



**Rabobank**

# The End of an Era

## Energy Markets Update

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## Summary

- In August we lowered our Brent forecasts for Q4 2024 to \$82 from \$86. Additionally, we also moved our 2025 full-year forecast down to \$85/bbl from \$92/bbl as the market moved into balance from deficit according to our estimates.
- Recent confirmation of poor Chinese and US demand data and a looming glut of supply with a long-term demographic shift have caused us to revisit our models and forecasts: we now expect Brent to average \$71 in Q4 2024. Further out, we forecast 2025 prices to average \$70, 2026 to rise to \$72, and 2027 to trade around the \$75 mark.
- According to our sensitivity analysis, a half-million barrel per day oversupply implies a \$10 shift in Brent prices. Markets look to be oversupplied next year by about 700,000 barrels per day, which reflects the dramatic move in our forecasts.
- We still await the flattening and decline of US tight oil production in 2025 alongside Russian compensation cuts to inject some price appreciation later in the year and in 2026, but overall the market looks to be on a longer-term flat trajectory. Lower prices in the US will discourage new drilling.
- Geopolitical issues in the Middle East still support upward price risk in the long term.

## Crude Oil & Refined Products: Many Paths to Consider

The last three weeks have witnessed a dramatic sell-off in oil prices. The final trading day of August saw Brent close at \$78.80, and by September 10, Brent traded down to \$68.68! Prices have bounced since then, with current prices about ~\$74/bbl. A new yearly low is a huge marker for more downside to come, and we foresee that crude is likely to test the Fibonacci extension point at \$66.10 at some point this year. The main driver has been the news narrative of weaker-than-expected Chinese demand data, confirming that the world's largest crude importer was still mired in economic weakness filtering into the construction, shipping, and energy markets.

We wrote in our major oil report from August that:

*If crude retests the YTD low from the first week of January and breaks lower, we see \$70 to \$72 as the next point of resistance and imminent OPEC+ responses walking back the Q4 production returns. If demand continues at its current meager pace, then we will continue to see Brent trading in the \$70s until either demand picks up, US production flattens and declines, or Guyanese and Brazilian production is able to cause a surfeit.*

Crude's price action has since confirmed our statements, and the market remains at risk of a supply glut if OPEC+ proceeds with plans to return some of its sidelined production. For context, at the beginning of June, OPEC+ extended their current production cuts of 2.2m b/d until Q4 2024, when they expected to bring back about 180,000 b/d of crude supply in each month (Oct-Nov-Dec). Shortly after Brent traded below \$70, OPEC+ delayed the October and November supply hikes back into 2025.

So, for now, 2.2m b/d of OPEC+ supply still remains sidelined, and the December output is likely going to be reduced or pushed back. However, non-OPEC+ supply growth is expected to be about 700k b/d next year, with the US (by our forecasts) decreasing production down to 13.2m

b/d (-200k b/d), and gains coming mainly from Canada (+240k b/d), Guyana (+120k b/d) and Brazil (+400k b/d). We forecast that gasoline, diesel and jet fuels demand is going to total up to +430k b/d next year, marine fuels +100k b/d, and petrochemicals to 420k b/d for a total of .85m b/d of demand growth, leaving 150k b/d of imbalance. It would not take very much demand weakness to keep the market oversupplied, and OPEC still wants to bring back that sidelined supply!

**Figure 1: A new YTD low in Brent will likely shift prices into a new trading range with \$66 as our low floor and \$77 as the high; we forecast prices to average in low \$70s for the rest of the year and 2025**



Source: Bloomberg, RaboResearch GEM

Our call for US production growth to flatten is controversial, so let us outline our case for flattening (and later decreasing) US production, and why we expect it to begin in 2025. US oil well productivity (by estimated ultimate recovery, or EUR) has been declining for four straight years. Total US production is currently 13.3m b/d, of which ~9.2m b/d (70%) comes from the tight oil plays pioneered in the early 2010s. The Permian basin accounts for 6.2m b/d of production, and oil wells in the Permian are now producing 40% less oil over a theoretical 3-year EUR (estimated ultimate recovery) lifetime than they were pre-Pandemic! There are similar drops for the Bakken and Eagle Ford shale regions. The much-touted gains in efficiency the US has witnessed are merely a front-loading of production into the first six months, with sharp declines as the play matures. Think of the technological advancements as using a larger straw to drink a milkshake. The cup is the same size, you're just able to drink it faster! A bigger straw does not create additional oil.

To keep production constant as older wells drop off, either more drilling must occur, or drilled but uncompleted well inventories must be completed out. Yet rig counts are dropping from a peak in Q4 2022. Recent drilling rig counts show less than 500 active oil rigs according to the Baker Hughes survey. DUC backlogs are also down. It's the perfect confluence of factors all pointing one way. Current oil economics point toward the US as the last (large-scale) marginal producer, with most domestic break-evens below \$60/barrel WTI. This sets the stage for a repeat of 2014, where OPEC is losing market share, has 6m b/d of headline spare capacity (though likely less than this in actuality, especially in Saudi Arabia), and can force American barrels off the market with supply hikes.

This is how the stage is set for US production to flatten and decline. If prices drop further, then American drillers will be forced out, the decline in US production will pick up, which will help stabilize prices at lower levels, most likely in the high \$50s to low \$60s. But there still remains a much bigger fundamental shift.

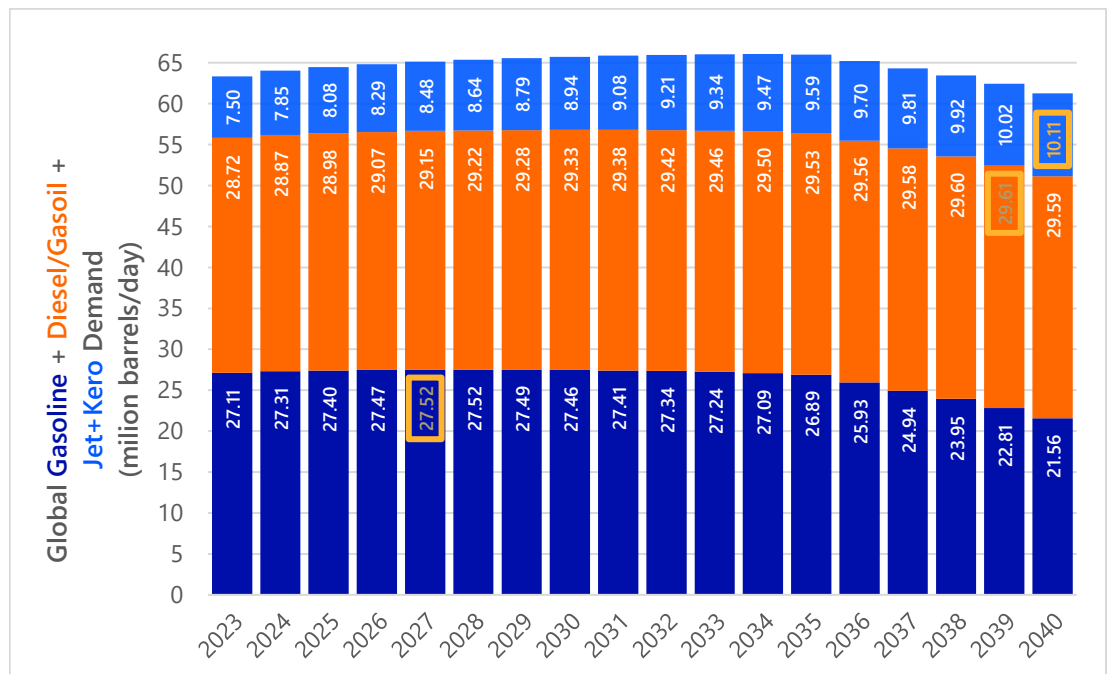
## The Revision: Population Trends Are Negative For Oil Growth

The recent drop in crude prices—driven by fears about Chinese demand growth and a weakening overall economy—has caused us to revisit our assumptions about the nature of growth going forward.

There is oil demand and oil demand *growth*. Oil demand growth usually tends to follow the rate of population growth, with a multiplicative factor for industrializing countries. China and India have generated the vast majority of oil demand growth over the last decade, while OECD countries made up the bulk of overall demand, but have experienced tepid growth in fuel markets and stronger demand growth from petrochemicals.

Where will the future growth of fuel demand come from? Globalization of trade and manufacturing accelerated crude oil usage in the 1980s. First Japan and South Korea, then China’s rapid ascents, and now India. India’s demand growth is still high comparatively, but a few years or perhaps a decade (for the most bullish) behind China in terms of demand maturity. **World gasoline and diesel consumption will continue to rise, but the rate of increase is slowing.**

**Figure 2: Global gasoline demand will peak in the next few years, but jet fuel and diesel usage will continue to increase. This divergence will cause a shift in crack spreads and refining profitability.**



Source: EIA, IEA, RaboResearch GEM

Nothing lasts forever, and we are headed into a new era. Simply put, China and India will not see the same fuel demand growth as witnessed in the past. Global population growth is expected to continue upward over the next 50 years, but the rate of population growth has fallen since 2014. China’s population is even shrinking. There simply are no countries on the scale of China and India regarding population and baseline development growth. Brazil and Indonesia are populous and developing into high-income industrialized countries, but they are far denser and more urbanized due to their respective geographic limitations. 87.8% of Brazilians live in urban areas, and 56% of Indonesians live on a single island, Java, that has nearly three times the population density of Honshū, the foremost island of Japan. Urban areas and density are huge limiting factors for transportation fuels, especially gasoline for private cars, and then on an absolute scale these countries are simply ~1/7th the population of India or China. The global economy has reached a level of industrial maturity in which there are still many regions where growth will remain strong and development is underway, but **the fact remains that the largest countries in the world are past the high-acceleration growth phase. Overall, world oil demand growth will shrink, flatten, then decline.**

A complimentary factor that financial news has latched onto is China's (and to an extent, Europe's) battery-electric vehicle sales. About 40% of new cars sold in China are BEVs or PHEVs, up from 35% last year. The total Chinese car market has BEVs and PHEVs representing 16% of all vehicles. European new car sales are also high, led by Germany at 30% of all vehicles (before subsidies expired in August 2024), an average of 20% across the region. The overall market share of BEVs and PHEVs in the EU plus the UK is about 14 to 15%.

**These are important numbers—BEVs and PHEVs are already driving down gasoline demand.**

Just last week, two smaller Chinese refineries declared bankruptcy off of weak margins.

About 45% of a refinery's output is gasoline (~20% in Europe), 25% is diesel (~40% in Europe), 9-10% is jet fuel and kerosene, and the last 15% (approximately) are heavy fuel oils (including bunker/marine fuels), naphthas, lubricants, waxes, NGLs, petrochemical feedstocks, asphalt, and miscellaneous products. Weak margins tend to imply weak gasoline crack spreads! Another note is that the majority of the oil demand growth of the last three years has come from the petrochemical and NGLs sectors. That last 15 to 20% of "other oil products" often have very low crack spreads or profitability, despite their widespread usefulness and centrality to the consumer and industrial economies.

These factors are the basis for our revisions downwards. Currently, we foresee several price path scenarios:

First, let us address the elephant in the room: the flow of oil through Strait of Hormuz remains the major point of significance in terms of geopolitics. About 17-20 million barrels per day of crude oil plus 3.5 billion cubic feet of natural gas, ~20% of world petroleum and gas shipments, travel through the narrows on tankers. According to the EIA and Vortexa, about 80% of the crude oil and condensates moving through the Strait head east to Asia, while about 11% of US petroleum imports originate from the region. The refiners and consumers in the US, China, India, Japan, and South Korea, along with the major oil trading hub of Singapore, all have a vested economic interest in keeping the trade lanes open. Any escalation of conflicts in the Middle East is allowed up to the big, red, dotted line of economic devastation (closure of the Strait). **The spice oil must flow.** Notice how the media has sidelined the Houthi attacks in the Bab el-Mandab strait; they are annoying to world trade but tolerable to the world powers; diverting vessels around the Cape of Good Hope just increases costs, nearly doubles the shipping time, and pushes up marine fuel usage – but it *doesn't impact the flow of oil*. Any attempt at a blockade of the Strait or Persian Gulf would have a cataclysmic effect on oil and LNG prices, and we secretly suspect that there are numerous agencies in consistent communication about that event. Risk premiums are a futile attempt by the market to gauge the probability of this risk. What's a few dollars, or even ten dollars per barrel against the risk of \$200 crude if 20% of world supply is removed, even temporarily? In this scenario, oversupply and demand matter little compared to the sheer amount of crude oil that is taken from the market. Whatever escalation happens between Israel, Hamas, Hezbollah and Iran is (*hopefully*) going to be contained with hard lines about the Strait of Hormuz by the dominant world economic powers. We as a species are staking that rationality wins out over ideology.

Second, the short-term demand vagaries of the economy and interest rates will only instigate noise in the next few quarters of oil and refined products prices. The US and China have both experienced weaker-than-average gasoline and diesel demand YTD. There's a reason we publish and forecast trading ranges here at Rabobank. Markets don't move in straight lines. Financial markets are notoriously given over to hype and despair. We estimate that Brent will likely trade between \$77 and \$66 for the rest of 2024, with the current hype cycle focusing on China's announcement of a round of economic stimulus plans to shore up the domestic real estate market. Markets have rallied since the September 10 lows, despite there being little substantial change in actual physical markets. The next downswing will likely center around OPEC returning supply in December.

Lower interest rates will spark some demand for the construction season in 2025, which is likely to elevate diesel crack spreads for next year. This plays into our next point: as the world embarks on an energy transition, gasoline markets will be hit harder than others, especially jet fuel and diesel. We've already talked about the rise of BEVs and PHEVs on gasoline demand, but there is not a similar effect for other refined products. There is a physical engineering problem to replacing diesel and jet fuel: energy density and storability. Battery weight makes it nearly impossible to power aircraft and is a huge limiting factor for long-haul trucking. Construction and agricultural equipment need to run constantly on heavy machinery for ten to twelve hours per day – something that current battery technology cannot perform. We expect diesel demand to continue growing slowly well into the late 2030s (Figure 2). If diesel and jet fuel demand are growing, but gasoline is declining, diesel crack spreads must rise relative to gasoline. This will support prices for the next decade, especially given the low global stockpiles of diesel inventories.

Furthermore, the growth of renewable and biodiesel will not save the day. Currently, about 495k b/d of global diesel demand are made from renewable and biodiesel, and if all current projects under construction & planning are finished by 2030, the total capacity will rise to 809k b/d of diesel out of a market using 29 million b/d. We see this as admirable in goal but negligible in scope concerning pricing for diesel, with a distorting effect on soybean and other food oil feedstocks.

In summary, we foresee Brent prices averaging \$70 in 2025, \$72.25 in 2026 and \$75 in 2027 off of these factors. Additionally, NY Harbor Diesel and ICE Gasoil prices will trade lower along with crude, but pick up in the late spring and onward as crack spreads remain elevated. A summary table of our forecasts and the current forward futures curves follows on the next page.

## Rabobank Energy Forecasts

Crude Oil		Q3 24	Q4 24	Q1 25	Q2 25	Q3 25	Q4 25
Brent	Forecast	\$77.93	\$71.00	\$68.00	\$71.00	\$69.50	\$70.50
	\$/BBL Forward	\$77.93	\$72.84	\$72.25	\$71.99	\$71.67	\$71.34
WTI	Forecast	\$75.20	\$68.00	\$64.50	\$67.00	\$65.50	\$66.25
	\$/BBL Forward	\$74.34	\$69.75	\$68.64	\$68.06	\$67.55	\$67.13
NY ULSD	Forecast	\$2.31	\$2.19	\$2.18	\$2.24	\$2.23	\$2.24
	\$/GAL Forward	\$2.28	\$2.18	\$2.18	\$2.18	\$2.20	\$2.22
Gulf Coast Diesel	Forecast	\$2.16	\$2.12	\$2.13	\$2.21	\$2.19	\$2.20
	\$/GAL Forward	\$2.12	\$2.11	\$2.14	\$2.14	\$2.17	\$2.18
DOE On-Highway Diesel	Forecast	\$3.65	\$3.64	\$3.65	\$3.72	\$3.71	\$3.71
	\$/GAL Forward	\$3.62	\$3.63	\$3.65	\$3.66	\$3.68	\$3.69
ICE Gasoil	Forecast	\$733	\$654	\$644	\$669	\$661	\$667
	\$/MT Forward	\$684	\$658	\$658	\$659	\$664	\$665
RBOB	Forecast	\$2.39	\$1.95	\$1.88	\$2.15	\$2.09	\$1.90
	\$/GAL Forward	\$2.24	\$1.96	\$2.01	\$2.12	\$2.02	\$1.87
Natural Gas		Q3 24	Q4 24	Q1 25	Q2 25	Q3 25	Q4 25
HH Natural Gas	Forecast	\$2.05	\$2.95	\$3.00	\$2.65	\$2.75	\$3.35
	\$/MMBtu Forward	\$2.07	\$2.99	\$2.97	\$3.01	\$3.21	\$3.85
TTF Natural Gas	Forecast	€ 36.0	€ 38.0	€ 41.0	€ 31.0	€ 29.0	€ 37.0
	€/MWh Forward	€ 35.4	€ 35.2	€ 35.3	€ 34.1	€ 34.2	€ 35.7
NBP Natural Gas	Forecast	88.34	97.80	105.94	75.64	71.60	99.01
	GBp/Therm Forward	84.01	88.80	89.38	83.09	84.43	93.71
JKM Natural Gas	Forecast	\$12.97	\$13.22	\$12.54	\$11.81	\$11.72	\$12.52
	\$/MMBtu Forward	\$13.00	\$13.26	\$12.52	\$12.17	\$12.18	\$13.02
Power		Q3 24	Q4 24	Q1 25	Q2 25	Q3 25	Q4 25
German Baseload Power	Forecast	€ 78	€ 86	€ 101	€ 66	€ 68	€ 93
	€/MWh Forward	€ 77	€ 79	€ 87	€ 72	€ 80	€ 90
Carbon		Q3 24	Q4 24	Q1 25	Q2 25	Q3 25	Q4 25
EUAs	Forecast	€ 69.5	€ 71.0	€ 80.0	€ 82.0	€ 90.5	€ 95.2
	€/MT Forward	€ 66.2	€ 62.8	€ 63.5	€ 64.1	€ 64.4	€ 65.0

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