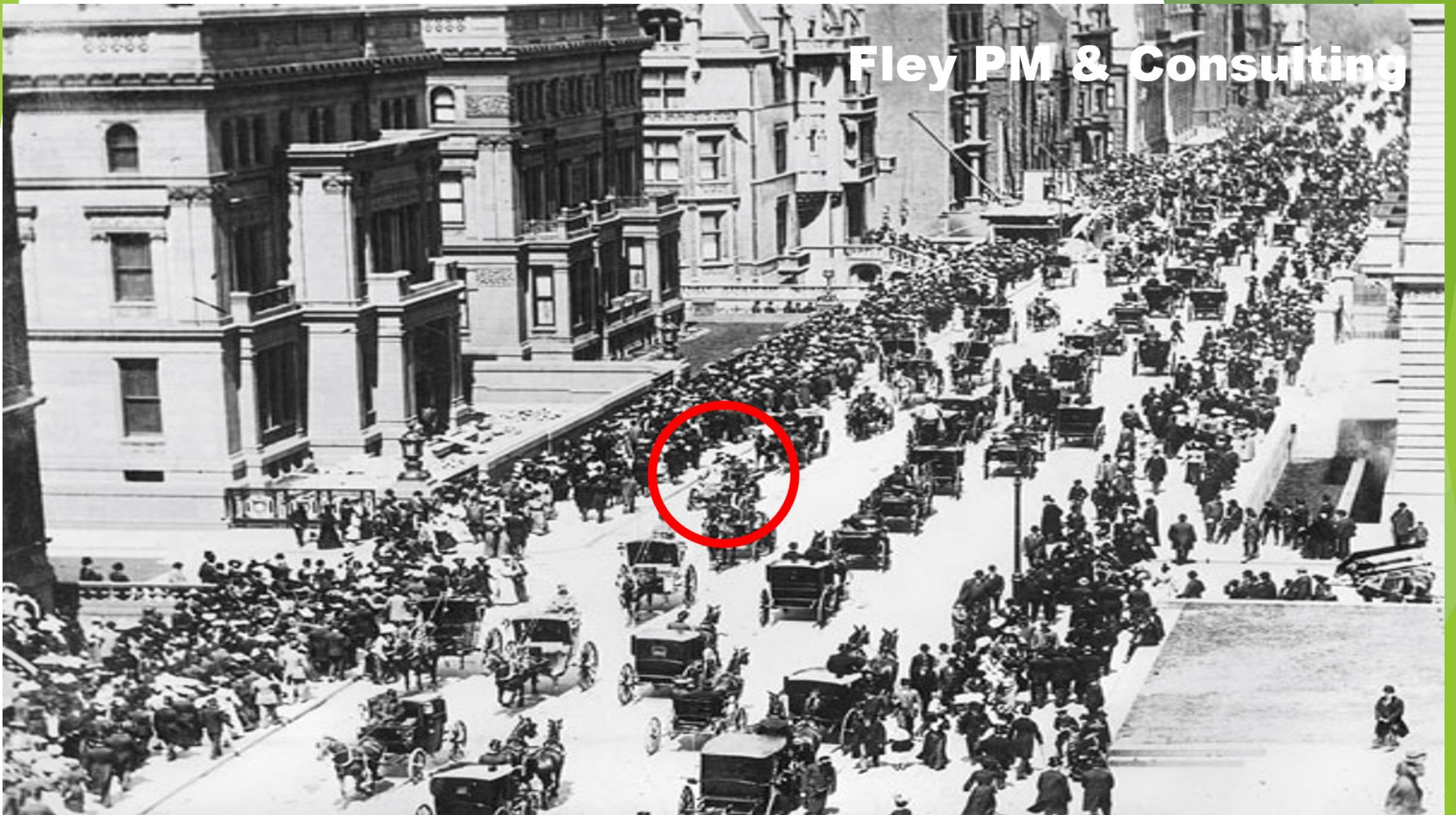


Fley PM & Consulting

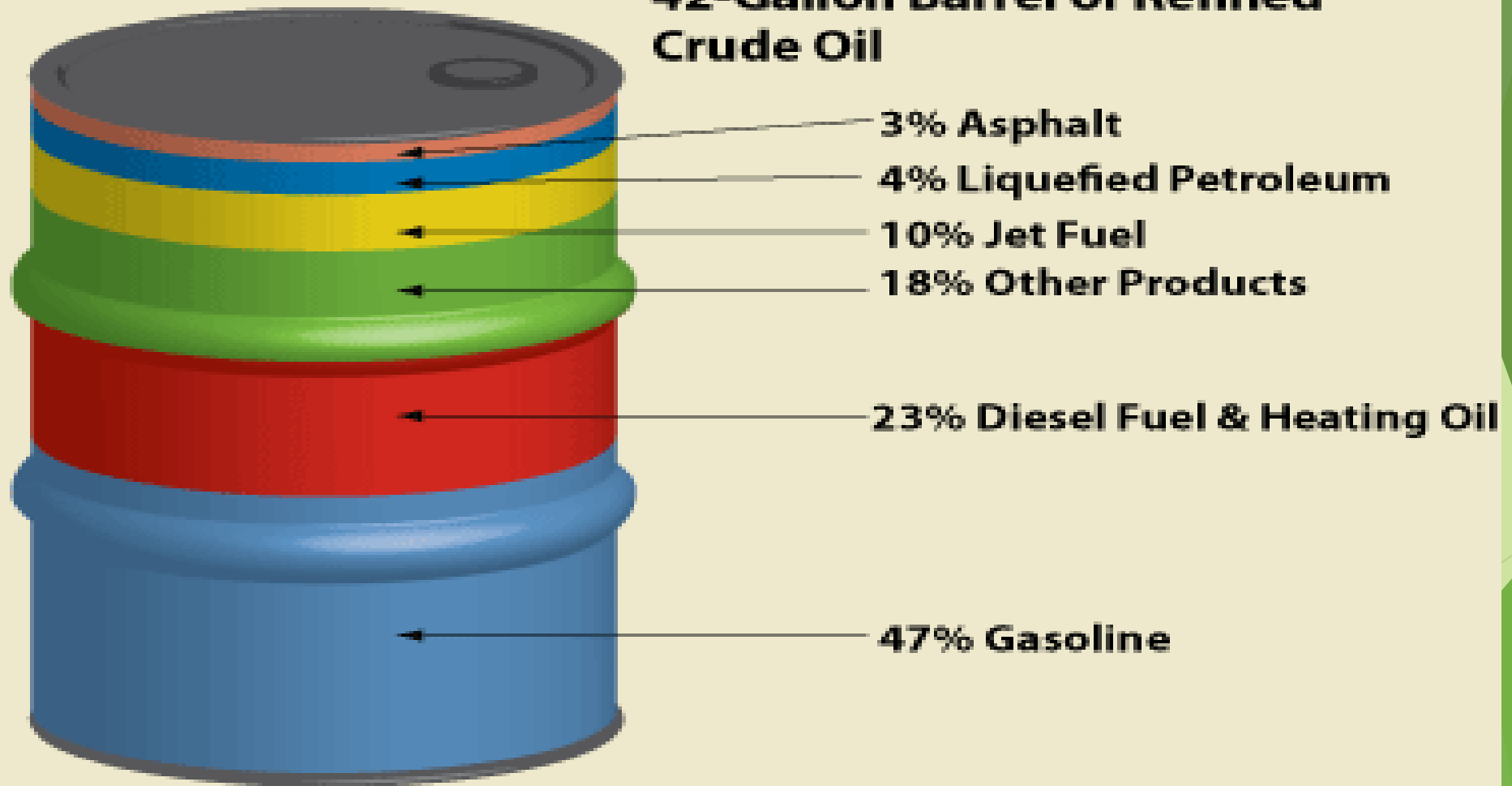


Fley PM & Consulting

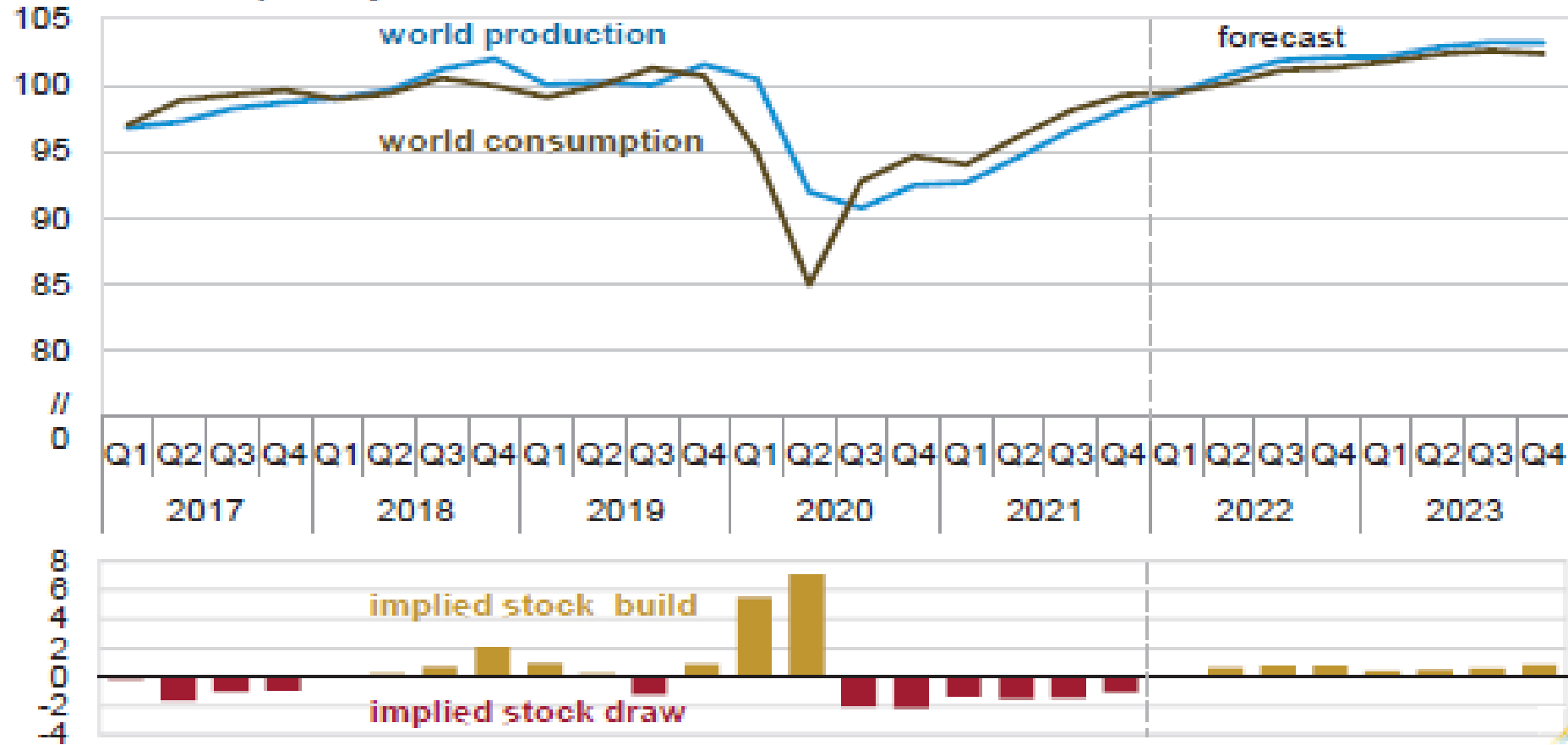


Products Made from a Barrel of Crude Oil

Typical Products Made from a 42-Gallon Barrel of Refined Crude Oil



World liquid fuels production and consumption balance million barrels per day

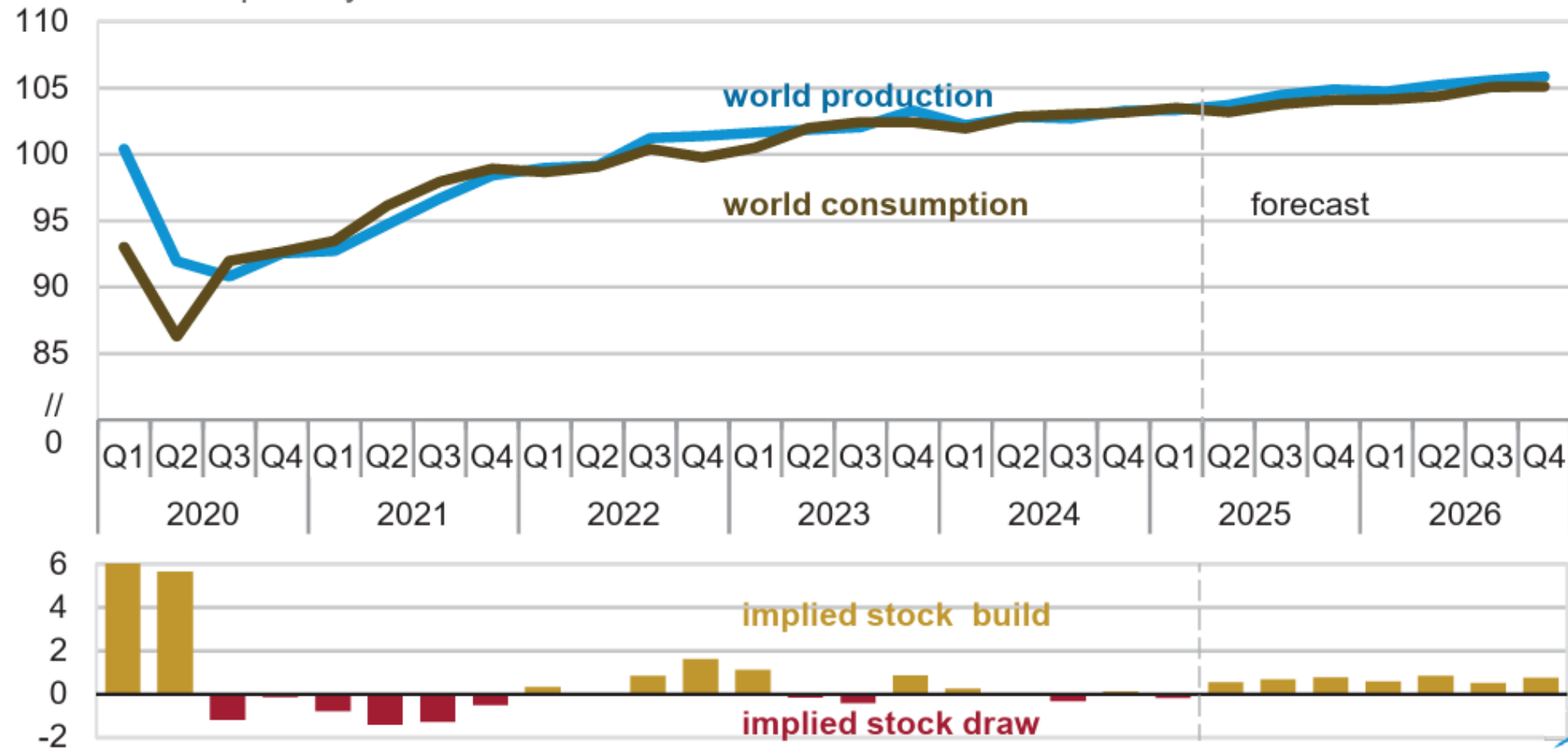


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, January 2022



World liquid fuels production and consumption balance

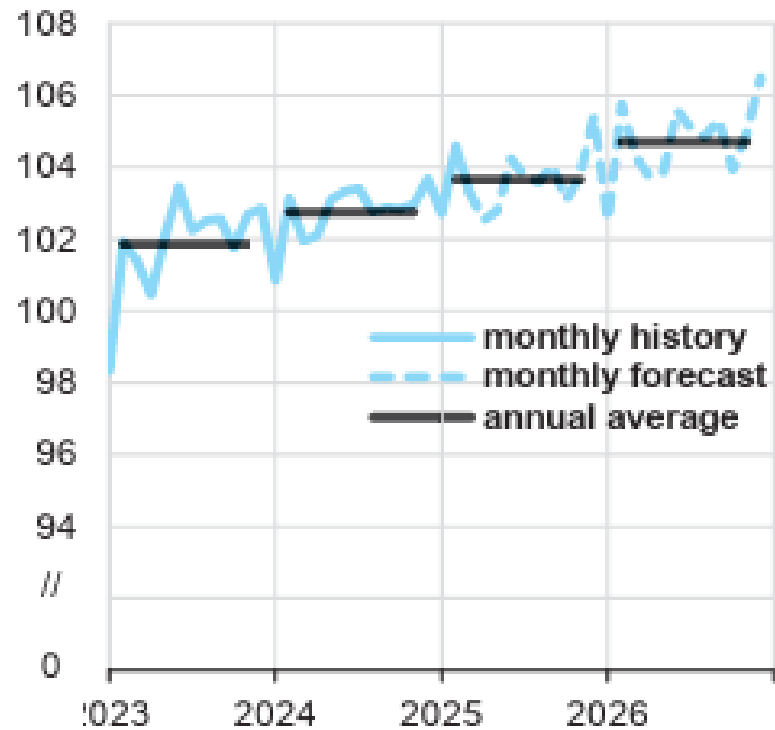
million barrels per day



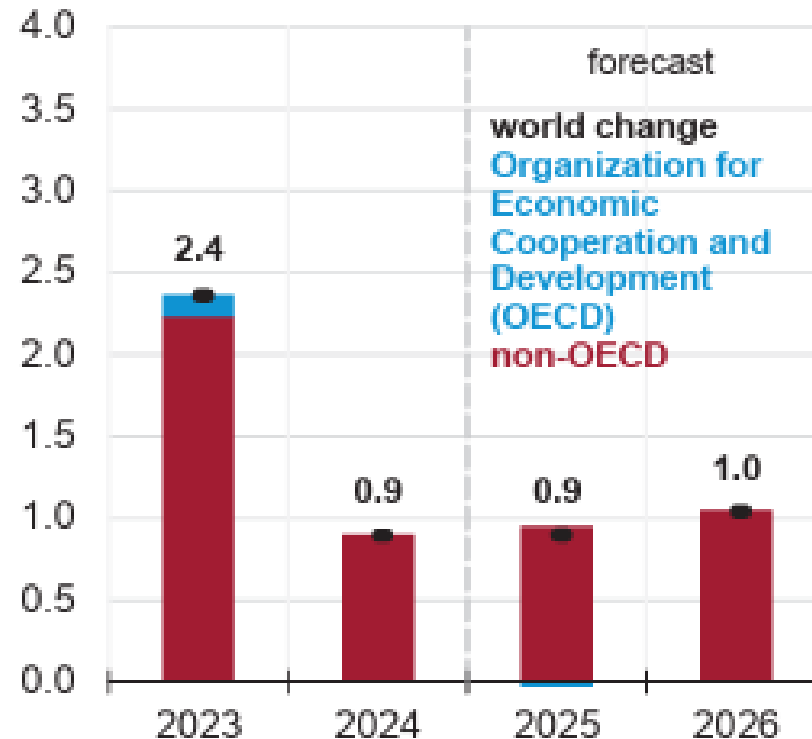
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, April 2025



World liquid fuels consumption
million barrels per day



Components of annual change
million barrels per day



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, April 2025



	First generation	Second generation	Third generation
Simple description and yield /conversion levels	Existing refinery chemical integration sites, which could be up to 15-20% chemicals production maximum. Typically many refineries that are fuel oriented (<10%) and highly integrated existing sites would be towards the higher end of the range (15-20%)	The overall crude oil-to-chemicals configuration is at this generation geared towards chemicals optimisation or maximisation. Yield expectations could be up to 40% chemicals.	The overall crude oil-to-chemicals configuration is at this generation even further geared towards chemicals optimisation or maximisation, 70-80% target. Minimisation of fuels production is almost a criterion in this generation. This is a theoretical configuration currently as no existing assets or assets under construction can achieve this level.
Real world examples of generation type	Real world examples of highly integrated sites would be: Sinopec China TOTAL Antwerp BP Gelsenkirchen	Real world examples new complexes started up in Q1 2020 in China (e.g. Hengli & Zhejiang Petrochemical)	Planned Saudi Aramco initiatives – “thermal crude oil to chemicals”

February 2021



Petrochemical integration defines long term downstream winners and losers

H2 SOCIETY

„WINDRETTER“

- Only by stopped wind power stations we lost **5,5 Terrawatt Hours** clean energy. With this energy you could run:

1.044.000 Toyota Mirai with
an anual average mileage of 13.300 km


**wina
retter**
Für Speicher stimmen!

This equals a total distance of

13.900.000.000 km



