

European oil refining: Capacity for future volatility



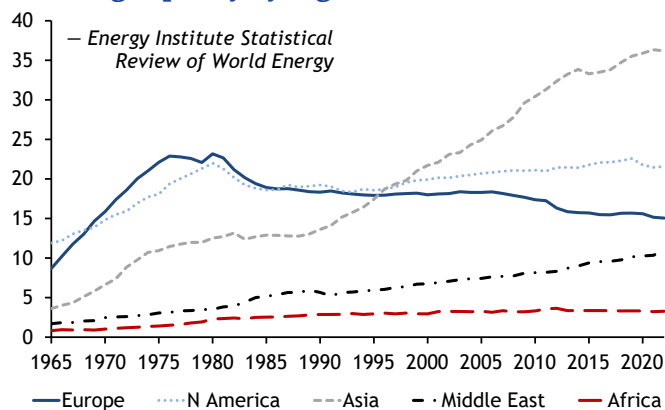
Cuts to European oil refining capacity are making product prices more volatile, but they are likely to continue

Introduction

Heavy cuts to European oil refinery capacity are raising the risk of volatility in refined product prices and margins against crude — but economics continue to turn against European refining, so more cuts are probably coming sooner or later.

Falling regional demand for refined products has combined with rising costs to close 34 of the 109 non-speciality oil refineries that operated in Europe in 2000, with only one new start-up. Italy and France have led the way with six closures each, followed by the UK with five. On the other hand, Germany has only closed three and Spain has only closed one. The Energy Institute's *Statistical Review of World Energy* finds that European refinery capacity has shrunk by more than 15pc since 2000 (see graph below). That compares with growth of 50pc or more in the Middle East and Asia-Pacific during the same period.

Refining capacity by region mn b/d



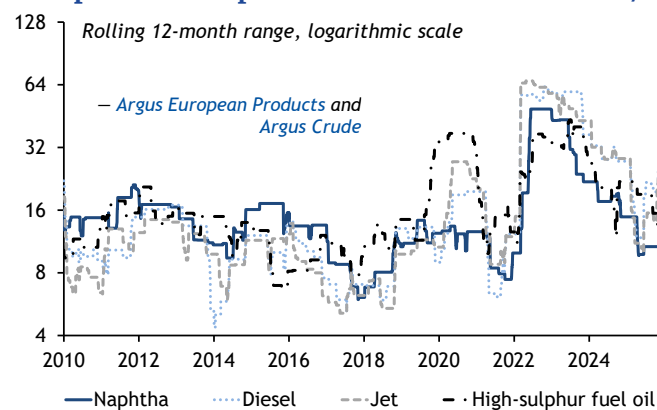
Closures have allowed Europe's remaining refineries to stay profitable, helping product margins against crude to keep up with rising costs despite falling regional demand. But after a cluster of rapid closures of the kind seen since 2020, the market has been robbed of the blanket of spare capacity that once absorbed supply or demand shocks. In 2025, such shocks have made European product prices and their margins against crude rise high and fast — and the market will carry the same vulnerability into 2026.

Spikes in product prices have grown larger and more frequent

Shocks such as Covid lockdowns and Europe's exclusion of most Russian crude and refined products have generated volatility in European product prices and their margins against crude in recent years. But that volatility has been greater and lasted longer in the absence of the spare refinery capacity that would once have helped cushion the blow. Experienced market participants now talk about a "vertical supply curve" for products refined in Europe, meaning prices respond strongly to changing demand because the volume of supply cannot respond. Oil products prices are starting to behave more like those for natural gas or even electricity.

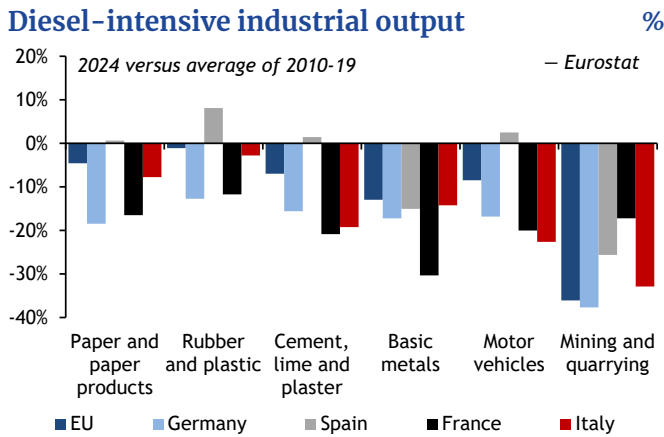
Since 2022, the rolling 12-month range for each key European product's margin against North Sea Dated crude has never fallen below around \$10/bl, whereas before the pandemic it was often well below \$10/bl and sometimes below \$5/bl (see graph below; note gasoline is excluded because strong seasonality has always led to wide ranges).

European crack spreads \$/bl



Why has European refinery capacity been cut so heavily?

European demand for refined products has been shrinking for the past two decades. This is mainly because of industrial relocation towards lower-cost settings, such as east Asia. Most heavy industries are major diesel



consumers, because diesel-fuelled trucks move around their inputs and intermediate products. The petrochemical industry not only uses diesel-fuelled trucks, but uses naphtha and liquefied petroleum gas (LPG) as inputs. So the exodus of these industries from Europe has heavily reduced the region's consumption of diesel, naphtha and LPG (see graph above).

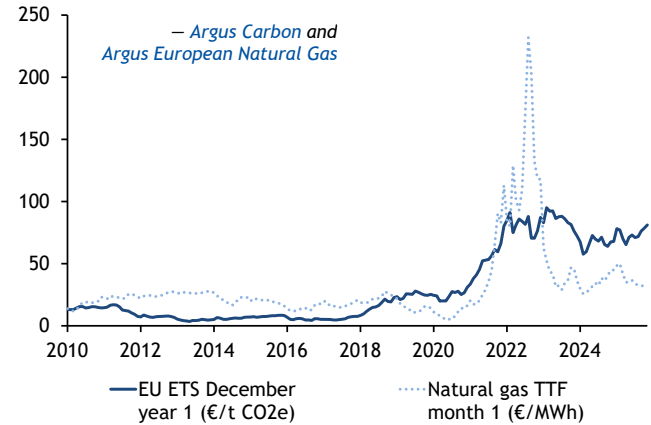
Less clear is the impact of the electrification of the car fleet and the adoption of hybrid engines. Early this century, European households switched heavily from gasoline cars to diesel vehicles. Then in the past decade, northwest European households have widely switched their diesel cars back to gasoline, and to gasoline-hybrid and electric cars. Fuel consumption data showed a switch from gasoline to diesel, then back to gasoline. But these consumer choices are not yet playing a leading role in reducing regional fuel demand. The switch towards gasoline-hybrid and electric cars is local to northwest Europe, and partly balanced by growing numbers of conventional diesel and gasoline cars in southern and eastern Europe.

Apart from crude oil, refinery costs include energy, staff, maintenance, carbon allowances and non-oil chemical inputs such as catalysts. Most of these have become far more expensive in Europe in the past two decades and especially since Covid.

Energy used at European refineries is mostly generated by burning natural gas, largely in on-site furnaces to heat crude oil in the distillation process. In the past two years, European natural gas has become two or three times more expensive than it was before Covid, because most of Europe's gas imports from Russia have stopped since 2022 (see Chart 4).

EU and UK policy makers have instituted carbon emissions trading schemes (ETS) designed to discourage carbon-emitting activity by imposing a steadily rising cost on carbon over time (see graph above, right). If the EU applies its Carbon Border Adjustment Mechanism (CBAM) to oil in the future, it could impose equivalent emissions penalties on imported oil

EU emission allowances and natural gas costs



products, lending some competitive support to Europe's refineries. But CBAM will not apply to oil when it takes effect on 1 January, and there is no agreed timeline for its extension.

While harder to quantify, western European refiners describe a shortage of suitable skills in the labour force — meaning it costs more time and effort as well as money to hire staff to operate a refinery, or to conduct necessary maintenance. New private-sector and state investment has shifted towards renewable projects, away from fossil energy, discouraging young people from training in fossil fields and leaving too few new recruits to replace retiring experts.

Which capacity has been cut?

Smaller, less complex European refineries have closed most frequently since 2000 — and especially those inland, in countries that net-export oil products (see table, p3). Meanwhile, refineries that have become the sole operating facility in their countries have closed least frequently, along with those in landlocked countries that net-import products.

Argus has categorised the 109 refineries operating in 2000 according to a list of conditions that may be challenging or advantageous. The table on p3 shows the proportion of each category that has closed since 2000, compared with the proportion of the complete set.

In three categories, not only did the number of refineries to have closed since 2000 exceed the average for the period, but actually more than half of them shut:

- lack of complexity: defined as having no hydrocracker, nor fluid catalytic cracker (FCC)
- lack of scale: defined as nameplate capacity lower than 100,000 b/d of crude
- inland location, in countries that net-exported oil products (using 2005 IEA data as a yardstick for the trade balance).

There are no refineries still operating in all three of these categories at once. There are nine left in two of these categories at once. There are 10 left in the first category, 17 in the second category and five in the third category.

Those that have continued operating in these categories may have done so because they have other characteristics ensuring their financial resilience. For example, a government and electorate may regard the only refinery still operating within their borders as strategically important and award it state support to ensure it does not close. This may explain why far fewer-than-average refineries have closed in that category since 2000. Out of eight refineries that were sole operators in their country in 2000, only one has closed. Varo's Cressier refinery is a telling example: it falls into some categories in which more-than-average have closed, but it is the only refinery left in Switzerland, which is landlocked and net-imports oil products. The refinery continues to operate.

Note that this analysis includes the EU, the UK, Turkey, Norway, Switzerland and Serbia, but not Ukraine, Belarus or Moldova. Also this analysis excludes speciality — mostly, bitumen-focused — refineries because their exposure to refined product prices is very different and a far smaller percentage of them have closed permanently.

Refinery ownership is changing

As this industry struggles with challenging trends in demand and costs — as well as rapidly changing regulation for both

Companies selling and buying European refineries since 2000			
	Sold	Bought	Of those bought, closed
Publicly listed	34	12	5
Private	10	28	7
State	4	4	1

According to majority ownership type, or plurality where there is no majority

Note that some transactions are double-counted because of joint ventures

— Argus

geopolitical and environmental reasons — private, independent companies appear to find a distinct advantage compared with publicly listed, integrated companies such as the traditional oil majors. This advantage may derive from flexibility, as their directors do not need to convince shareholders on strategy in public forums. In particular, private companies usually avoid the environmental pressure that some public companies experience from activist shareholders. Meanwhile, integration with crude production may have lost some of its advantages because European crude production has declined in the past two decades.

On a net basis since 2000, roughly 20 or one-in-five European refineries have changed from an owner with publicly traded shares to a private owner. The data higher in this paper illustrates that changing ownership has not been associated with survival: on the contrary, these refineries have closed somewhat more frequently than average. Not being obliged to discuss their plans publicly, private companies may be able to close refineries more quickly or

European non-speciality refineries, by category and frequency of permanent closure since 2000

Explanation		Sites open in 2000	Sites closed 2000-25	% closed
Total		109	34	31%
Categories in which at least 50% of refineries have closed since 2000				
Inland, in a product-exporter	Located inland, in a country that net-exported refined products in 2005, by IEA data	12	7	58%
Lack of complexity	No hydrocracker, no FCC	21	11	52%
Lack of scale	Less than 100,000 b/d total CDU capacity	34	17	50%
Categories in which more than average but less than 50% have closed since 2000				
Built in 1960 or earlier	Key units still in use built in 1960 or earlier	40	16	40%
In a product-exporter	Located in a country that net-exported refined products in 2005, by IEA data	54	21	39%
Changed ownership	Significant share of equity changed hands in 2000 or later	38	14	37%
High cost of labour	In a country where nominal average wages were above EU average in 2000	71	26	37%
Categories in which less than average have closed since 2000				
In a landlocked country	Located in a country with no coastline	10	3	30%
Coastal	Located at a sea port	79	23	29%
Strategically important in a landlocked country	The only refinery in a landlocked country in 2000	4	1	25%
Strategically important	The only refinery in its country in 2000	8	1	13%
In a landlocked product-importer	Located in a country with no coastline, which net imports oil products	4	0	0%

— Argus Media, Oxford Economics, IEA

cheaply than publicly listed companies. Indeed, this may sometimes be part of a private company's calculation when buying a refinery.

Recent examples of private companies acquiring refineries from publicly traded companies include Trafigura and Entara acquiring France's Fos refinery from ExxonMobil, Prax buying the UK's Lindsey refinery from TotalEnergies, and Crossbridge acquiring Denmark's Fredericia refinery from Shell.

Sooner or later, Europe is likely to close more refineries

Some conditions make permanent European refinery closures less likely in the short term — there may be no closures in the coming year. First, strong product margins against crude in late 2025 may have allowed refiners to lock in more rewarding prices in long-term contracts for 2026. Second, paper markets have been promising relatively strong margins in 2026 and market participants say refiners have been unusually active hedging their margins as a result. Third, the IEA's recent reports have partly pulled back from the bearish demand forecasts of earlier editions. But the fundamental trends that led to the closures of recent years are still in progress and likely to lead to more closures, sooner or later.

EU and UK policy makers are planning more environmental measures, which tend to reduce fossil fuel demand and raise refinery costs. Policy makers are engaged in rolling debates on their future environmental strategies. They are a long way from consensus on how quickly and how firmly to push climate goals and they regularly change their plans.

Plans have evolved significantly even in recent weeks. For example, the European Parliament's environment committee moved in November to postpone the extension of the EU ETS to road transport — for another year until 2028. And Germany had drafted a plan that would have applied greenhouse gas reduction quotas to marine and aviation fuels — but in November re-drafted to exclude them.

Despite the uncertainty, it is clear that more green measures will come into effect in Europe in the coming years and will generally reduce fossil fuel demand while increasing costs for refineries.

Quotas for renewable content in and greenhouse gas reduction from transport fuels are planned to rise, discouraging the use of fossil-fuel oil products in these markets. For example, France announced in October that it plans to increase its renewable blending mandate for diesel by 0.9 percentage points to 10.5pc in 2026. Italy has announced that it will require 7pc blended biodiesel at 30pc or more of each company's distribution sites. Germany's

implementation of the EU's latest Renewable Energy Directive (RED III) is expected to rule out double-counting of low-carbon fuels towards greenhouse gas emission reduction quotas from 2026. *Argus* expects that change will transfer more than 1mn t of German fossil fuel road fuel demand to renewable substitutes for 2026, especially affecting diesel.

The EU CBAM will apply from 2026 to imports from oil-consuming industries including cement, aluminium, fertilisers, iron and steel (as well as hydrogen and electricity). This could lend competitive support to these industries in Europe, encouraging their oil consumption. But CBAM will also add to the cost of imported cement, fertilisers and metals used by other oil-consuming industries in Europe. The balance of these effects on total industrial oil consumption in Europe is not yet clear.

ETS carbon allowances in the EU and UK have added an entire distinct cost to refinery profit-and-loss accounts, which refineries in other regions do not face when producing products for export to Europe. The cost of these allowances could rise in the coming years, as it has in recent years. But more importantly, the number of allowances allocated to refineries for free is planned to shrink over the coming decade, compelling refineries to buy more allowances to cover their emissions.

Meanwhile, environmentally motivated tightening of fuel specifications in the EU and UK adds costs by forcing refineries to invest in new equipment or adapt their logistics to comply. In the 2000s, European refineries needed to invest heavily in desulphurisation units to adapt to tighter rules on fuel sulphur content. Before it closed its refinery at Mersin in Turkey in 2004, BP specifically highlighted the prohibitive cost of upgrading the site to comply with new EU fuel standards.

More recently, the Netherlands and Belgium have banned the export of fuels that do not comply with their domestic specifications. The resulting adjustment of supply chains is likely to have raised costs for European gasoline exporters in particular. For instance, higher-sulphur gasoline is now sometimes blended for export in tanks at Barcelona instead of in the Netherlands and Belgium. But all the components need to be shipped to Barcelona before that can happen, because there is no refinery there.

Sanctions on Russian oil have strengthened refinery economics

Each year since 2022, European policy makers have banned more Russian commodities and sanctioned more Russian companies. January 2026 will bring the second-strongest EU oil sanction so far — a ban on refined products made from Russian crude in third countries.

These sanctions have shut out the Russian crude and gas that European refineries once used as well as the products with which they competed, with the net result seemingly supportive for European refinery economics. Some of the increase in refined product margins against crude has been lost between the top and bottom lines of European refinery accounts, covering increased costs such as those for gas. But some has made it down to their bottom lines — especially during the frequent spikes in product margins, now so easily sparked by market disruption. Indeed, sanctions have supported European refinery economics from 2022 enough to suspend the trend of capacity closures for two years.

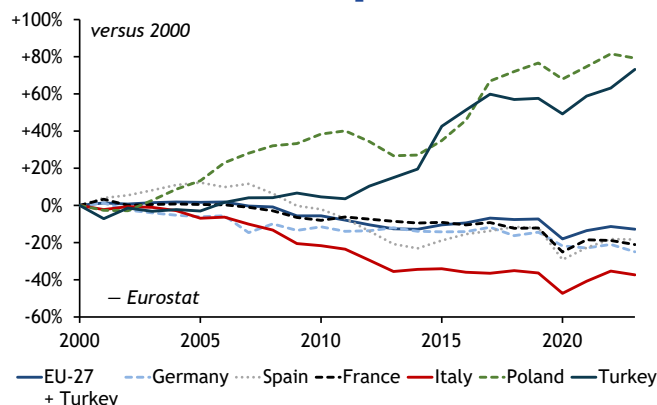
But in the more distant future, if the geopolitical situation evolves, Europe could reconcile with Russia. That country's refineries have invested heavily in upgrades and expansions, completing some projects even during the past few years. In volume, Russia's diesel exports by sea exceed the EU's diesel imports by sea, meaning the latter would be swamped with additional supply if restrictions were lifted. If forced to compete again with Russian refineries, a fresh swathe of European refineries could be quickly driven out of operation.

Small possibility of Europe's demand trends tilting to net growth

Today demand decline in northwest Europe outweighs growth in demand in southern and eastern Europe — in countries such as Poland and Turkey (see graph above). This is because heavy industries are contracting in northwest Europe and consumers there are most likely to choose hybrids and electric cars.

While highly uncertain, it is possible to imagine the balance tipping towards net regional growth. If the contraction in the west and growth in the east were to continue at roughly constant percentage rates, the balance would tip in the coming years and Europe would return to overall growth in oil product demand. Or German and French demand could plateau, while Polish and Turkish growth could accelerate, with a similar result. In that scenario, northwest European

Domestic deliveries of oil products



refineries could find improved margins exporting to Poland, which they do already to some extent. Meanwhile, Mediterranean refineries could find improved margins in the space left by tightening Turkish exports. Any of these scenarios would support regional refining margins and could postpone or avert capacity cuts.

Conclusions

The price disturbances of recent years in European refined oil product markets have been made larger and more frequent by the way refiners have been closing their least-efficient and least-utilised capacity so far this century. The spare capacity that could once have been brought on line to absorb demand and supply shocks has mostly disappeared.

Temporary calm could be coming. If refiners have locked in rewarding differentials for long-term 2026 contracts and hedged their exposure to benchmarks at the strong levels recently on offer, they may be unusually confident today. If they all keep operating in the short term in the face of challenging fundamentals, that could temporarily stabilise prices and margins. But the challenge of those fundamentals is likely to grow until it overwhelms the industry's financial stragglers and closes them down. Fresh volatility is waiting to break out in European product markets when it does.

This paper draws on insights from the team behind **Argus European Products**, the leading source for prices and analysis of key petroleum products, including the benchmark for northwest European gasoline.

[See details here](#) 

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