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Maximum Gross Gasoline Refining Margin Analysis

Prepared for the California Energy Commission

SB X1-2 Pre-Rulemaking Workshop

SBX1-2 added Section 25355.5 (e)

"The commission shall not set a maximum gross gasoline refining margin or accompanying penalty…unless it finds that the likely benefits to consumers outweigh the potential costs to consumers."

California has a long history of gasoline prices spikes, stretching back decades.

Significant spikes occurred, relative to New York Harbor in:

2008

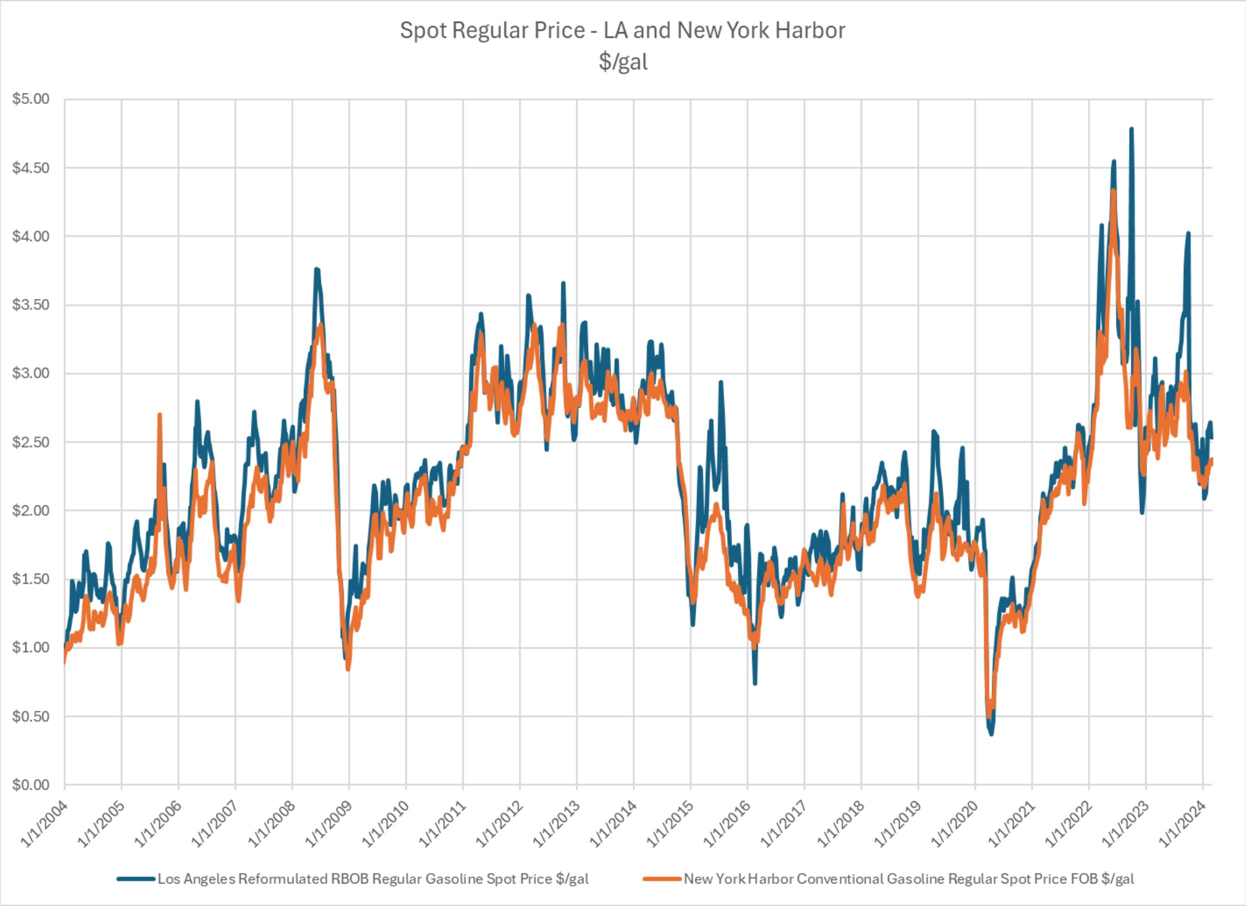
2012

2015

2019

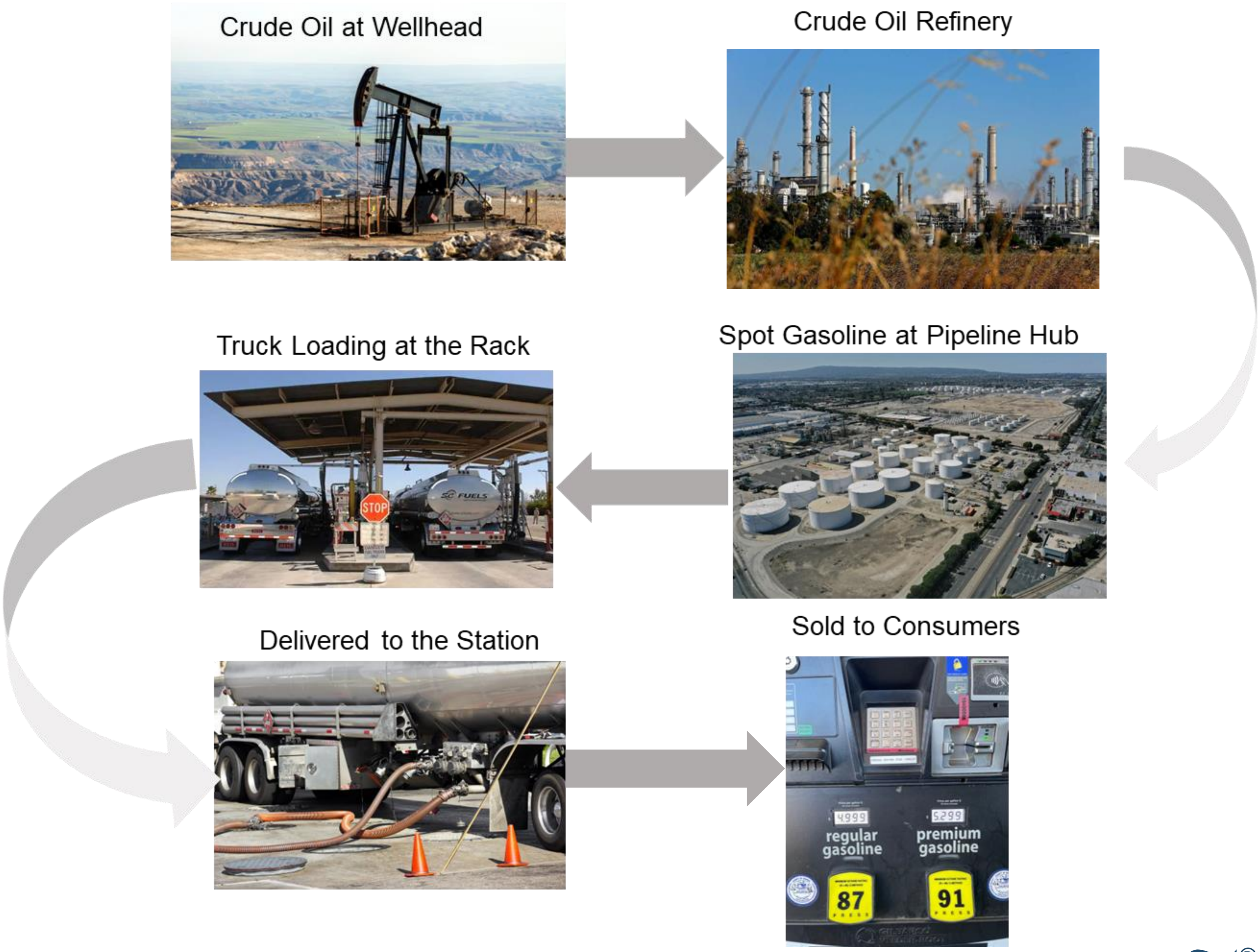
2022

2023



Source: EIA Data

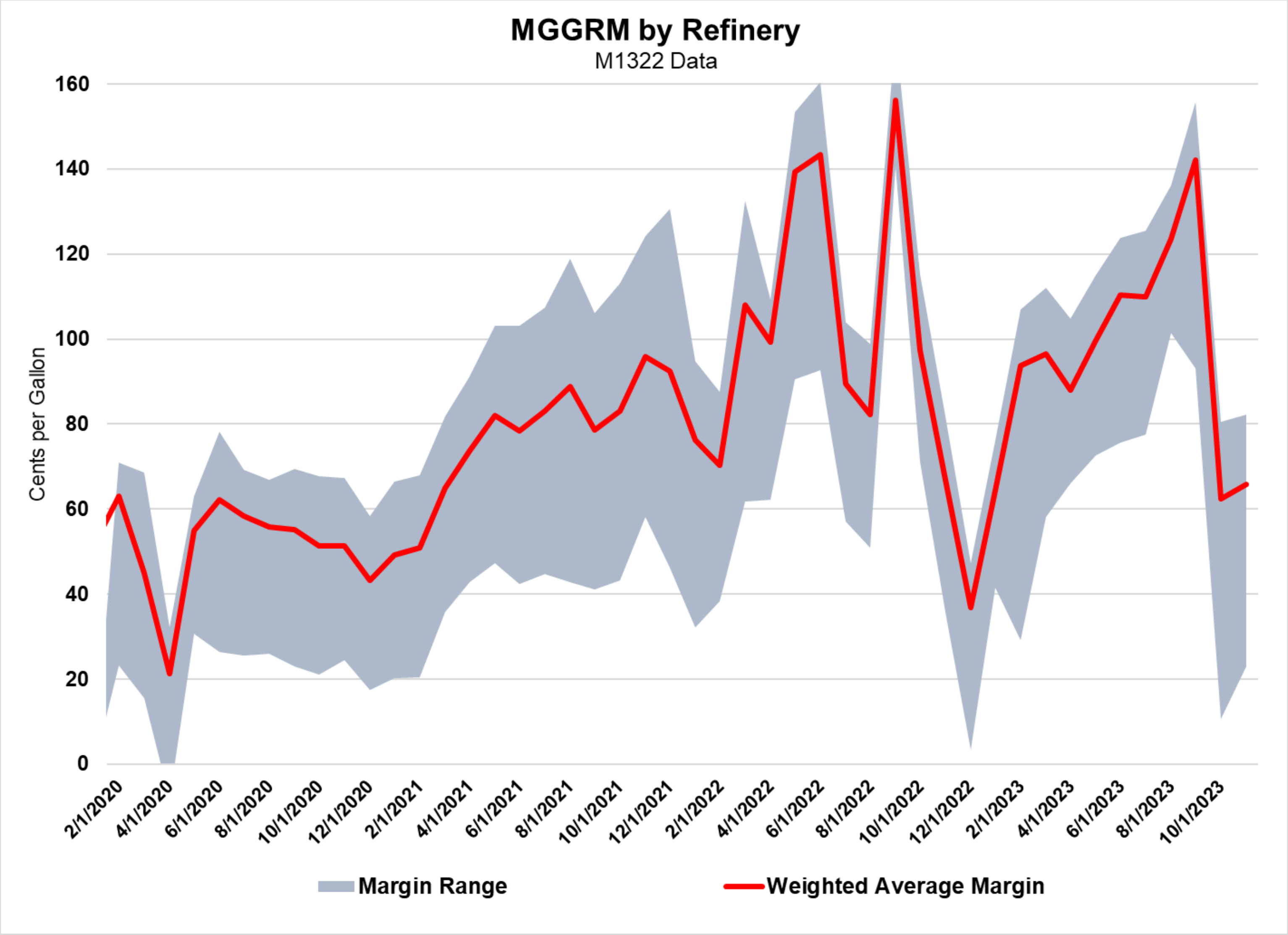
Prices are created when the oil changes title, often at a new location.



This illustrates the MGGRM calculation for the reporting parties

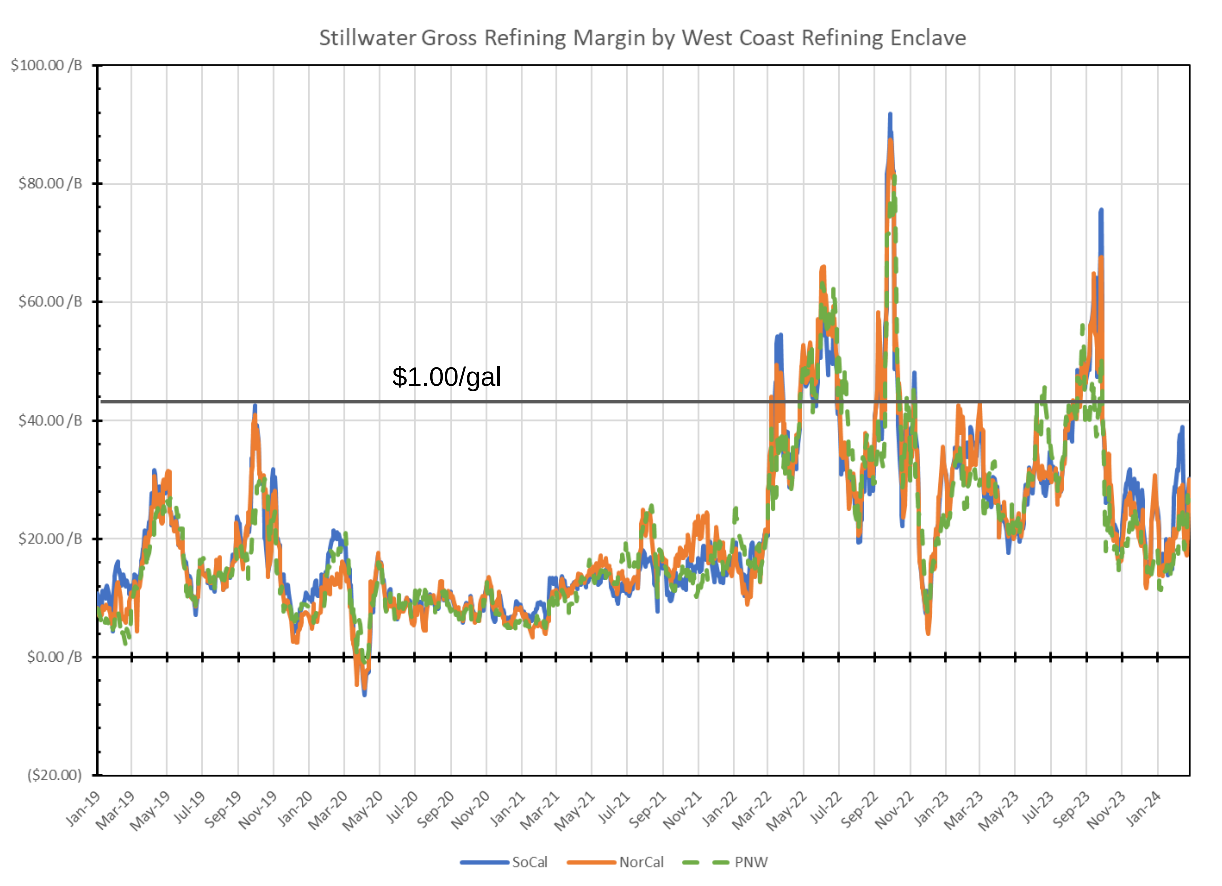
Maximum Gasoline Gross Refining Margin = volume weighted average rack price, less taxes and fees, of gasoline sold in California, less LCFS and Cap & Trade, less cost of crude input and gasoline purchases.

The gross margins vary widely by refinery as a function of different sales outlets, aka Classes of Trade, and crude oil costs.



Gross margin calculations are commonly used to approximate the profitability of a business

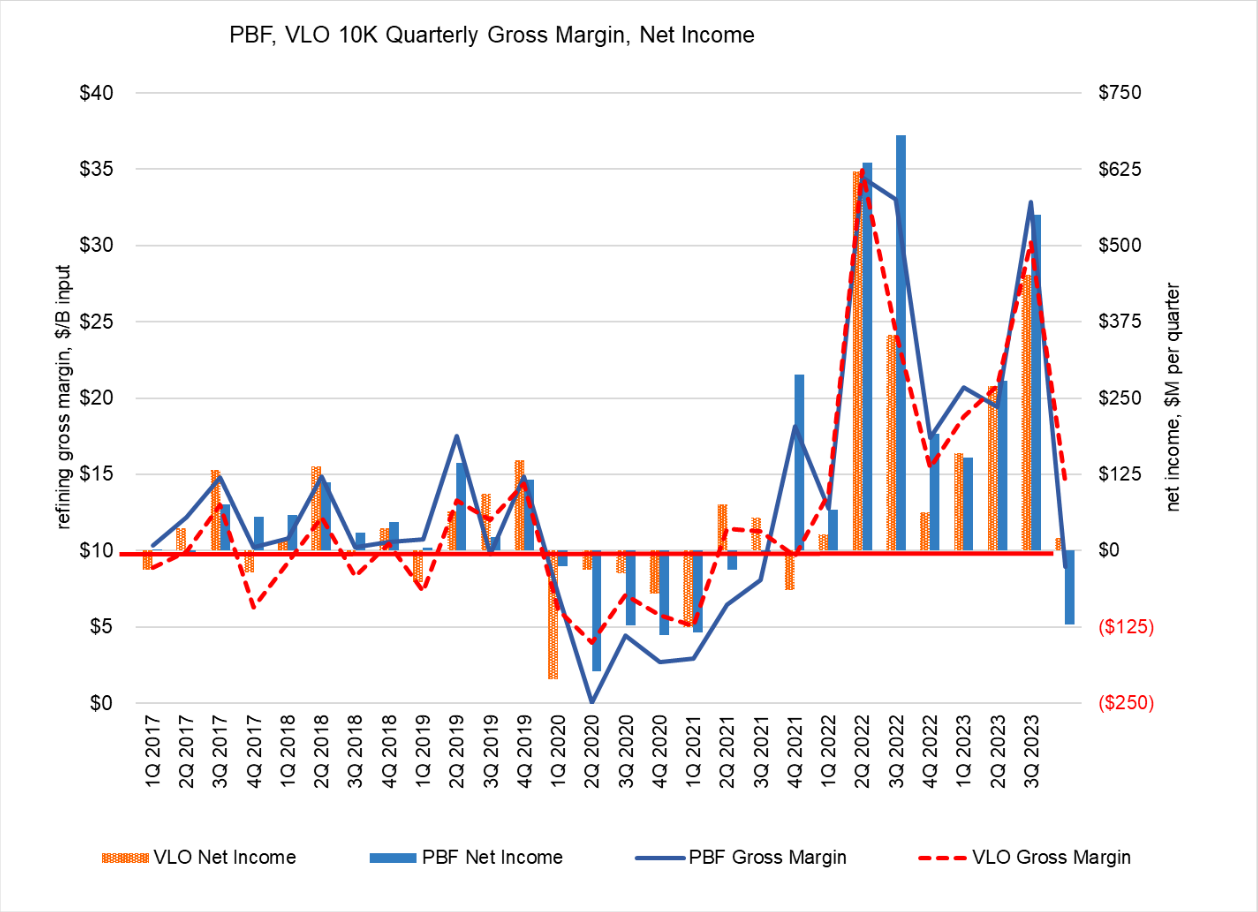
1. Refiners use gross margin calculations to help describe the profitability of their businesses.
2. MGGRM is a gross margin like a gasoline “crack spread”, comparing gasoline sales revenue with crude oil cost.
3. Refiners gross margin (GM) calculations include the other revenue generating products a refinery produces, primarily jet fuel and diesel so it can be difficult to reconcile refiner GM with MGGRM.
4. As such, MGGRM is not a comprehensive picture of refiner profitability.



Source: Stillwater Analysis

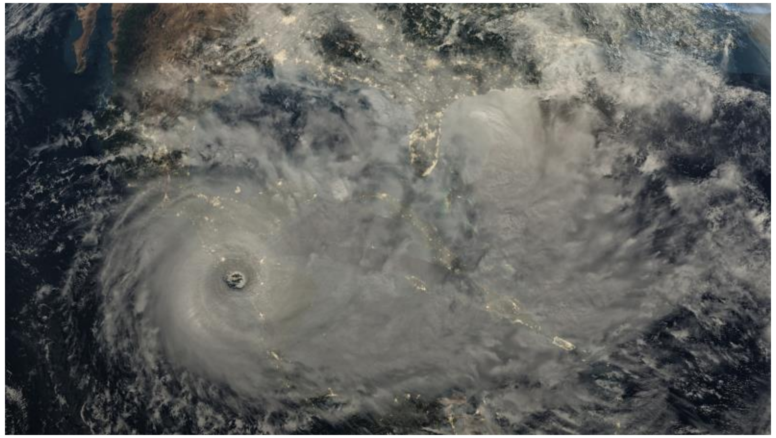
Valero and PBF report gross margins quarterly in their SEC filings

1. The chart shows quarterly gross and net margins for both companies since 2017.
2. Note both sets of margins were modest up until COVID in 2020.
3. Both firms had negative margins in 2020.
4. Margins recovered in 2021 as demand returned.
5. 2022 was a record year.
6. 2023 was strong, but both companies struggled in the 4th quarter.
7. In 2023, PBF operated on thin margins and made almost all its profitably in the 3rd quarter.



Source: CEC data

Price spikes can be characterized three ways:



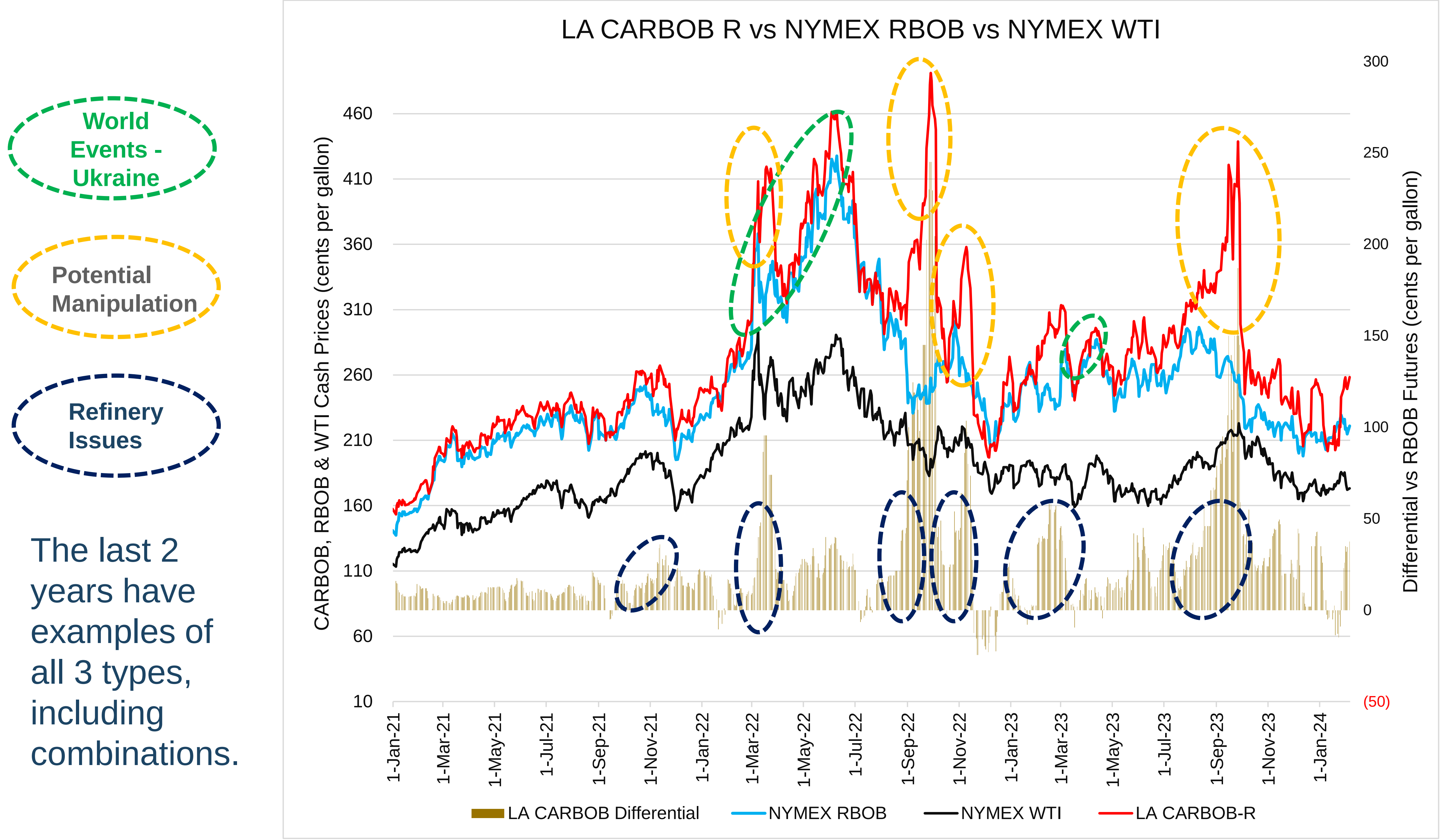
1. World Events

Source: LA Times

2. Unplanned Maintenance

3. Market Manipulation

And combinations of all three



The last 2 years have examples of all 3 types, including combinations.

The September ‘22 spike contains all 3 elements

1. Inventories were low due to poor refinery reliability.
   a. Some plants had overdue turnarounds pushed into the fall from the spring.
   b. Other refineries had unplanned maintenance.
2. There was a shortage of import cargos driven by the lack of tanker availably caused by the international trade flow disruptions that resulted from the Russian embargo.
3. The trading patterns suggest the possibility of manipulation.

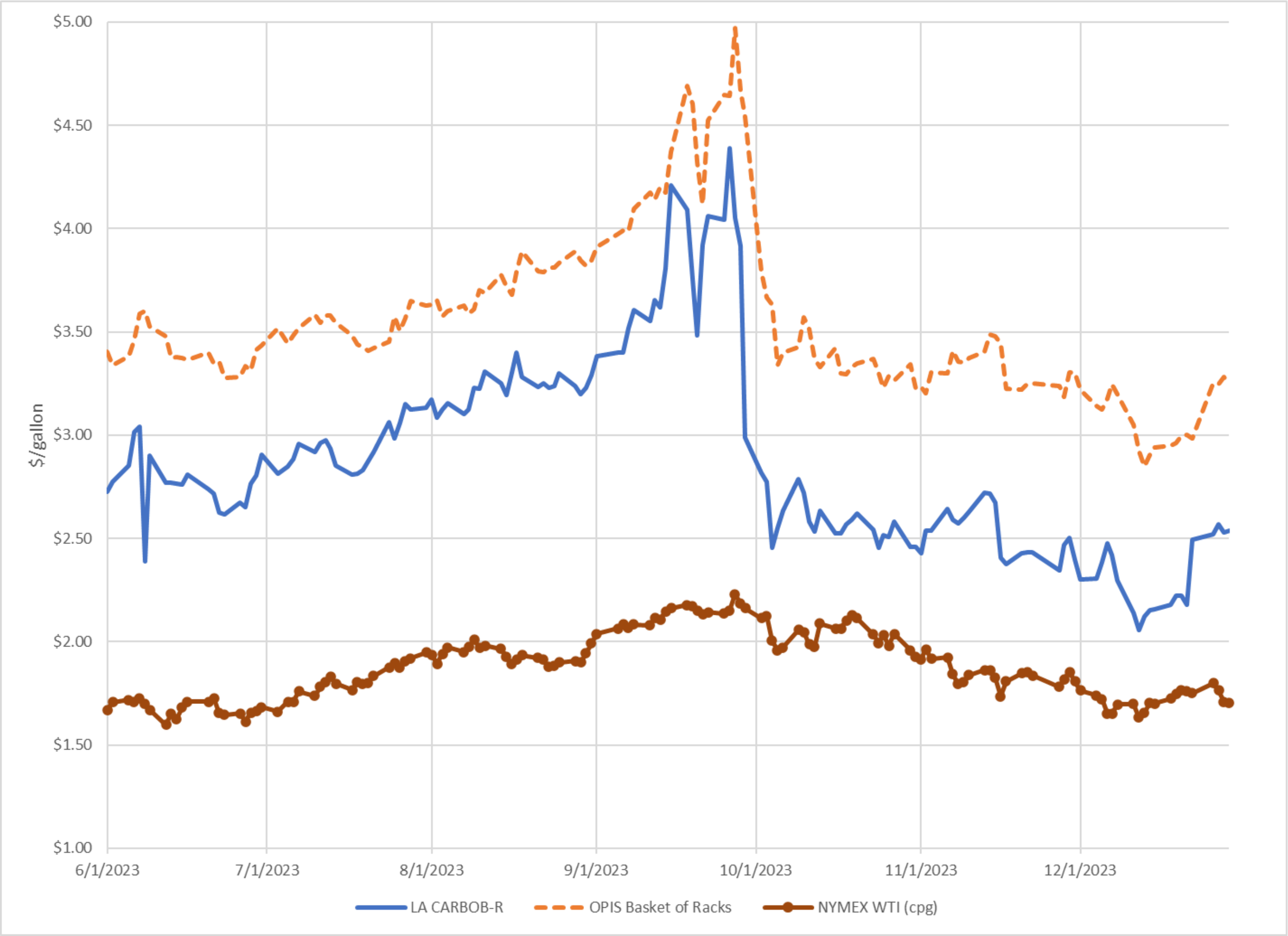
Reactions will vary by refiner and there is a temporal element here.

Refiners’ short-term reaction

1. Refiners may quickly move their margins to the Maximum margin.
2. In the case of the market being below the Max, refiners probably would leave prices up close to the Max level.

Example follows

Rack, spot CARBOB, and NYMEX crude prices
June to December 2023



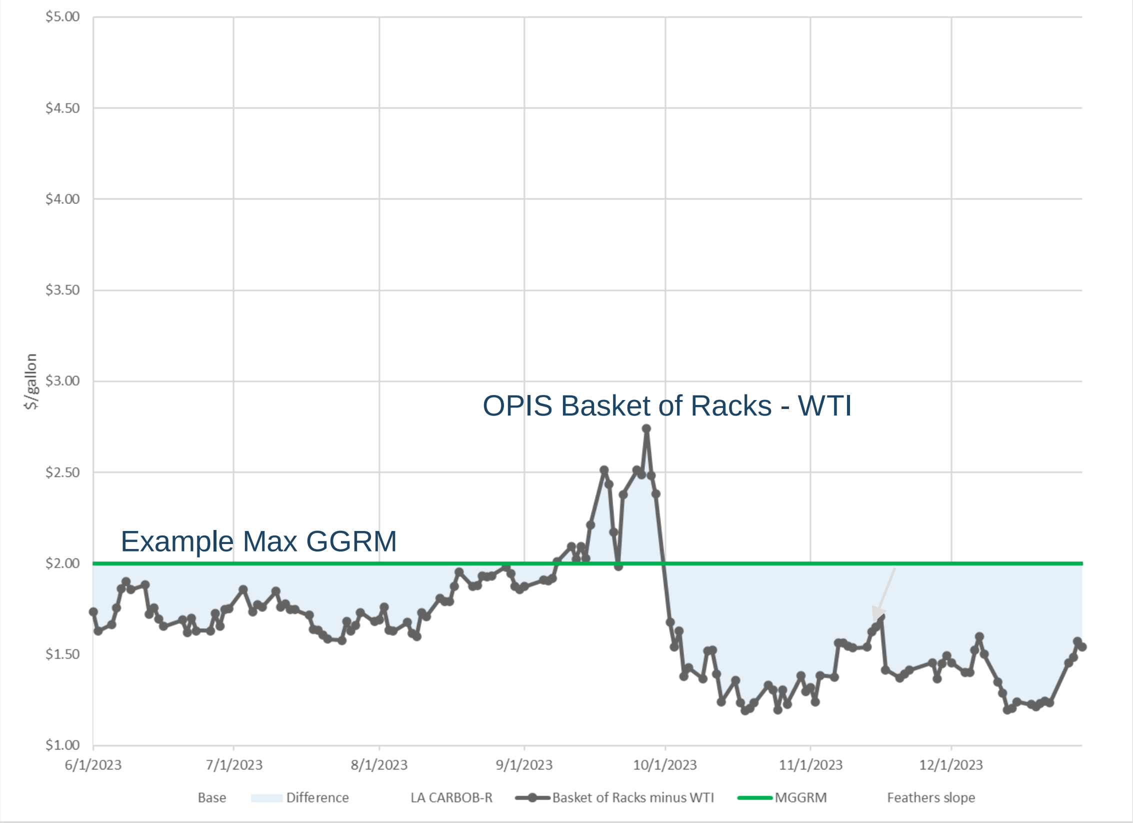
OPIS: LA Basket of Racks

OPIS LA Spot CARBOB

NYMEX WTI Crude Oil

Source: OPIS

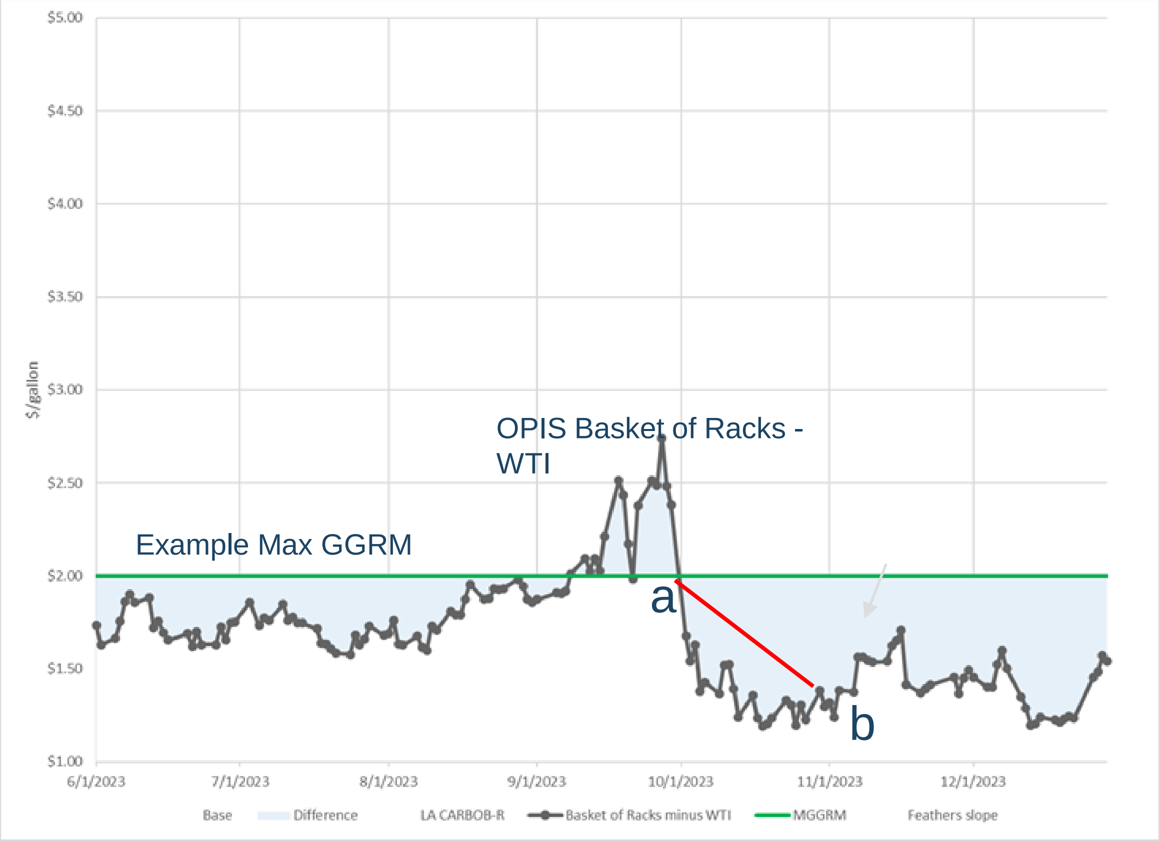
1. The OPIS Basket of Racks minus WTI represents a simplified GGRM in 2023. Assume Max GGRM is $2.00 per gallon. The shaded area below the line is potential additional refiner margin, above the line the area represents potential refiner penalty.



Source: OPIS and Stillwater analysis

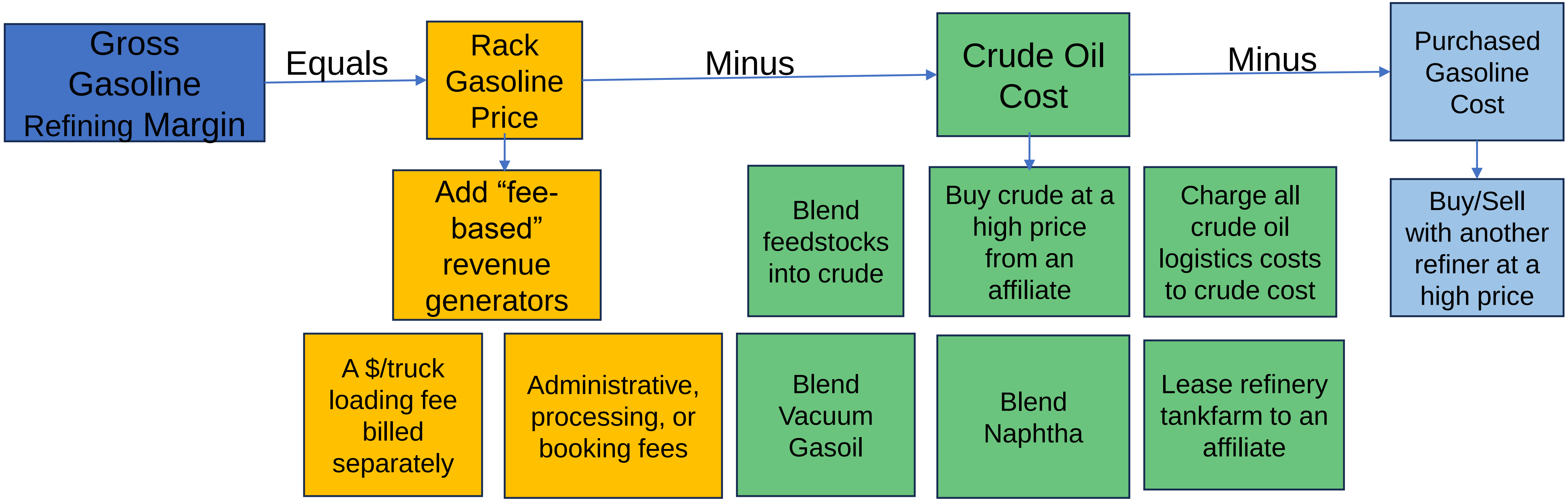
2. During the late September spike, with MGGRM enforced, refiners would only price up to $2.00, benefiting consumers.

3. After the spike, when prices fell quickly, refiners would be slow to decrease prices, trying to maximize margin under the Max. Competition from non-rack sellers would eventually force rack prices down, line ab.



4. Line ab is a price reduction of 3 cpg per day. The area under line ab looks to be greater than the price spike area. This example indicates that consumers might have been worse off with a maximum gross gasoline refining margin.

Refiners may consider numerous options to avoid the penalty.



Gross margins are rear looking, a month after the fact, and likely to be difficult to control.

Refiners’ medium-term reactions

1. Refiners may move volumes out of regulated classes of trade by developing other sales channels.
2. Refiners may find ways to increase crude or gasoline purchase costs to manage the margin with a higher gasoline price.

Refiners’ long-term reactions

1. If the Max is too restrictive, because it reduces long run profitability, refiners will consider an early market exit.
2. Or find other creative ways around the regulation allowing refiners to make an adequate return on investment.

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...experience runs deep

Thank you.

Questions?