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MGGRM Economics 101: Price Theory and Regulation

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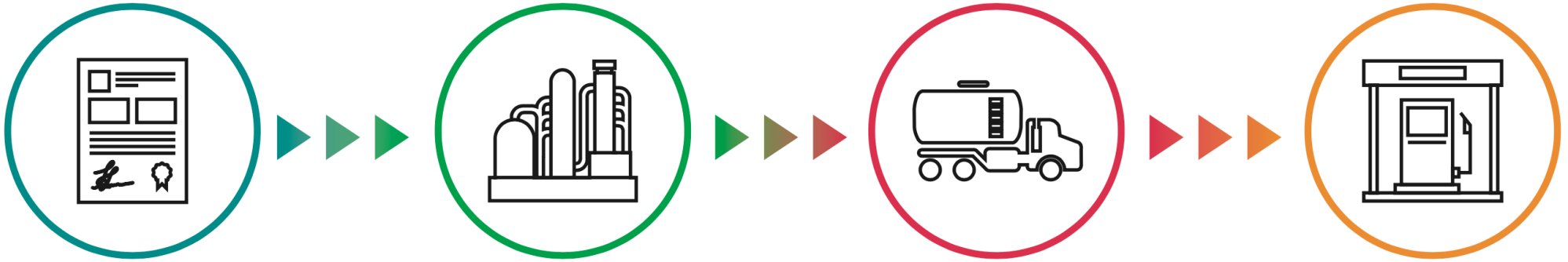
Presented at the California Energy Commission SB X1-2 Workshop: Refining Margin Establishment and Penalty Determination on November 28, 2023

The California Gas Price Gouging and Transparency Law (SB X1-2)

- “Although preventable capacity limitations and inventory shortages played a role in the third quarter of 2022 price increases, they cannot account for all of those increases…”
- Authorizes the California Energy Commission (CEC) to set a maximum gross gasoline refining margin (MGGRM) and a penalty for refiners that exceed it

The fuel price influence chain

Fuel Price Influence Chain



NYMEX

Paper market, influenced by big-scale regional and international factors.

SPOT MARKET

Physical market, high volume, located at refinery hubs. Reacts to NYMEX and regional supply news.

RACK MARKET

Smaller volume market, often located off a pipeline. Follows spot market direction, chang-ing at 6pm each day.

RETAIL MARKET

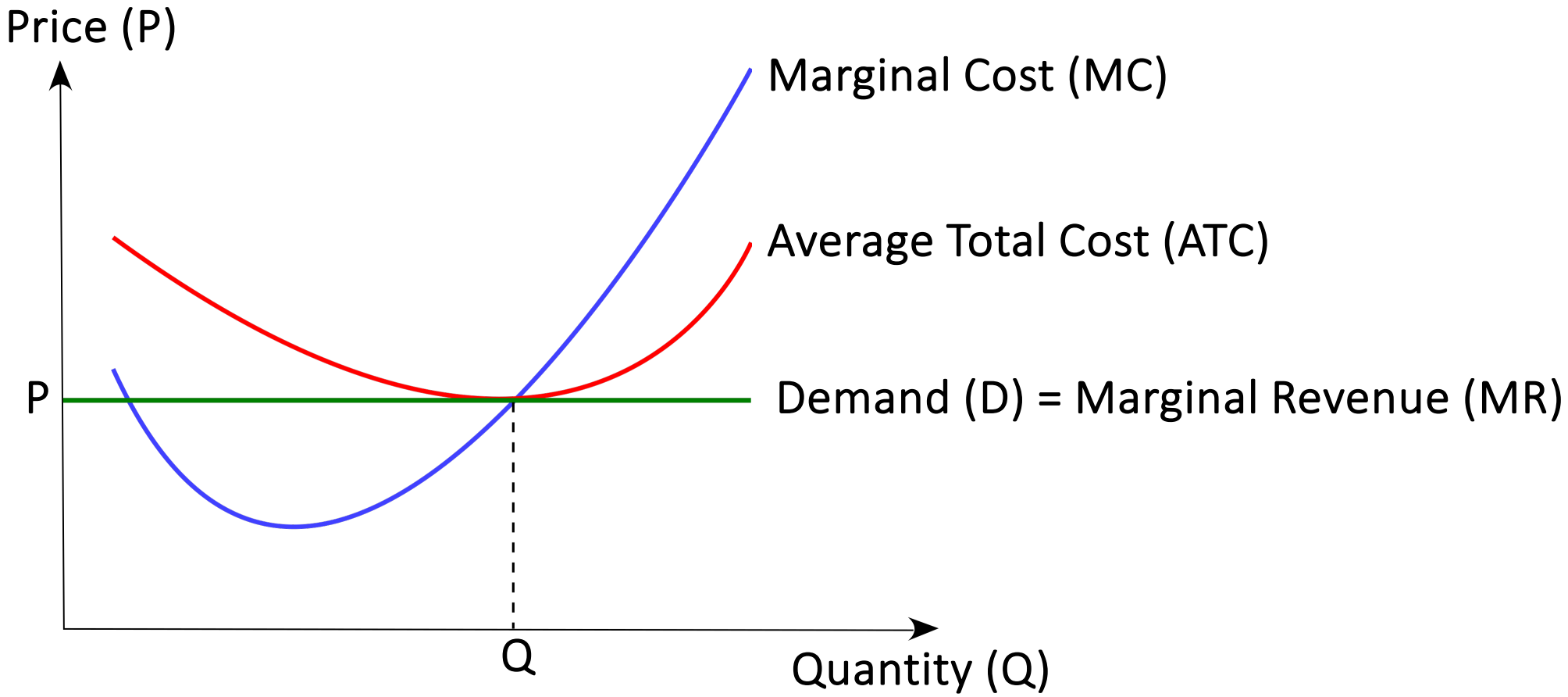
Street price for gasoline and diesel. Follows rack pricing, though reaction time is usually two/three days later.

Source: Oil Price Information Service

Consider an industry with large fixed costs…

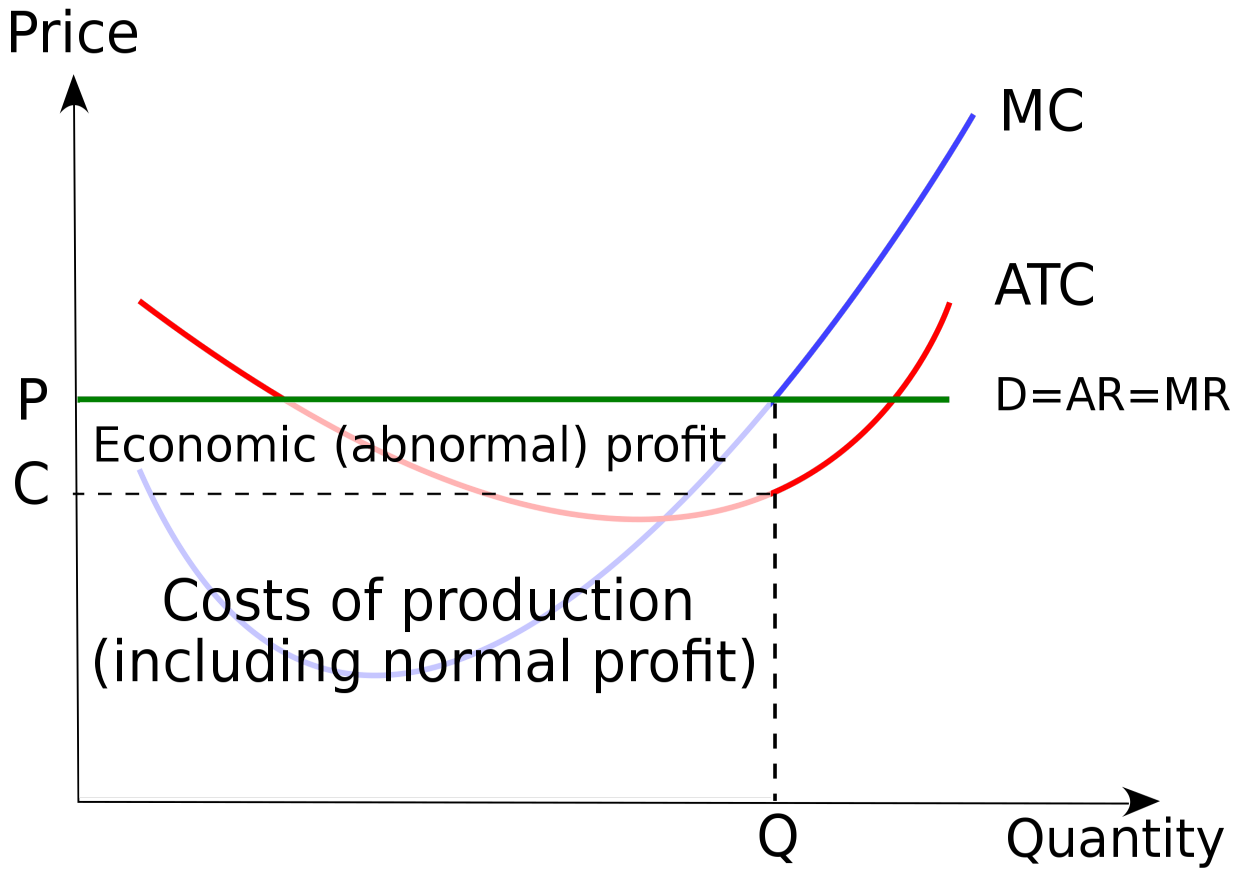
- Electricity generation, transmission, and distribution
- Natural gas extraction, processing, transmission, and distribution
- Petroleum extraction, refining, transmission, and distribution

Perfect competition in the long run



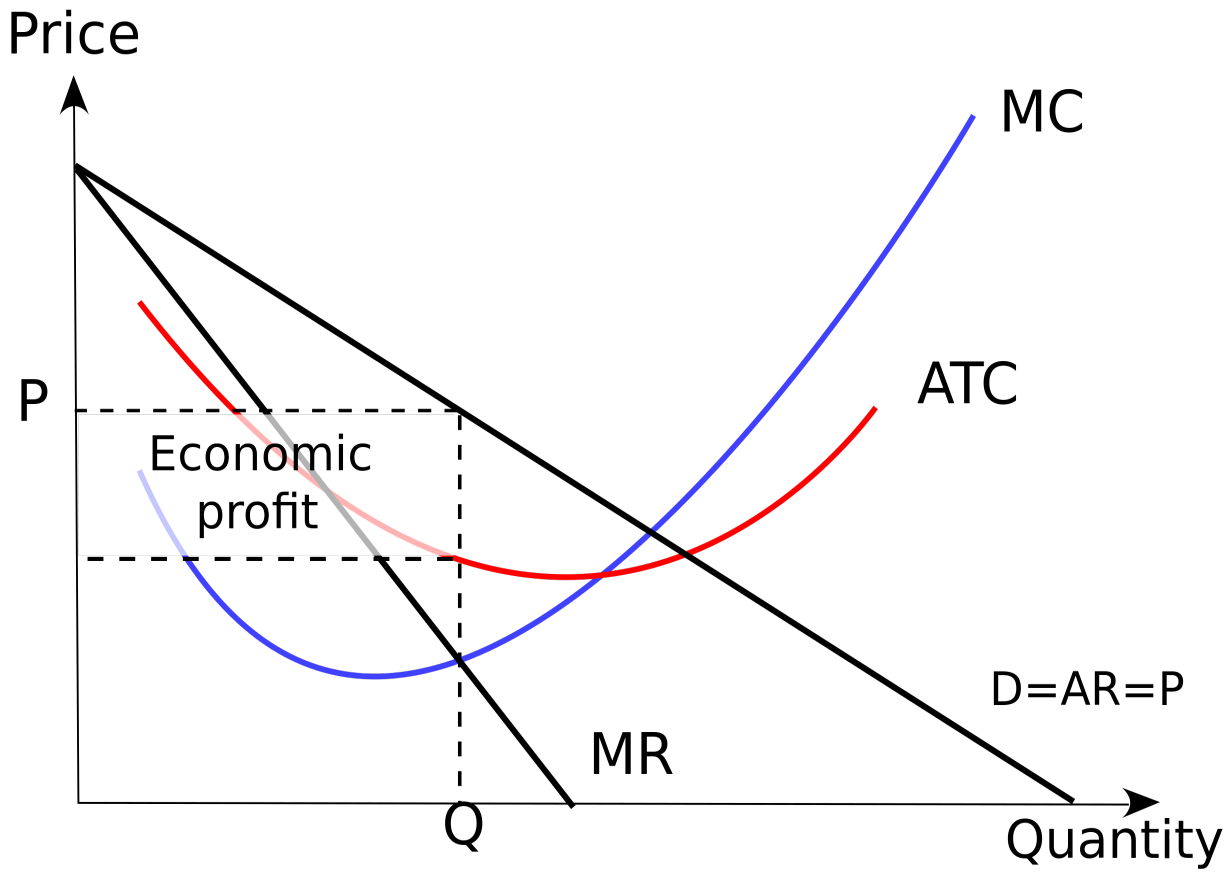
Source: Wikipedia

Perfect competition in the short run



Source: Wikipedia

Imperfect competition in the short run



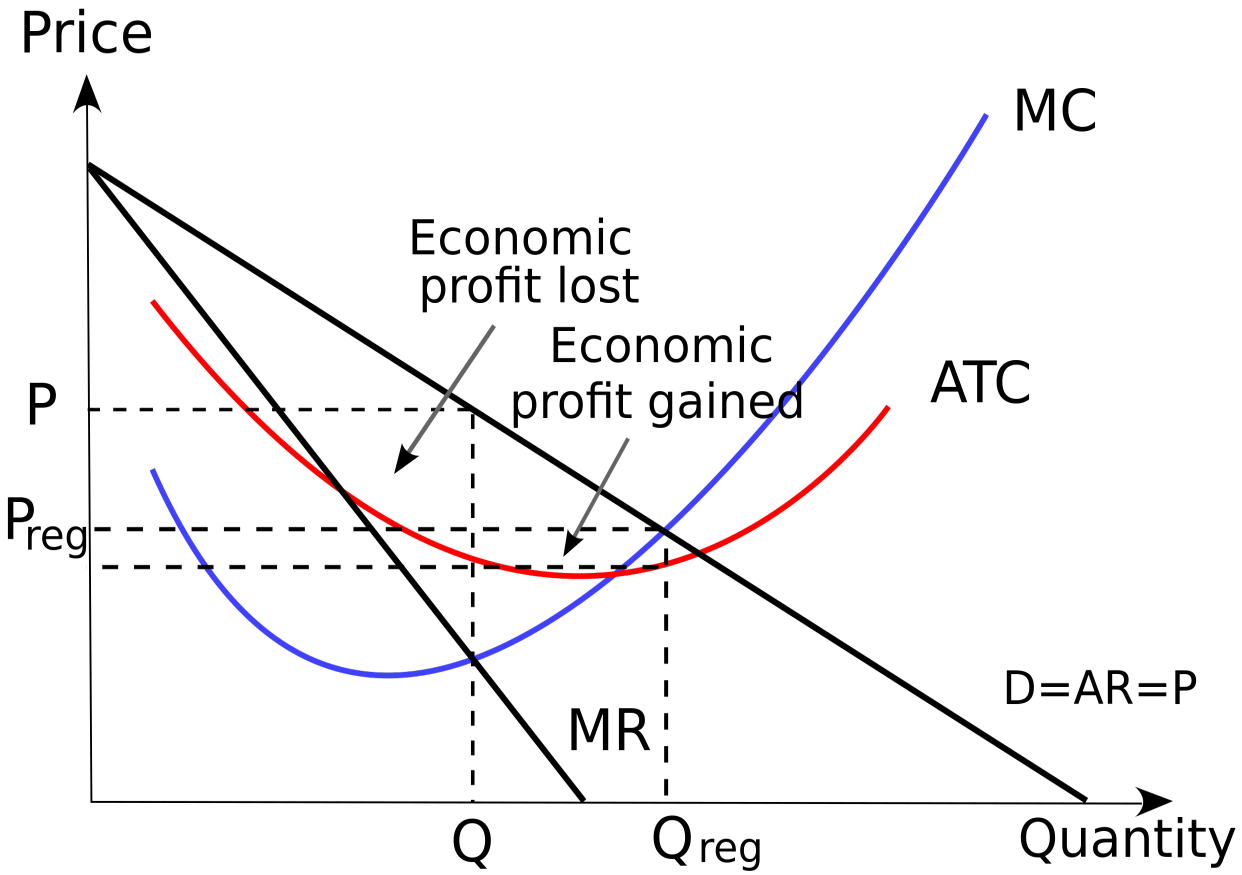
Source: Wikipedia

California Oil Refinery Locations and Capacities

Refinery Name	Barrels Per Day	% of California Crude Oil Capacity	CARB Diesel	CARB Gasoline
Marathon Petroleum Corp., Los Angeles Refinery*	363,000	21.22%	Yes	Yes
Chevron U.S.A. Inc., El Segundo Refinery	269,000	15.73%	Yes	Yes
Chevron U.S.A. Inc., Richmond Refinery	245,271	14.34%	Yes	Yes
PBF Energy, Torrance Refinery	160,000	9.35%	Yes	Yes
PBF Energy, Martinez Refinery	156,400	9.14%	Yes	Yes
Valero Energy, Benicia Refinery	145,000	8.48%	Yes	Yes
Phillips 66, Los Angeles Refinery	139,000	8.13%	Yes	Yes
Phillips 66, Rodeo San Francisco Refinery**	90,200	5.27%	Yes	Yes
Valero Energy, Wilmington Refinery	85,000	4.97%	Yes	Yes

Sources: Source: U.S. EIA, CEC Transportation Fuels Data.

Imperfect competition with price regulation



Source: Wikipedia

Key takeaways

- In the long run, competitive firms produce at minimum ATC
  - Prices can be above and below minimum ATC in the short run
  - In the short run, firms only shutdown when price is below AVC
- Firms in concentrated industries can exercise market power
  - In California, petroleum refining appears to be a concentrated industry
- A price cap can induce regulated firms to increase short-run output
  - In the long-run, capped prices must be above ATC for firms not to exit

Some additional considerations

- Does the firm engage in other activities (i.e., besides refining) that contribute to its gross gasoline refining margin?
- Does the firm produce other products that affect its incentives?
- Is the firm engaged in vertical arrangements that affect its incentives?
- What is the opportunity costs of producing gasoline in the short run? In the long run?

Thank you!

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