

# Geopolitics, energy security, interdependence: The future of North American oil demand

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# Oil Sands Dialogue researches critical topics

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- Oil sands optimization projects to increase production even in the lower price track of 2025, June 2025
- Trans Mountain Expansion: Connecting Canada's Energy to the World, February 2025
- Energy security, geopolitics, climate – The future of North American oil supply, December 2024
- Canadian oil sands production and emissions history, February 2024
- The North American advantage: Secure oil and gas production, December 2023
- Greenhouse gas intensity of western Canadian condensate, May 2023
- Assessing the adequacy of western Canadian crude oil export capacity, September 2022
- Carbon capture and storage and the Alberta oil sands, July 2022
- The trajectory of oil sands GHG emissions: 2009–35, April 2022
- Canadian Crude Logistics, August 2021
- What is different about differentials? Understanding the price of oil in western Canada, December 2020
- The GHG intensity of Canadian oil sands production, July 2020

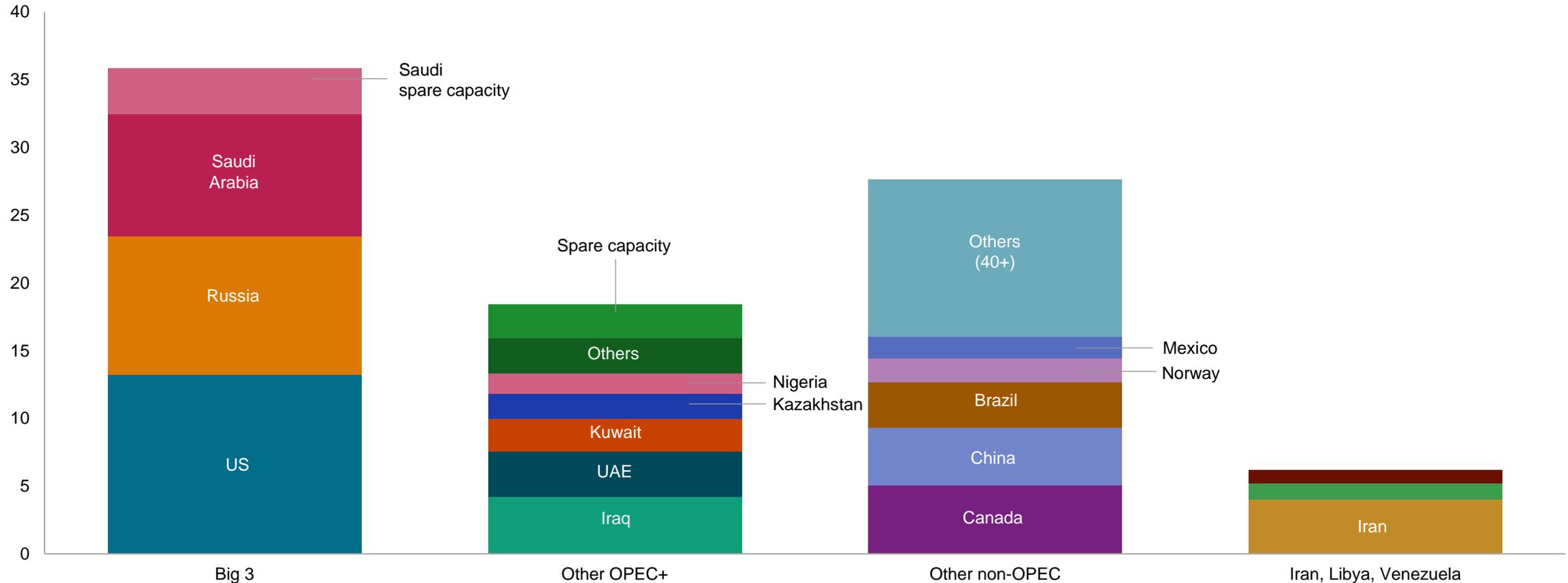
# Key messages

- **North American energy security has been strengthened through domestic crude supply growth in Canada and the US.** The increase in oil supply in North America, has led to increased cross-border trade and reduced reliance on offshore imports. This shift strengthened energy security for North America over the past 15 years, with crude production growing by over 10 million b/d and non-North American imports falling by 5.2 million b/d. North America is now the largest crude producer globally, producing nearly as much as the next two largest producers (Saudi Arabia and Russia) combined.
- **Canada holds a strategic position in global oil markets.** Canada produces one-third of the world's heavy, sour crude, is the fourth largest crude producer globally and is the US's top crude oil trading partner. Heavy crude oil will continue to be in high demand globally as most new refineries being built in Asia are complex coking/cracking refineries. Long-term, this position is expected to continue, especially in the North American market, where the Canadian heavy crude share is increasingly captured in the U.S. Gulf Coast.
- **US Gulf Coast and Midwest refining centers are expected to remain competitive long-term, supporting heavy crude demand.** Complex refineries that consume heavy crude oil are likely to remain profitable as their product output, including gasoline, diesel and jet fuel, will remain in demand long-term.

# Geopolitics and oil: The Big 3 account for nearly 40% of global crude production

Canada is the 4<sup>th</sup> largest producer globally and the largest heavy, sour crude producer

The Big 3 oil producers in global context — 2024 production of crude oil and condensate (million b/d)

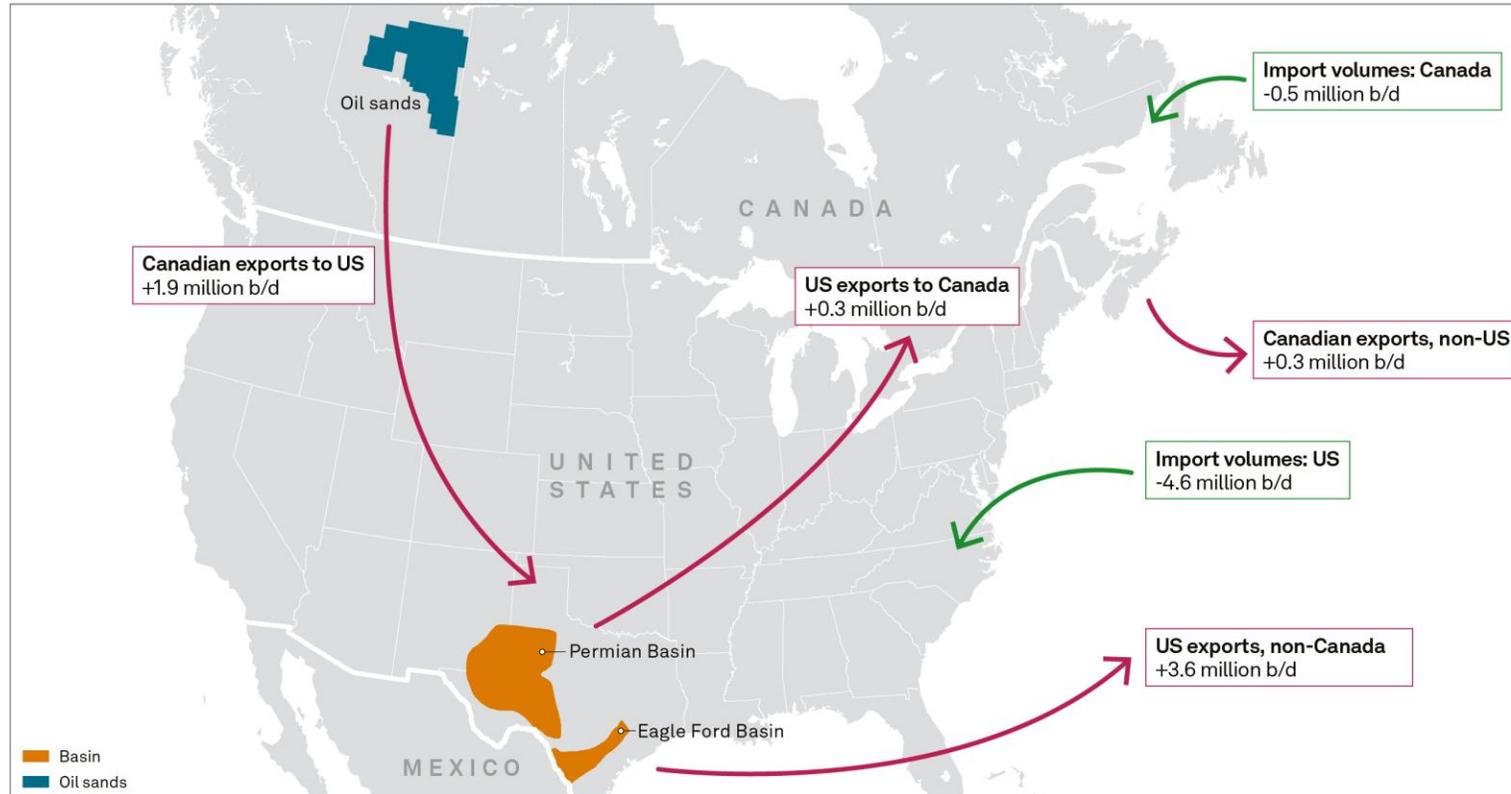


Data compiled April 2025.  
Source: S&P Global Commodity Insights.

# Oil supply growth helped to strengthen North American energy security

Cross-border oil trade has helped displace offshore imports

North American crude trade flows and displacement of offshore imports (2010–24)



Data compiled July 29, 2025.

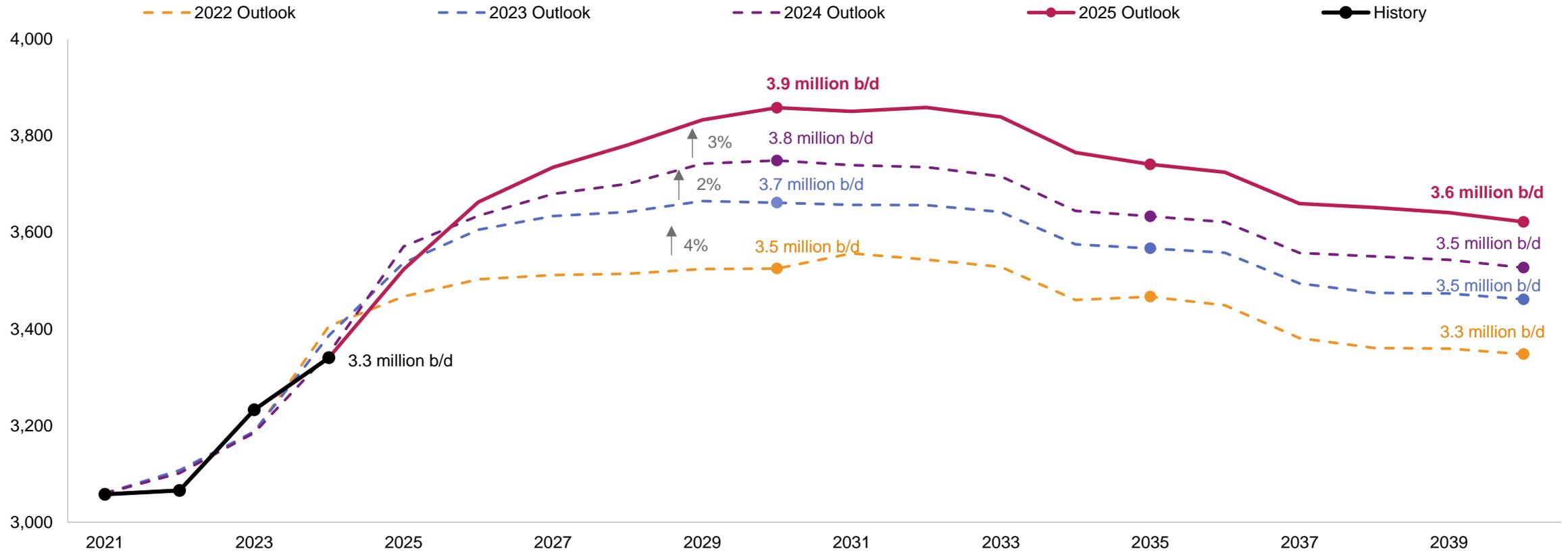
Source: Upstream Content, a product of S&P Global Commodity Insights: 251364-01.

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# Oil sands supply expected to grow over 510,000 b/d by 2030

Oil sands optimizations continue to support growth and push the outlook higher

Commodity Insights oil sands 15-year production outlook (thousand b/d)

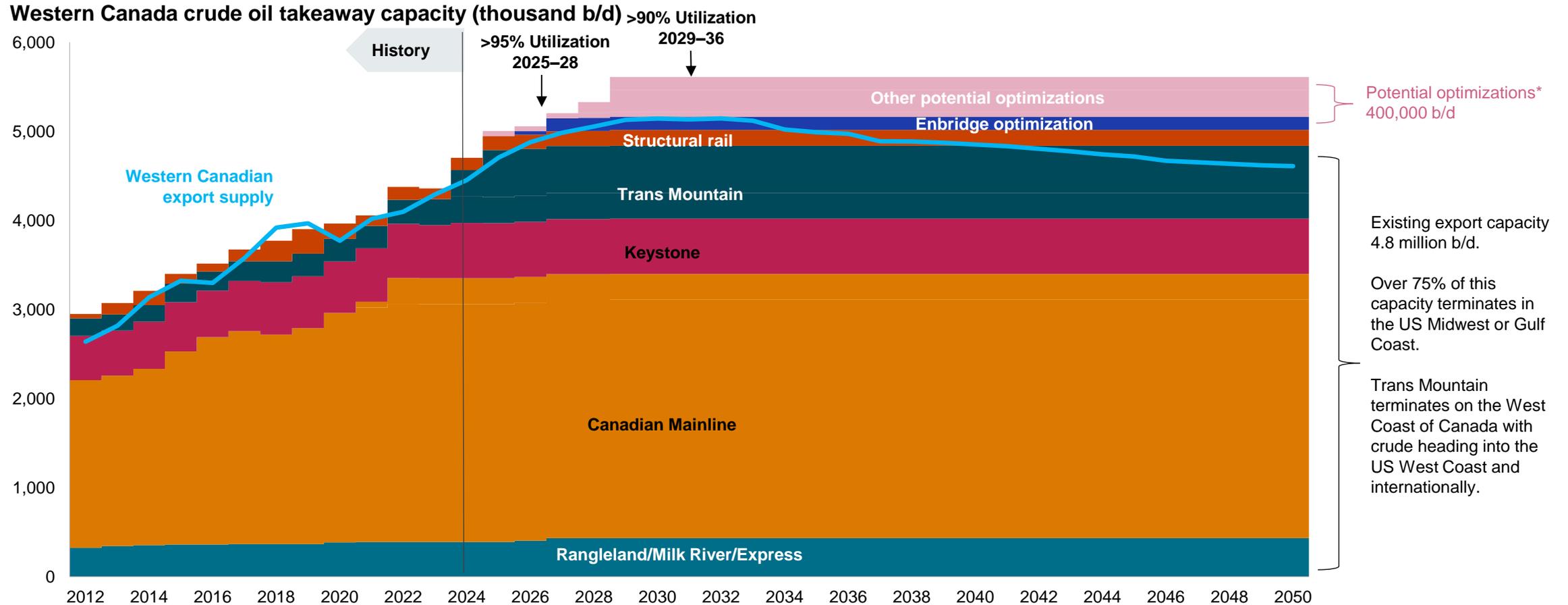


Data compiled April 25, 2025.

Oil sands production is the sum of non-upgraded bitumen and synthetic crude oil. See [Oil sands optimization projects to increase production, even in lower price track of 2025 \(June 2025\)](#) for more details on the latest oil sands production outlook.

Sources: S&P Global Commodity Insights; provincial energy regulators.

# Western Canadian crude export pipelines may reach existing capacity limits without additional optimizations



Data compiled April 25, 2025.

Estimated effective pipeline capacity. Presentation is of total capacity and not sorted for anticipated utilization, which will be influenced by firm versus spot takeaway capacity commitments. Western Canadian export supply does not account for the use of storage throughout the year, which could help minimize impacts to pricing owing to high levels of pipeline utilization.

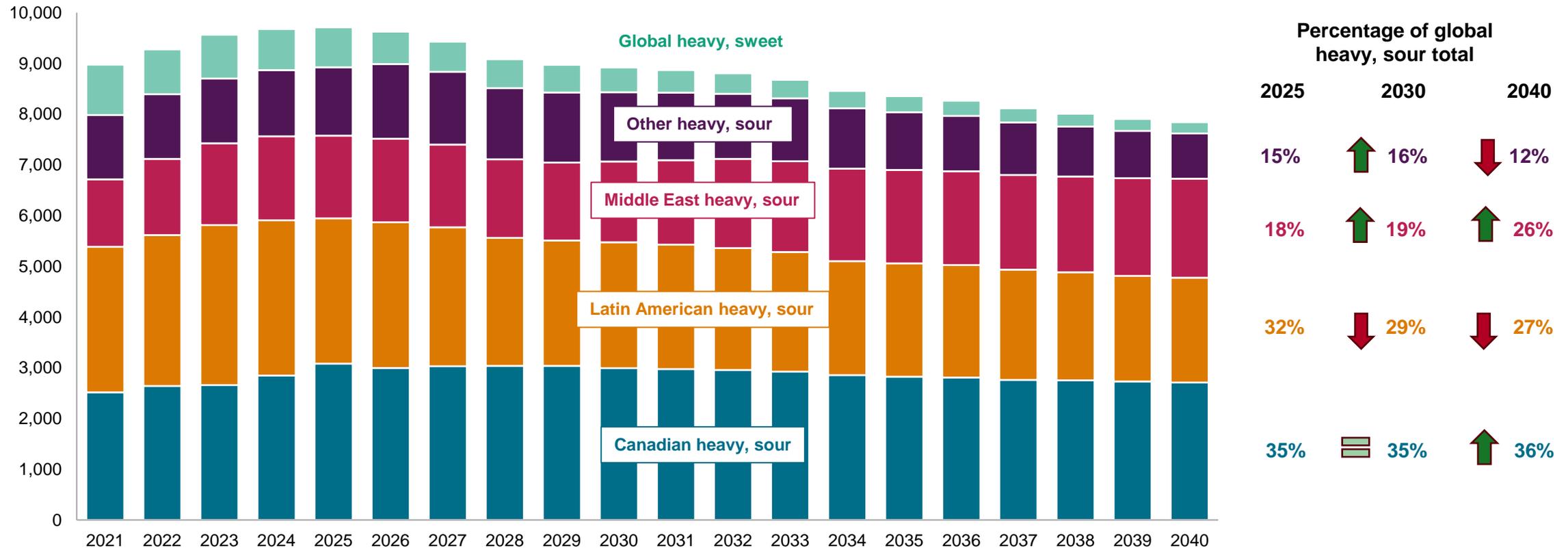
\* Potential optimization projects include Enbridge Mainline optimization, Trans Mountain optimization, including waterway dredging and Keystone optimization.

Sources: S&P Global Commodity Insights; Canadian Energy Regulator.

# One-third of the total global heavy, sour crude is produced in Canada

Canada's share of the global heavy, sour crude market is expected to remain steady through 2040

Global heavy crude outlook 2021–40 (thousand b/d)

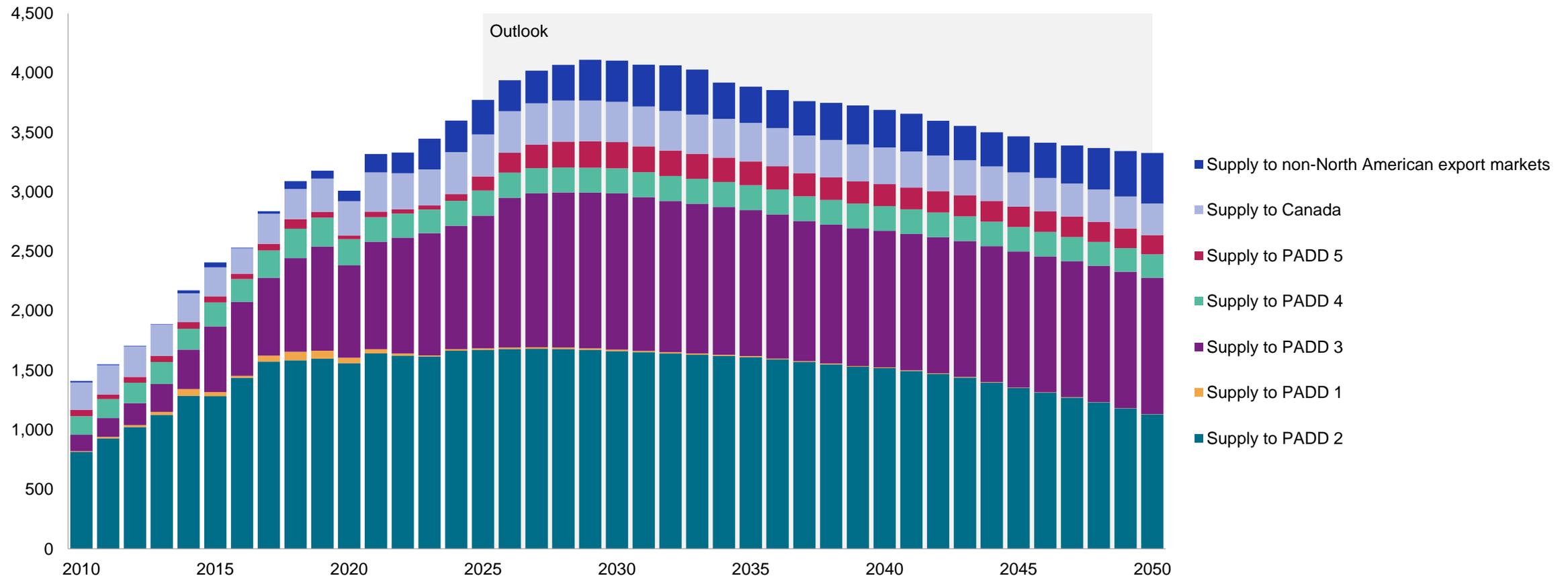


Data compiled May 15, 2025.  
Crude as produced or well-head production, before blending.  
Source: S&P Global Commodity Insights.

# Canadian heavy crude disposition trends: Most stays in North America

Canadian heavy, sour crude share of the US Gulf Coast market (PADD 3) and export market continues to grow

**Western Canadian heavy, sour crude oil balance (thousand b/d)**



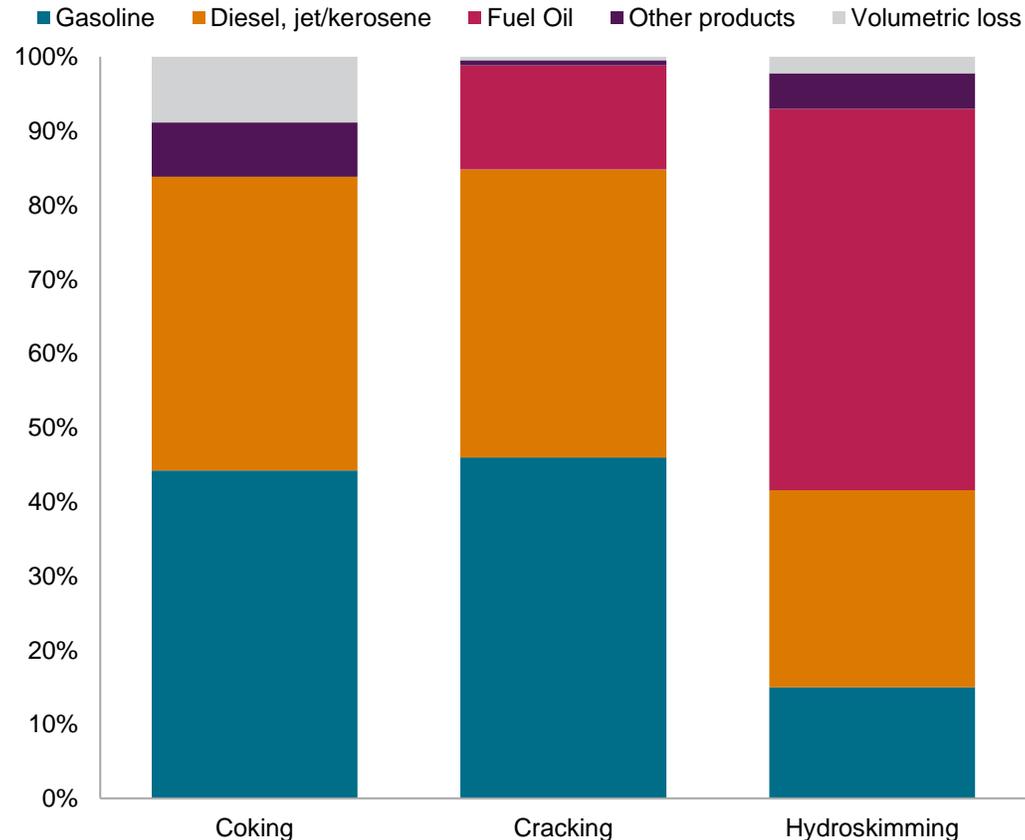
Data compiled May 15, 2025.

PADD = Petroleum Administration for Defense District. PADD 1 is the US East Coast, PADD 2 is the US Midwest, PADD 3 is the US Gulf Coast, PADD 4 is the US Rocky Mountains and PADD 5 is the US West Coast.

Source: S&P Global Commodity Insights.

# Complex coking and cracking refineries, which use heavy, sour crude oil, produce greater volumes of higher-value products, such as gasoline, diesel and jet fuel

## Refined product yields for indicative refinery configurations



Data compiled August 2025.

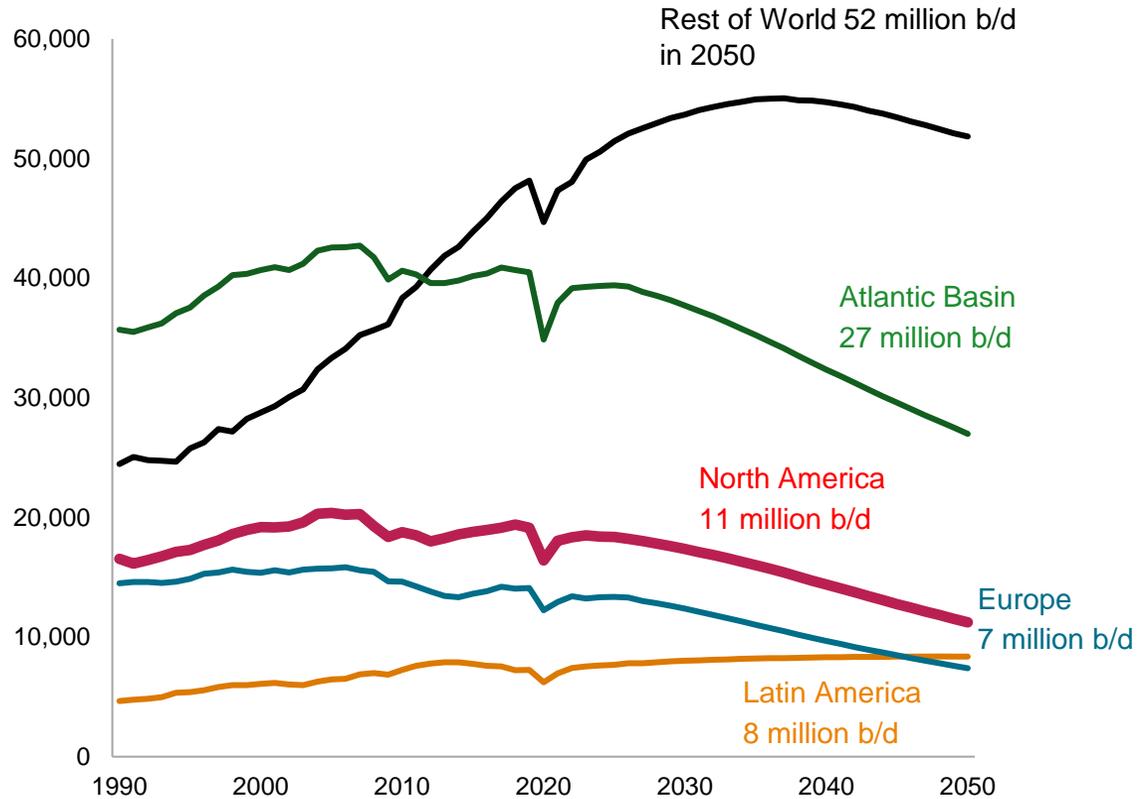
Indicative refinery configuration based on Maya coking units, LLS cracking units and Mars hydroskimming refineries in the US Gulf Coast (PADD 3).

Source: S&P Global Commodity Insights.

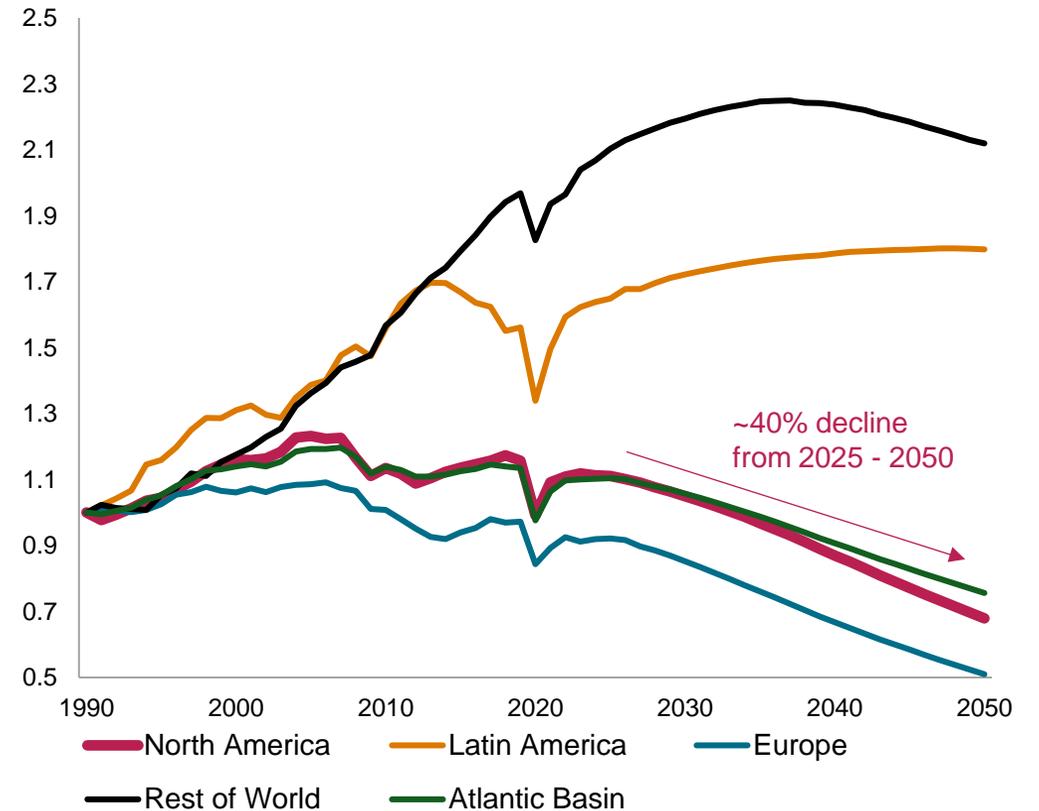
- **Coking refineries** are also known as high conversion refineries and are highly complex
  - Over 80% of output are the three major refined products
  - Feedstock includes heavy, medium and light crude oils
- **Cracking refineries** are considered complex, though slightly less than a coking refinery
  - Over 80% of output are the three major refined products
  - The remaining output is primarily fuel oil, used for bunker fuel
  - Feedstock includes heavy, medium and light crude oils
- **Hydroskimming refineries** are classified as simpler configurations, as they have limited capacity to upgrade or convert heavy crude feedstock into higher-value products
  - Half of the output is fuel oil, 25% diesel, jet/kerosene, and the remainder gasoline and other products
  - Primary feedstock is light, sweet crude oil

# North America refinery demand expected to decline 65% by 2050

World total refined product demand (thousand b/d)



World total refined product demand (demand indexed to 1990)



Data compiled May 15, 2025.

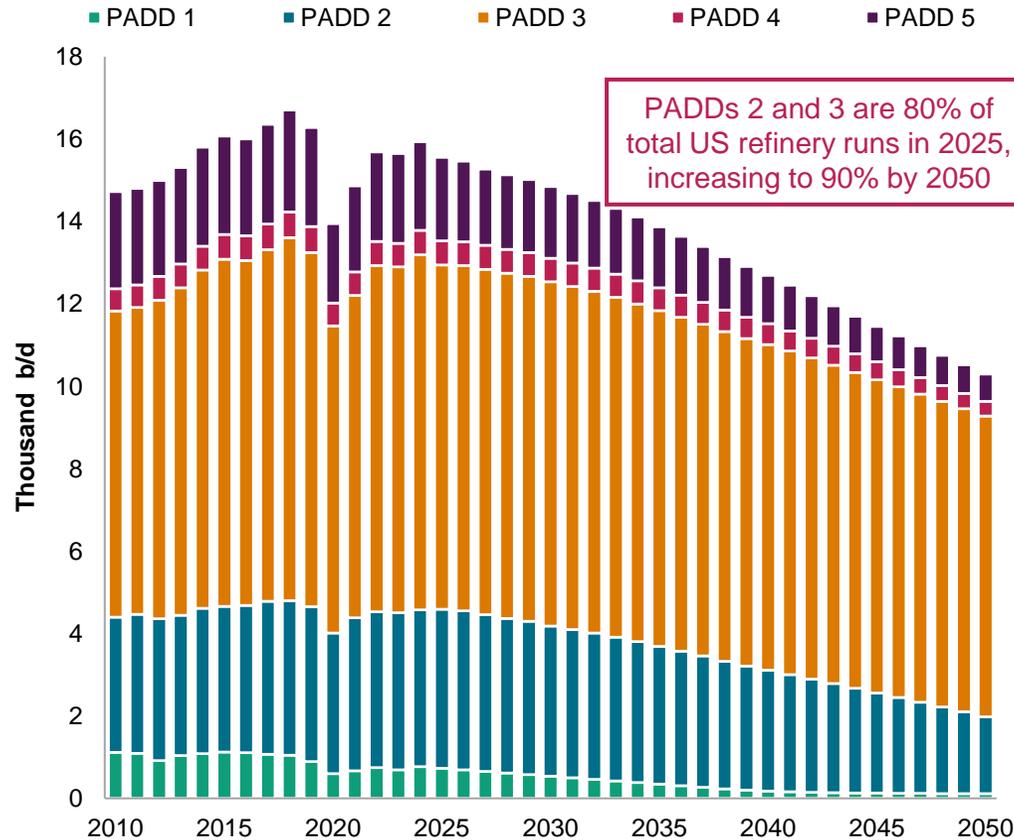
"Rest of world" includes all countries not in the North America, Latin America, Europe and Atlantic Basin regions.

Source: S&P Global Commodity Insights.

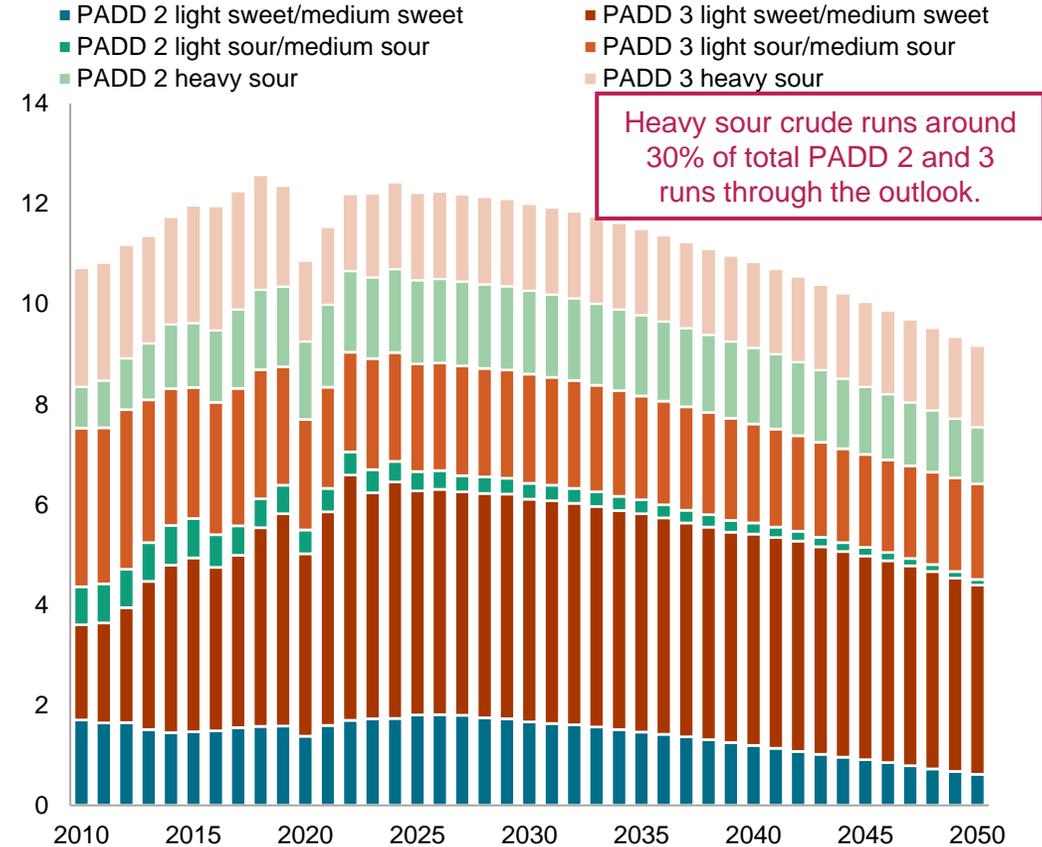
# Majority of refinery demand located in US Midwest and Gulf Coast

Approximately 30% of the demand is for heavy sour crude

US crude refinery runs by PADD (million b/d)



PADD 2 and 3 refinery runs by crude type (million b/d)



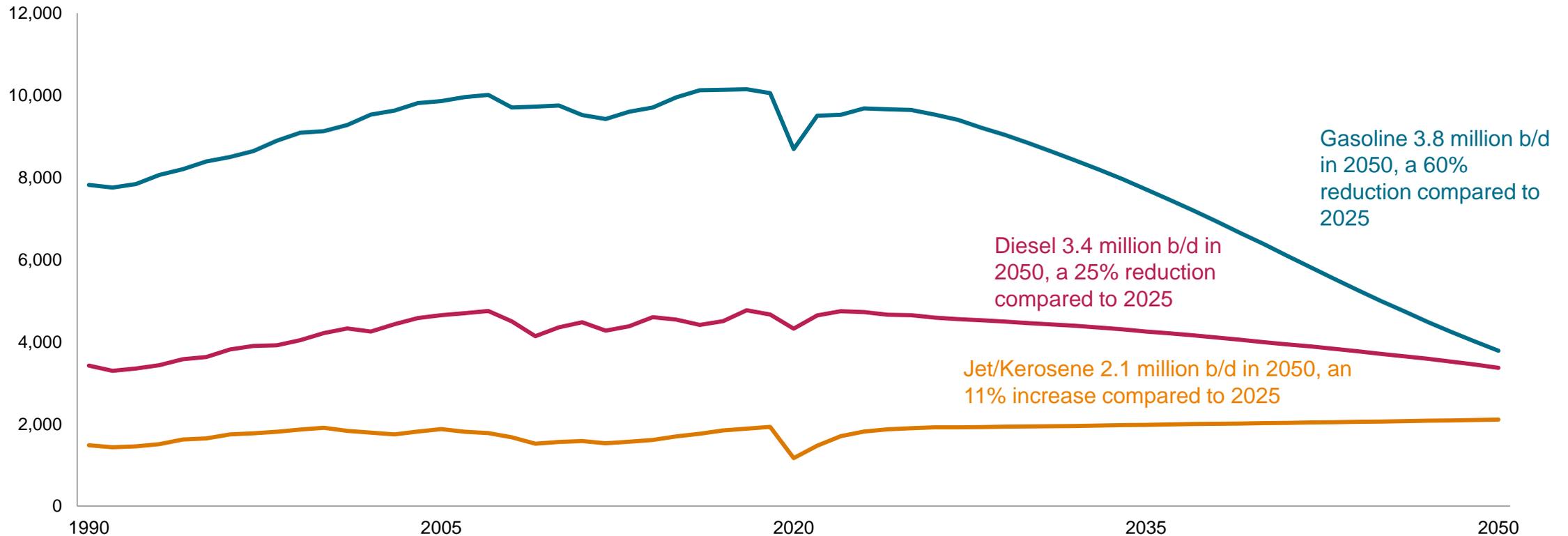
Data compiled May 15, 2025.

PADD = Petroleum Administration for Defense District. PADD 1 is the US East Coast, PADD 2 is the US Midwest, PADD 3 is the US Gulf Coast, PADD 4 is the US Rocky Mountains and PADD 5 is the US West Coast.

Source: S&P Global Commodity Insights.

# North American gasoline and diesel demand falls as electric vehicle usage increases, while jet fuel demand increases through the outlook period

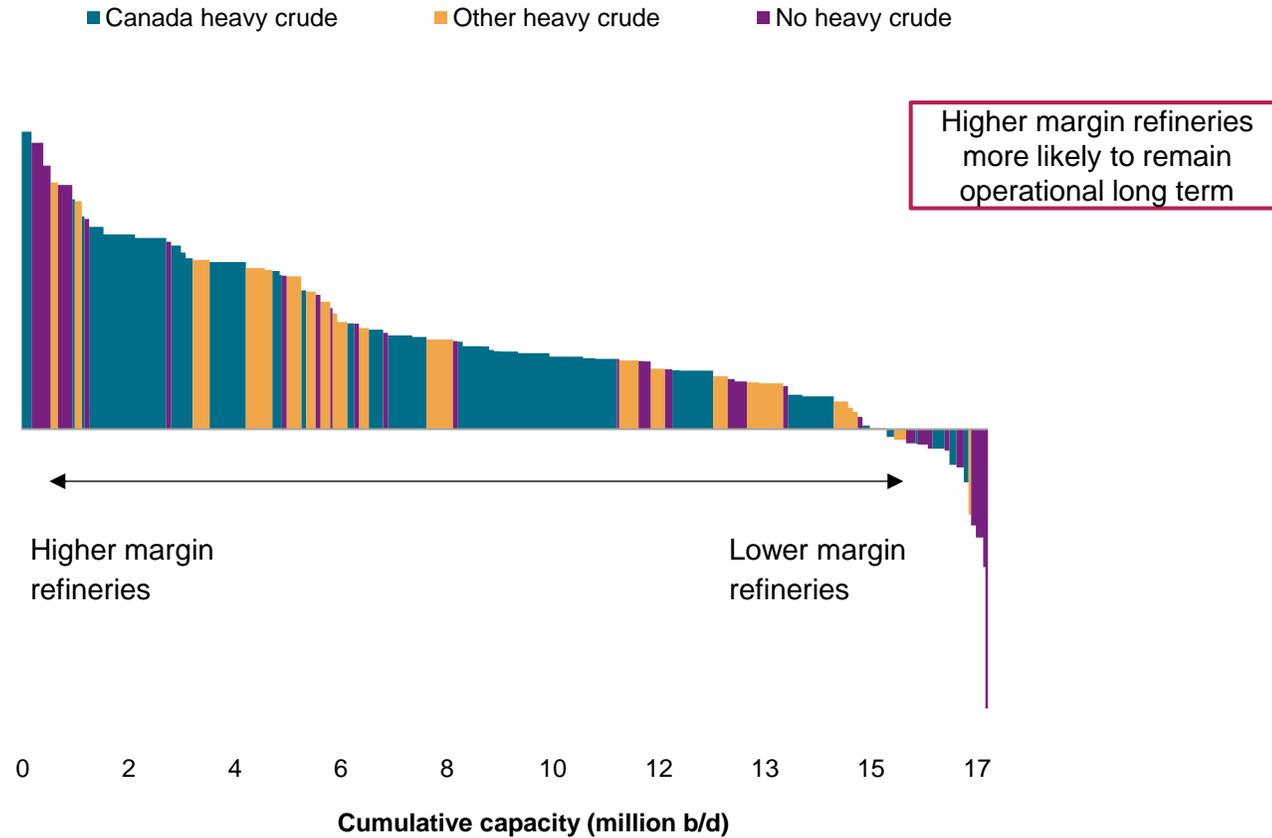
North America major products demand (thousand b/d)



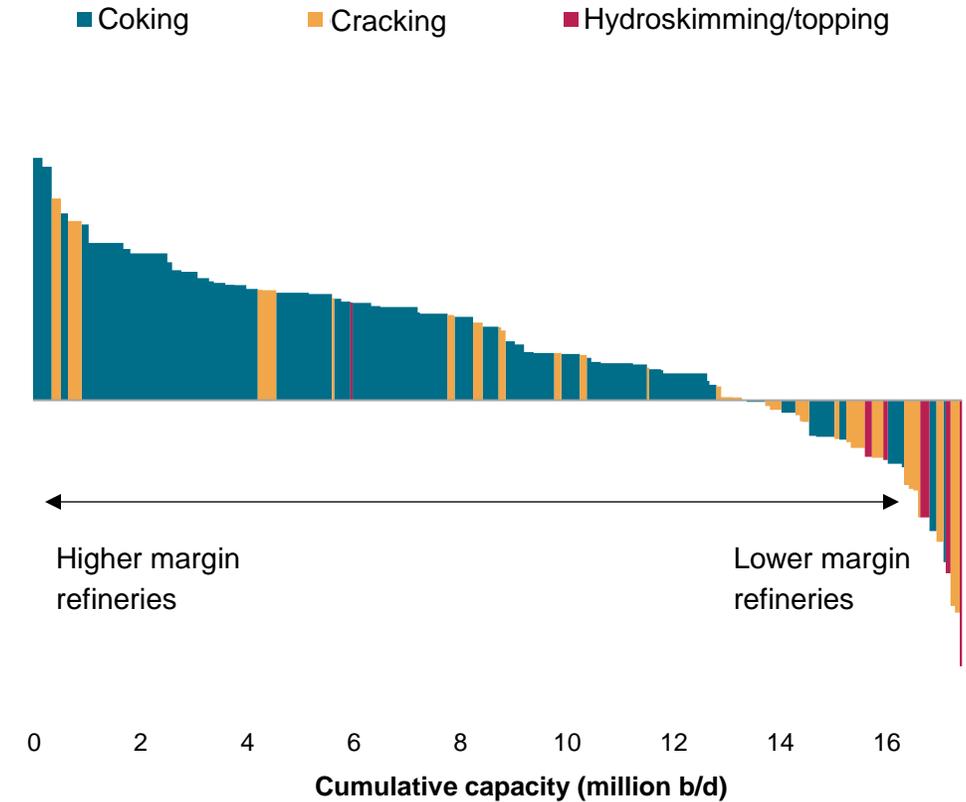
Data compiled May 15, 2025.  
Source: S&P Global Commodity Insights.

# Most US refineries running heavy crude are expected to remain profitable

United States refining margin curve and crude slate, 2035



US refining margin curve by refinery type, 2035



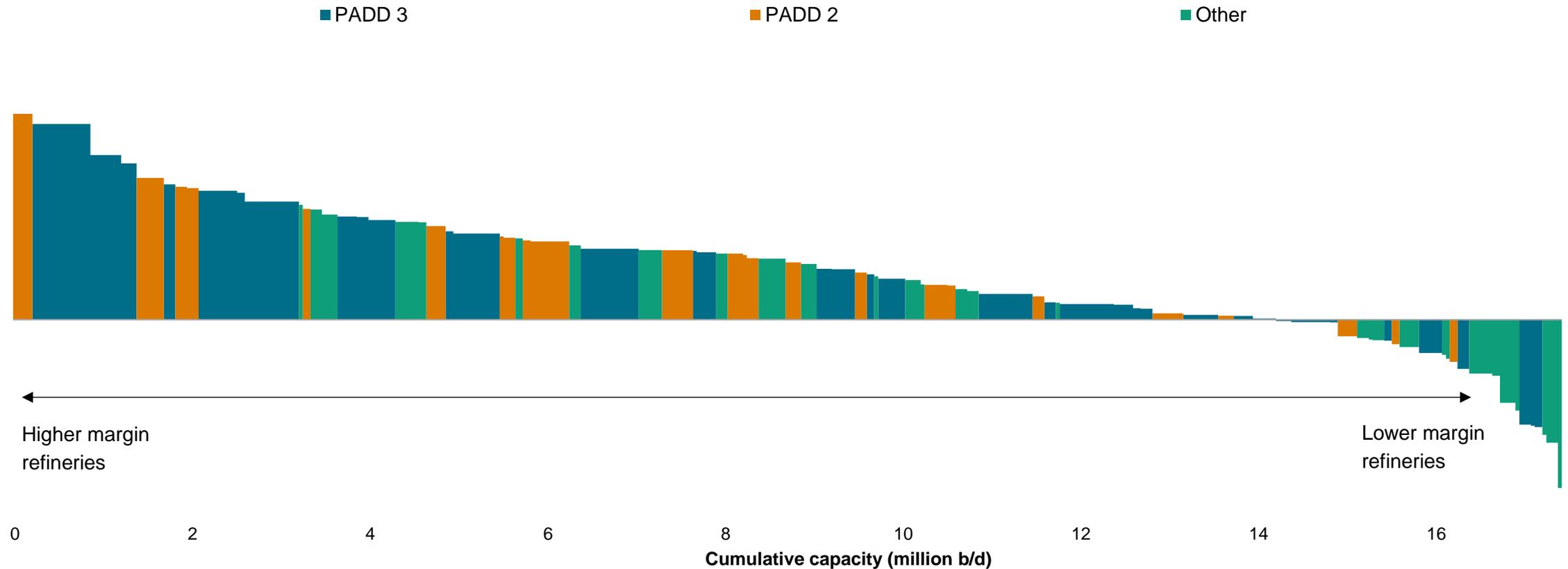
Data compiled May 15, 2025.

Forward-looking data presented here are an estimate of average costs of crude, operating, fixed and other costs, but do not reflect specific market conditions, which are different for each refinery.

Source: S&P Global Commodity Insights.

# US Midwest and Gulf Coast refineries remain competitive in the long term primarily due to the large number of complex refineries in these regions

US refining margin curve by region, 2035



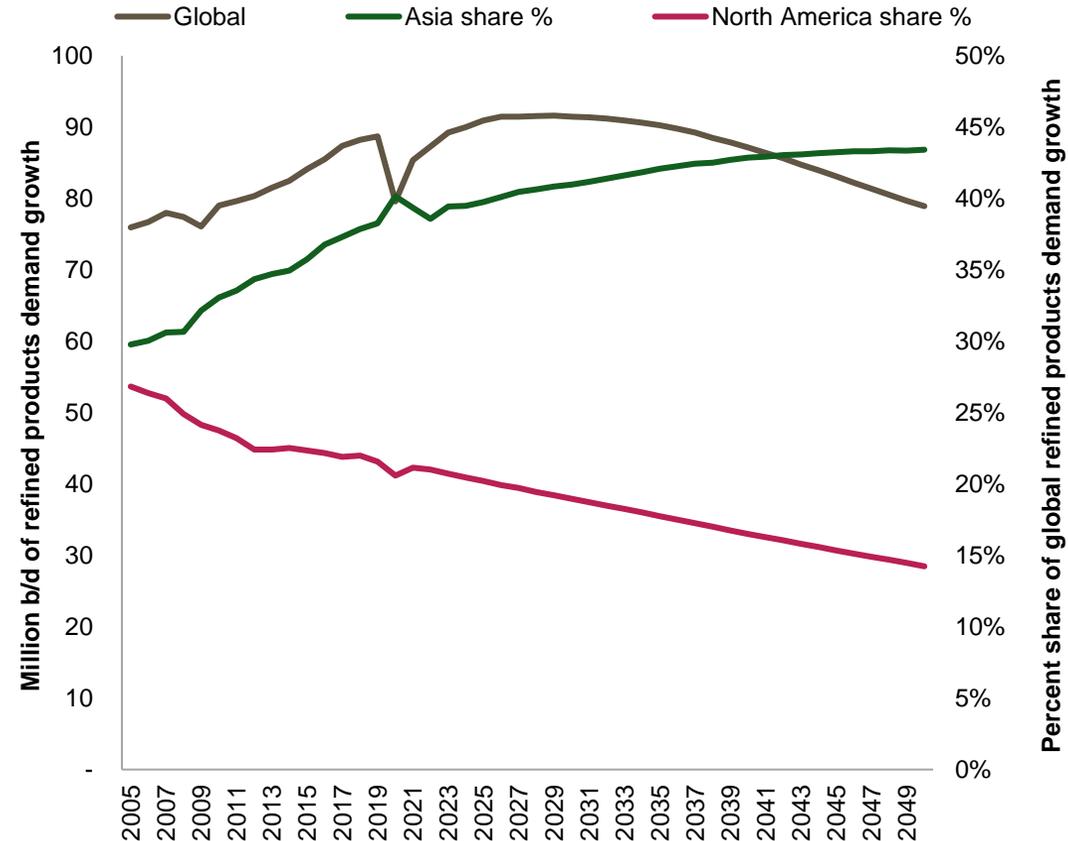
Data compiled May 15, 2025.

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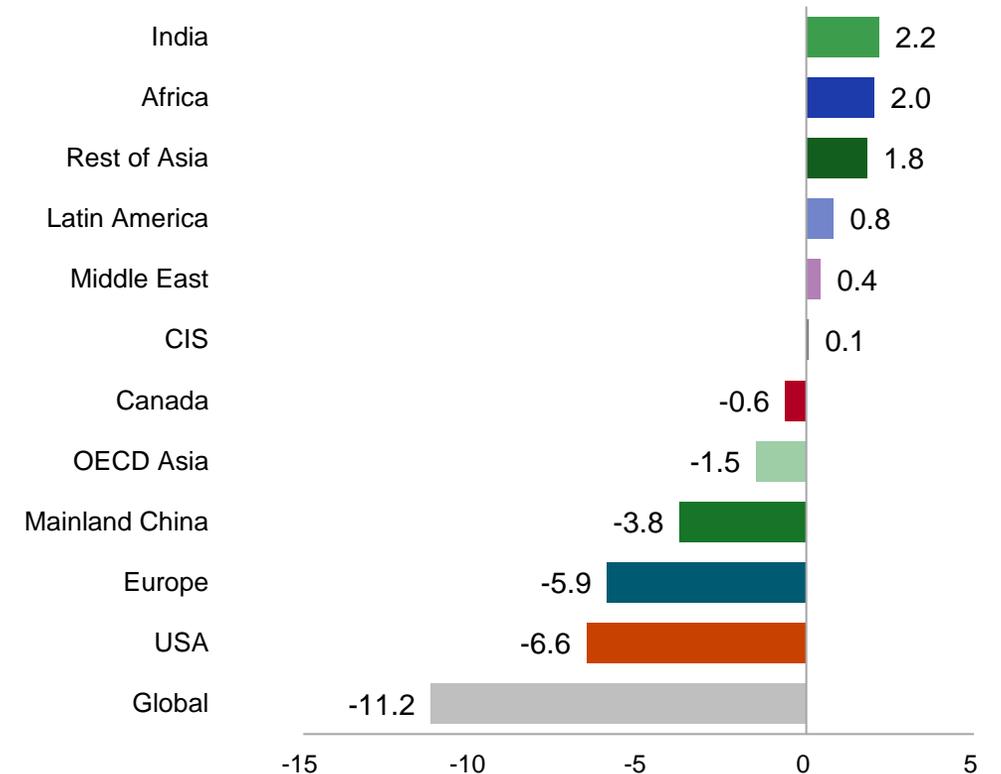
Source: S&P Global Commodity Insights' Refinery Cost and Margin Analytics (RCMA).

# Asia accounts for nearly 45% of global refined products demand growth in 2050

Global refined products demand growth by region



Total refined products demand growth (million b/d)



Data compiled April 16, 2025.

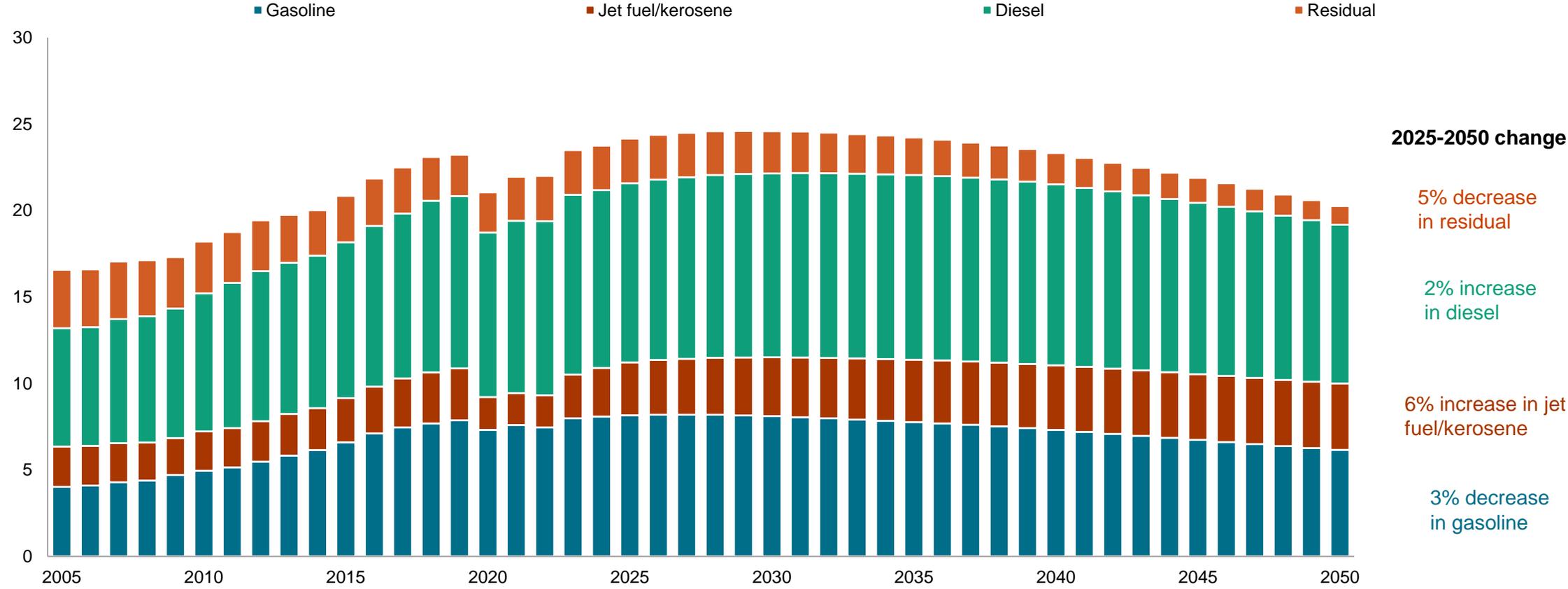
OECD = Organisation for Economic Co-operation and Development.

Refined product demand is inclusive of biofuels and Fischer-Tropsch (FT) fuels.

Source: S&P Global Commodity Insights.

# Asian markets are expected to increase demand for refined products that come from complex refineries

Asia refined product demand by type (million b/d)



Data compiled May 2025.  
Source: S&P Global Commodity Insights.

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