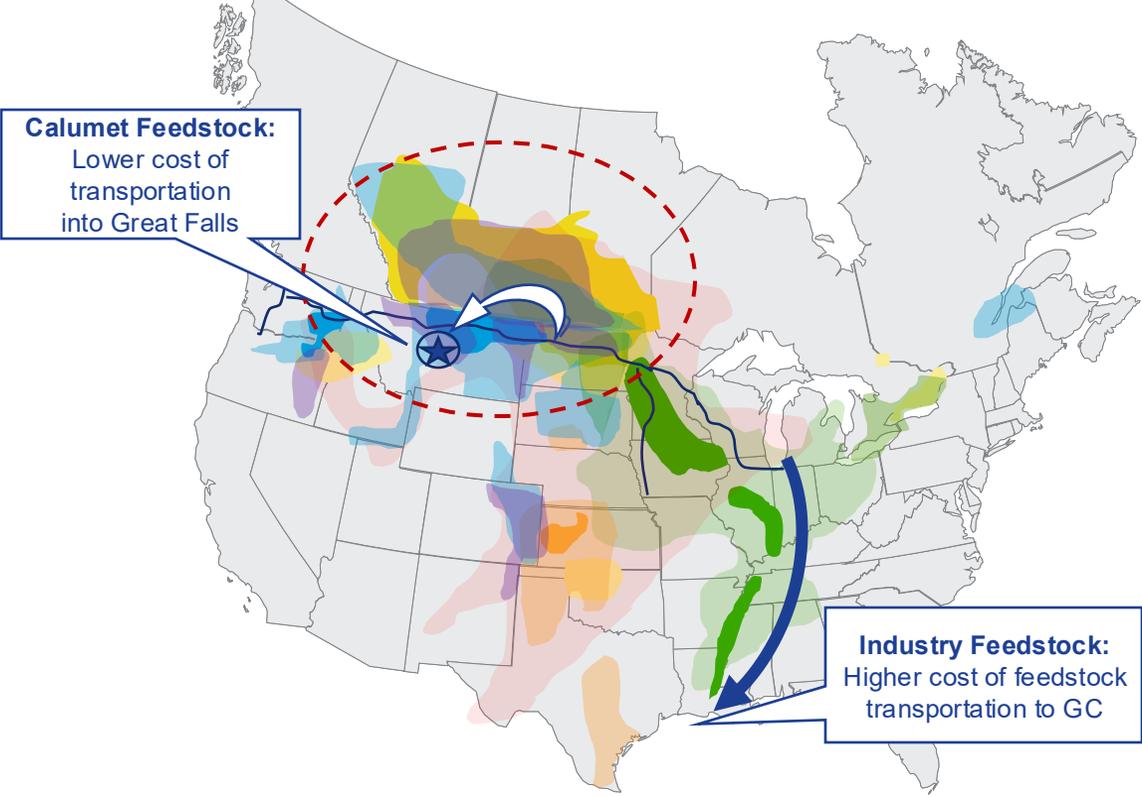
Montana Product Advantage



■ LCFS Passed (In Effect)
■ Future LCFS proposed

■ SAF Tax Credit

Montana Feedstock Advantage

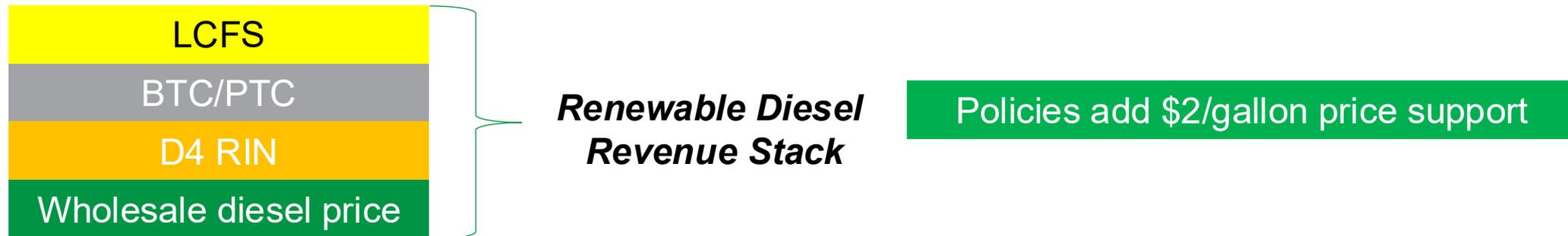


- ★ Great Falls, MT
- Camelina Growing Density
- Canola Growing Density
- Mustard Seed / Industrial Hemp Growing Density
- Soybean Growing Density
- BNSF High Line (partial)
- Cattle Ranching Density
- Sorghum Production



RENEWABLE DIESEL AND SAF PRICE FORMATION

- Soybean oil (reference feedstock) ~\$2/gallon more expensive than crude oil
- Collective governmental policies bridge the feedstock cost difference and allows replacement of imported foreign crude oil, by domestic farm and ranch products
- Sustainable Aviation Fuel adds another \$1-2/gallon above renewable diesel



RENEWABLE VALUE CHAIN AND “LAST MILE” FOR SAF

- Value chain is lengthy and crosses otherwise-unrelated industry boundaries
 - Chain length and complexity cause significant price volatility
 - **And each step generally under a different regulatory incentive structure**

1. FARM & RANCH FEEDSTOCK CHAIN:



2. FEEDSTOCK HANDOFF TO SPK - SAF CHAIN:



CHALLENGE: REGULATORY UNCERTAINTY

The biggest challenge and the biggest opportunity?

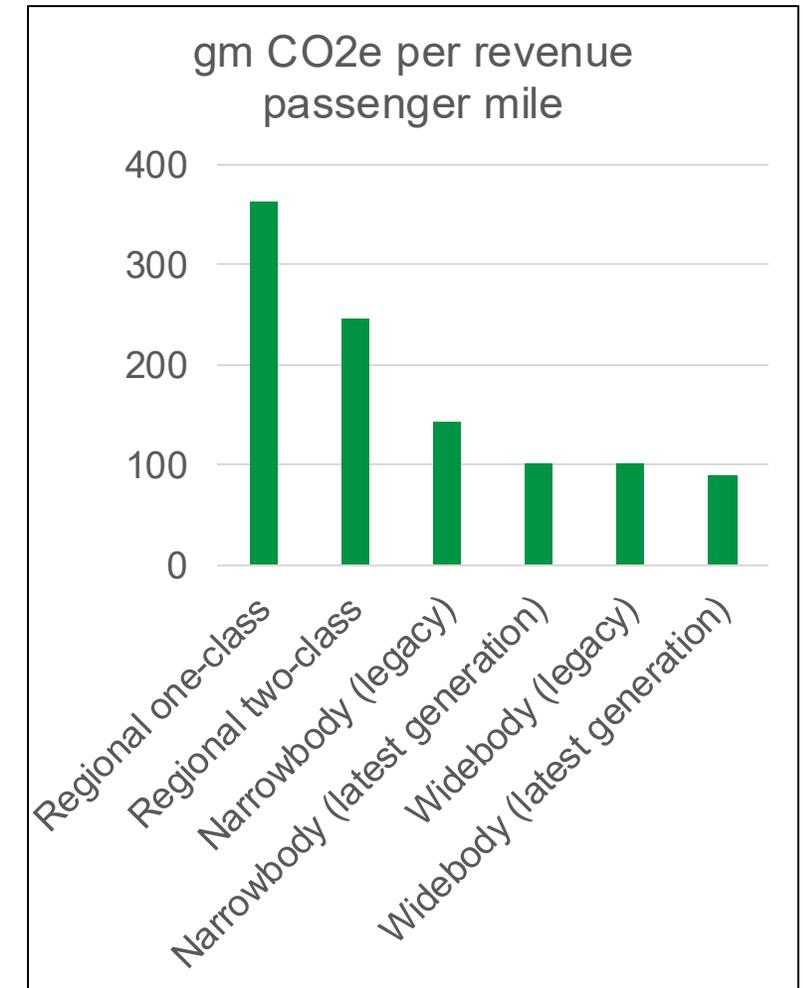
- Alignment, but....
 - Positive policy support from a tapestry of incentives and requirements among States and Provinces, Federal Canada, and Federal US (EPA, Dept Ag, DOE, FAA)
 - But details can be materially at odds across jurisdictions, e.g. vegetable oil feedstock “yes/no”
 - Result is ‘balkanized’ supply chain and resulting higher costs
- Predictability, but...
 - The regulatory tapestry is changing faster than 10-year investor capital recovery model
 - Worse: disincentives from 2023-25 RVO; BTC/PTC “donut hole”; broken permitting process; etc.
- Global...not yet
 - Compliance and certification mechanics for SAF will uniquely require international alignment
 - Including workable chain of custody accounting and book & claim approach such as Shell Avelia⁽¹⁾
- Like the Club of Rome, forecasts will be wrong—sometimes dramatically so—and the Law of Unintended Consequences has not been repealed

(1) <https://aviation.shell.com/avelia-panel-interactive>



RESPONSE: BOOK AND CLAIM (A SIMPLE HARMONY)?

- SAF's greatest leverage is small planes on short flights
 - Private jets will be similar
 - Points to secondary airports and FBOs for maximum impact
 - Or book & claim
- There are high cost logistics embedded in the physical flows that are eliminated when book & claim is adopted
- SAF market still forming and will remain dynamic/volatile
 - Individual countries fanning out in different logical directions—the recent [Korean initiative](#) is a classic
 - Local solutions that make sense to local circumstances, like the MN SAF Hub, will proceed but not be identical
 - Harmonizing regulatory regimes through book & claim will allow the local solutions to join up nationally or globally



Source: American Airlines 2024 Sustainability Report



KEY TAKEAWAYS

- Renewable fuels cost more than fossil—because waste fats, cooking oil, soybean, canola, corn oil, etc cost more than crude
 - Policy has a role to play in bridging the cost gap—how should we?
- What is it worth to shave the crude oil price spikes by increasing agriculturally-based energy? And to temper the recession that historically follows major geopolitical events that affect energy?
- Biobased diesel producers consume about half the soybean and seed oils produced in North America
 - A higher Renewable Volume Obligation would increase that consumption, and keep exports at home
 - We can build a lot of seed crushers for a few \$billion
 - Sets up crops of the future, like camelina
- Investors can get past “regular risks” (technology; sponsor’s organizational capabilities; feedstock availability; etc)
- Investors CAN NOT get past unstable or dynamic regulatory policies, with the practical result that:
 - There are only three SAF producers at scale in the Western Hemisphere (vs 60-70 biobased diesel producers)
 - *Future* domestic corn-to-SAF can offer a key national advantage going forward, but requires policy to change
 - *Existing* seed oils-to-SAF offer a key national advantage right now—within existing policy—don’t torpedo it !

