S&P Global
Commodity Insights

Europe, CIS & Africa NGL Market Outlook

Annual Strategic Workbook 2025

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Europe: Key insights

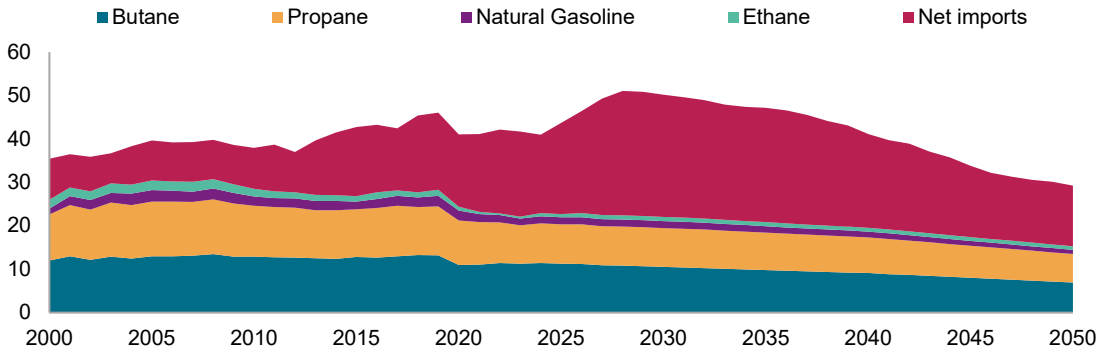
- Our 2025 Annual Strategic Workbook reflects the realities of a changing economic and policy landscape across Europe, CIS, and Africa.
- From a supply perspective, our expectation for European NGL production is higher than last year's because of a higher expectation for LPG from refineries and slightly higher North Sea natural gas production.
- In the coming years, European refinery output will decrease along with crude runs, driven by demand erosion, growing compliance costs, and competitive forces in import/export markets.
  - Going forward, the industry will have to adapt by adopting capacity cuts (rationalization), biofuels conversions, petchem integration, hydrogen and e-fuels technology, and/or carbon capture.
- LPG supply from natural gas, which is a smaller portion of the overall supply, has declined less over the past year than previously expected. The long-term trajectory is expected to remain on a similar decline as last year's estimates. We believe this trend will continue, although its decline will be faster than for refineries.
- The war in Ukraine fundamentally changed the LPG supply landscape in Europe, but the biggest step change occurred in 2025 when EU sanctions banned LPG imports.
  - Small volumes of butane continued to flow to Eastern Europe (e.g., Poland, Bulgaria). The 19th package of sanctions effectively banned those as well.
  - Other suppliers, particularly the United States and the North Sea, have been covering most of the decline in Russian LPG imports.
  - Eastern European LPG prices are shifting from Brest to a methodology based on waterborne and overland imports from other regions.
- We now believe bio-LPG production is expected to be lower in Europe than in our previous outlook, as weak demand for biofuels impacts new capacity additions.

Europe: Key insights (continued)

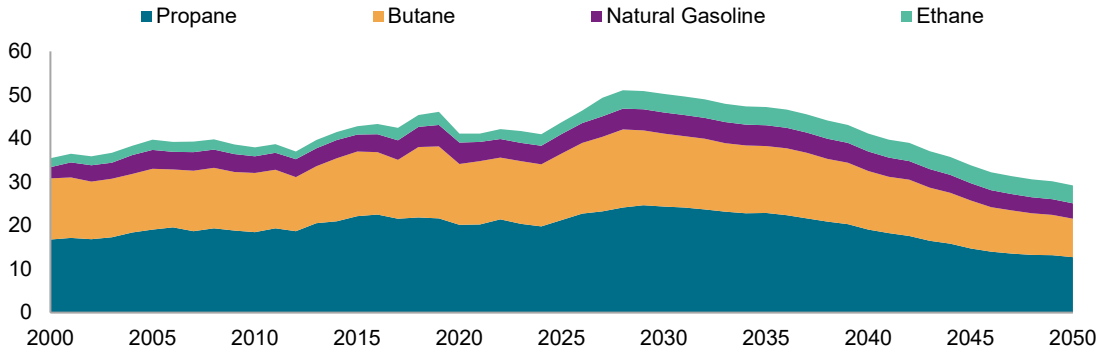
- Global weakness in the petrochemical industry continues. We now expect slightly lower demand through 2030 compared to last year's outlook, before starting a recovery around 2030.
- Ethane feedstock from the US, on the other hand, has been advantaged relative to all other feedstocks and has thus seen strong demand. Our current outlook is for a further increase in ethane demand in Europe through the forecast period. The largest increase in demand is expected to come from INEOS' Project One cracker in Belgium.
- The availability of competitive LPG in global markets (primarily from the US) will allow up to 6 million tons of incremental demand in Europe.
  - This year's outlook for European price-sensitive demand is slightly lower than last year's forecast, as some of this demand has been moved to other regions, primarily mainland China.
  - While we assume that this will be consumed in price-sensitive chemical demand, it is possible that this demand flows into other segments, such as residential and commercial, engine fuel, industrial, or refineries.
  - The expected increase in global oil and gas production is expected to incentivize further consumption of LPG between 2025 and 2040 in European countries that have the ability to absorb it, namely: Belgium, Finland, France, the Netherlands, Sweden, and the United Kingdom.
- Europe is expected to see an increased need for imports in the long term, albeit lower than in our previous outlook.
- In the medium term, we expect Autogas demand to remain relatively flat ahead of the Fit for 55 regulation.
  - Since most Autogas-powered vehicles are conversions, the impact of a ban on new ICE vehicles would be limited.
  - As the policy environment changes, it is likely that there will be a delay in the implementation of an ICE vehicle ban.
- We expect LPG competitiveness relative to natural gas in refineries to dissipate in the medium term, as natural gas prices are expected to remain weak with new LNG supply. However, this sector is expected to remain a small portion of overall demand.

Europe: NGL supply and demand

Europe NGL supply by product (million metric tons)



Europe NGL demand by product (million metric tons)

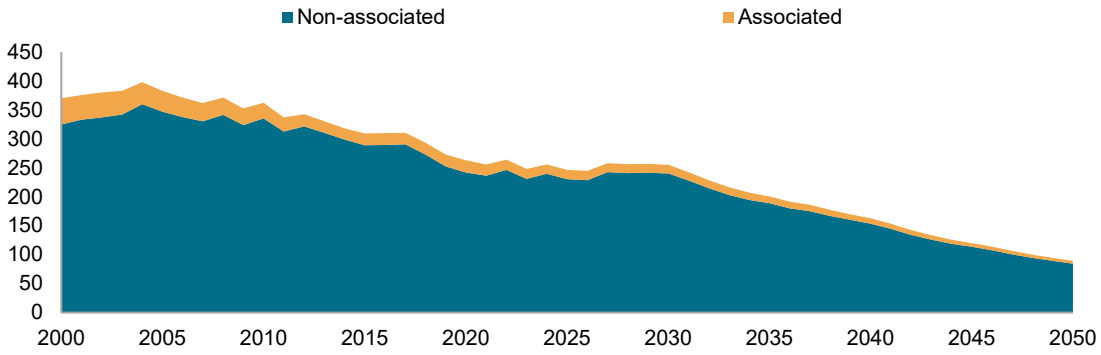


- NGL production in Europe has peaked and is not expected to reach those levels again. Natural gas production and refinery runs are both expected to continue on a long-term decline.
- NGL imports have increased since 2010, and imports will remain high, varying mainly with the amount of price-sensitive chemical demand that needs to be absorbed in Europe to close global balances. Total imports are expected to decline more rapidly after 2040, as LPG supply peaks and less price-sensitive cracking becomes necessary.
- Ethane imports began in 2016, and their availability more than offset production declines in the North Sea and even allowed some idled ethylene capacity to restart.
- Overall, NGL growth in consumption will be modest, although we expect a period of increased chemical feedstock demand between 2025 and 2035. Consumption declines are expected to set in after the mid-2030s.

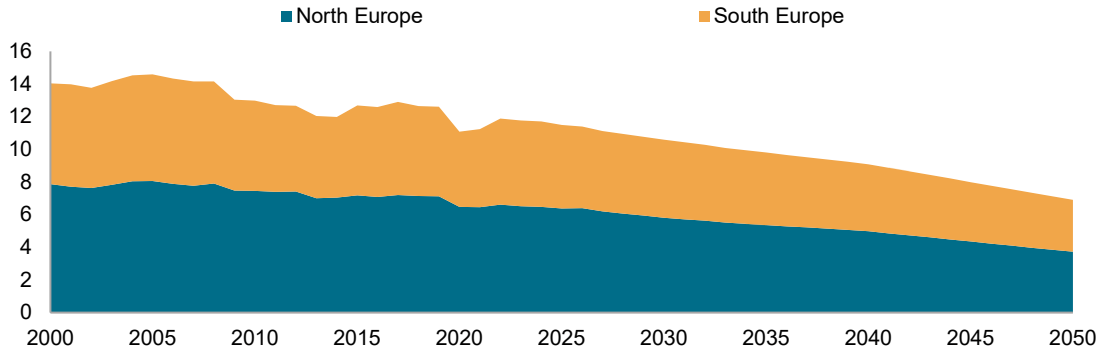
Data compiled September 2025.
Source: S&P Global Commodity Insights.

Europe: Natural gas production and refinery runs

Europe natural gas production by type (billion cubic meters)



Europe crude refinery runs by region (thousand barrels per day)

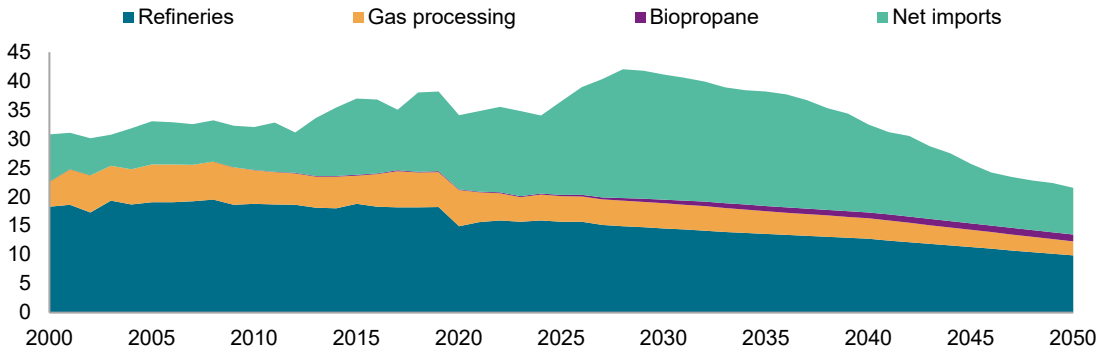


Data compiled September 2025.
Source: S&P Global Commodity Insights.

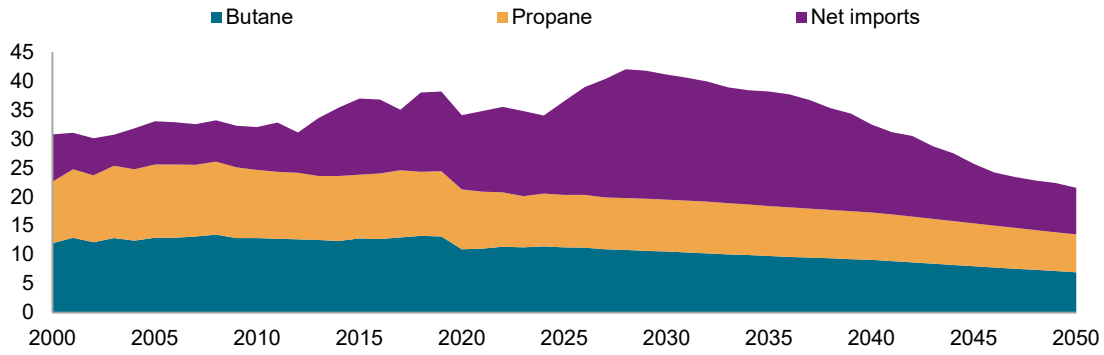
- Most LPG in Europe is recovered from non-associated gas in the North Sea (Norway and the United Kingdom).
- Total natural gas production is expected to remain relatively flat through 2030, before starting to decline.
  - Natural gas production peaked at about 400 Bcm in 2004 but declined steadily through 2019.
  - Production increased slightly in 2020-2021 as a series of new fields were brought online, particularly in the Norwegian offshore sector, which offset declines in older fields.
- Natural gas associated with crude oil production has also peaked, so as crude oil production continues to decline, associated gas production will also decline.
  - Developments such as Phase 2 of the Johan Sverdrup field in Norway have allowed sustaining gas production, but the impact on NGL production is minimal. The region will continue its long-term decline.
- Refinery crude oil runs peaked in 2005 and have declined since then.
  - The decline in refinery LPG production has slowed down since the start of the war in Ukraine, as European refineries aimed to produce more fuels (e.g., gasoline, jet) to make up for the loss of Russian refined products, thereby producing more naphtha and LPG.
  - This led to temporarily positive margins in 2023, before returning to negative territory in 2024.
    - Our view on net refinery margins is slightly less pessimistic in the near term than in our previous outlook – in fact, we expect a short period of positive margins in 2029-2031.
    - However, we still expect the industry to be in negative margin territory between 2032 and 2050.
  - Refinery LPG production will mostly follow the track of our 2023 ASW, though at a slightly lower level.

Europe: LPG supply

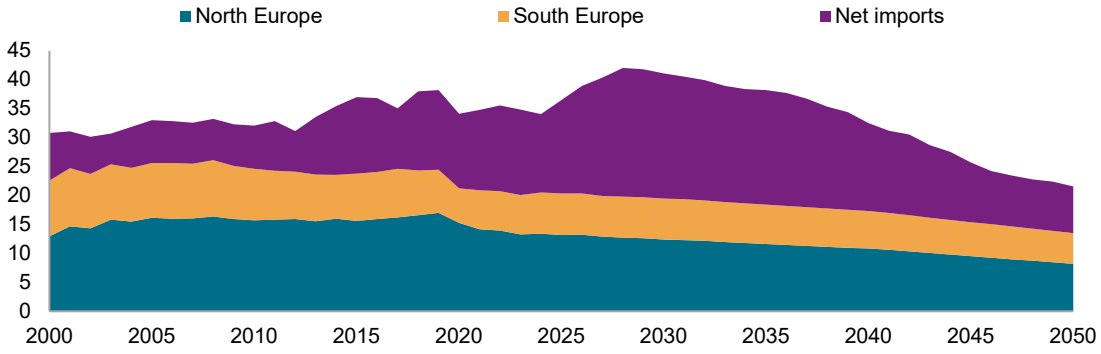
Europe LPG supply by source (million metric tons)



Europe LPG supply by product (million metric tons)



Europe LPG supply by region (million metric tons)

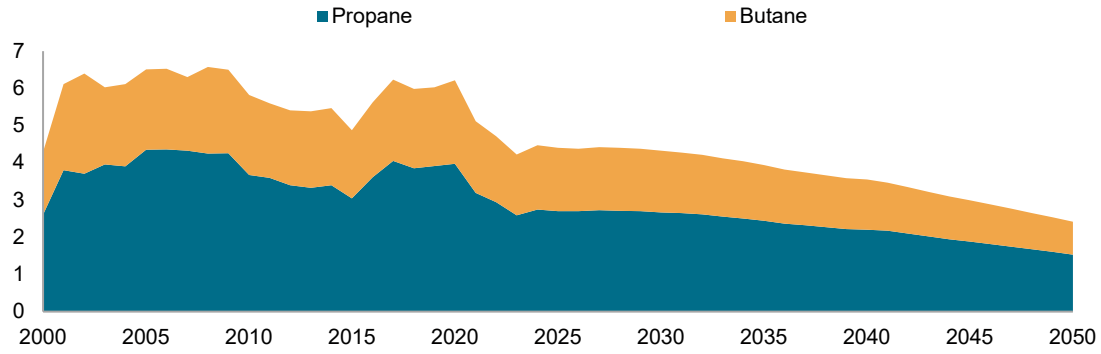


- LPG production from gas plants has declined since 2009 and will continue to slowly decline over the forecast period.
- LPG from refineries was down significantly in 2020 due to lower crude runs during the pandemic. Refinery runs have continued to decline since 2022 as demand erosion, growing compliance costs, and competitive forces in the import/export markets erode margins.

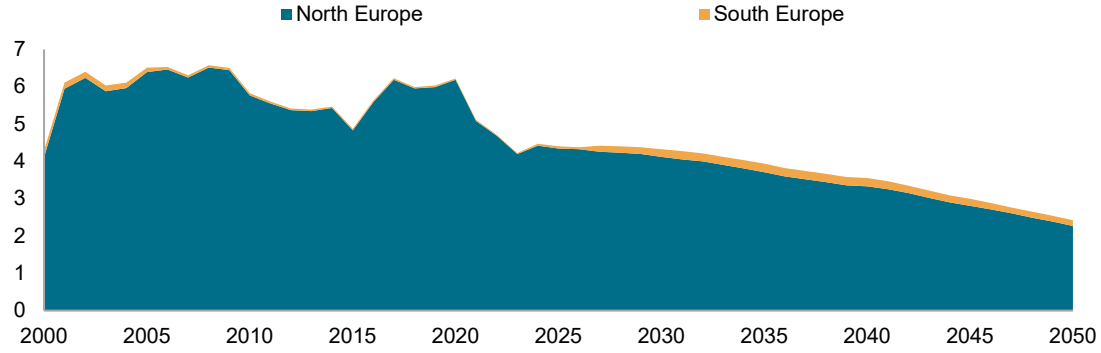
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Europe: LPG production from gas processing

Europe LPG production from gas processing by product (million metric tons)



Europe LPG production from gas processing by region (million metric tons)

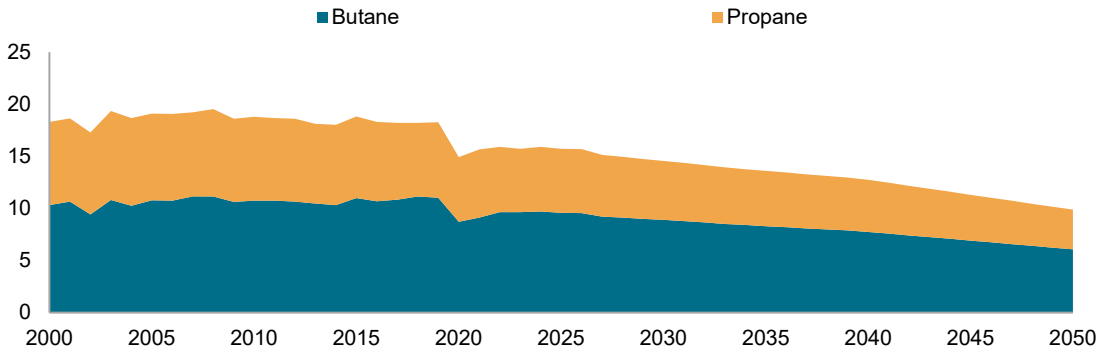


- LPG production from gas processing will continue to decline along with oil and gas production.
- About 65% of the LPG produced from gas processing is propane.
- LPG is not produced from gas processing in South Europe since very little gas is produced, and it is dry.
- Turkey's LPG supply from natural gas is expected to increase with new field development.

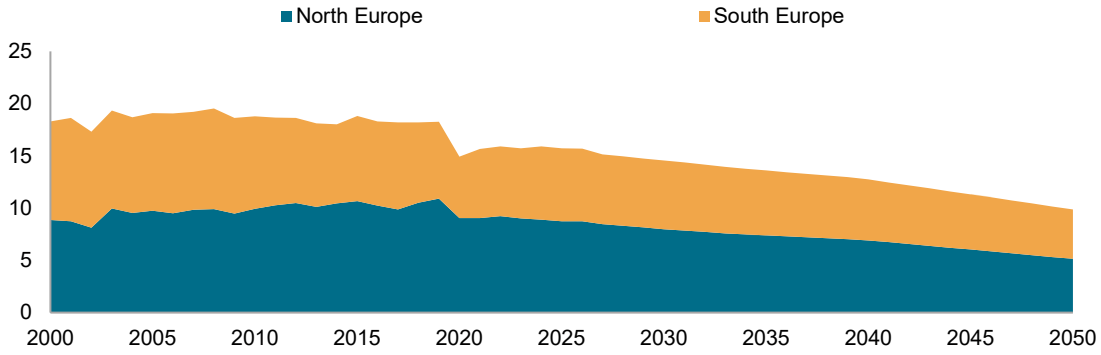
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Europe: LPG production from refineries

Europe LPG production from refineries by product (million metric tons)



Europe LPG production from refineries by region (million metric tons)

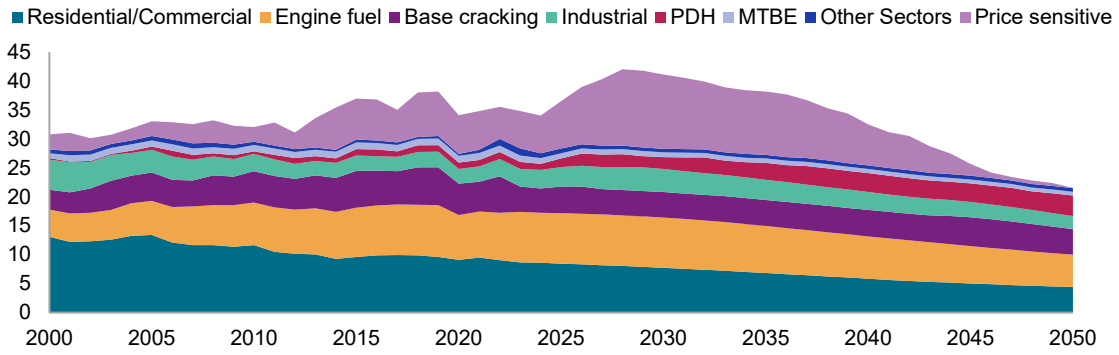


Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

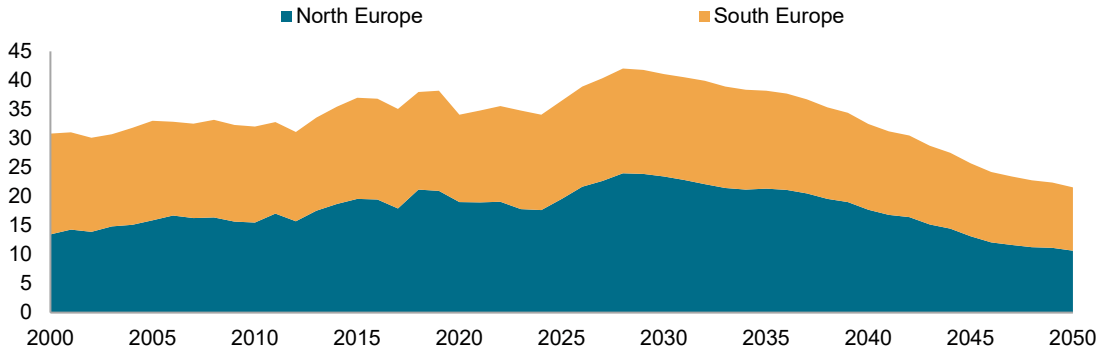
- In 2021, LPG recovered from refineries, rebounded from low levels reached in 2020 during the depths of the COVID-19 pandemic. However, in 2025, declines will resume and continue in the long term as falling product demand results in lower crude oil production.
- Butane accounts for about 60% of the LPG recovered from refineries as reduced gasoline production frees up butane.
- LPG recovery from refineries is slightly higher in North Europe, but the LPG recovered from refineries in South Europe accounts for all the LPG produced in South Europe.
- The European refinery industry faces significant challenges due to political fragmentation, rising costs, and a moderate appetite for climate action, leading to a projected decline in refined product demand by nearly 6 million b/d by 2050.
  - The economic forecast anticipates a GDP growth of 1.45% through 2050, with ongoing tensions with Russia and increased competition from new refineries impacting the market dynamics.
  - Despite a decline in traditional fuels, certain sectors like gasoline and jet fuel are expected to show resilience.
  - However, the overall demand for refined products is projected to drop sharply post-2030, with significant declines in gasoils and gasoline.
  - The shift towards electrification and biofuels is anticipated, but compliance with decarbonization targets remains uncertain.
- European refineries are likely to undergo substantial rationalization, with an estimated closure of 5.5 million b/d of capacity by 2050.
  - Investment is shifting towards decarbonization and petrochemical integration, with a focus on maximizing naphtha production.
  - The industry is also expected to become a net exporter of diesel by the mid-2030s, as domestic demand declines and competition for market share intensifies.

Europe: LPG demand

Europe LPG demand by sector (million metric tons)



Europe LPG demand by region (million metric tons)

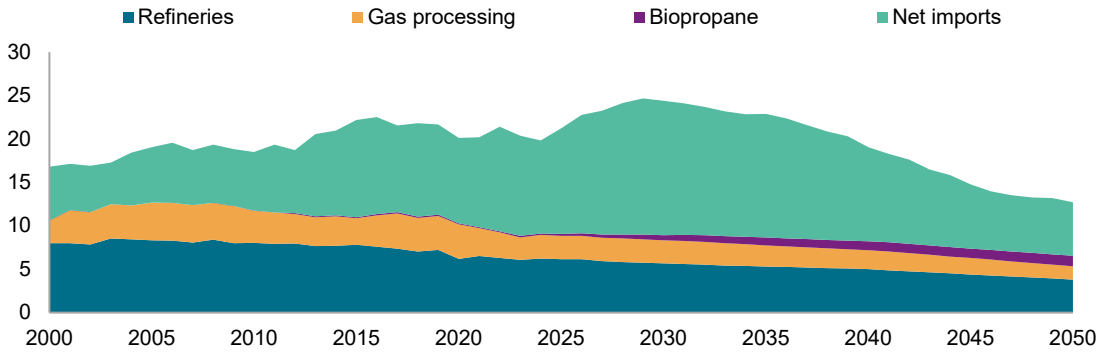


Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

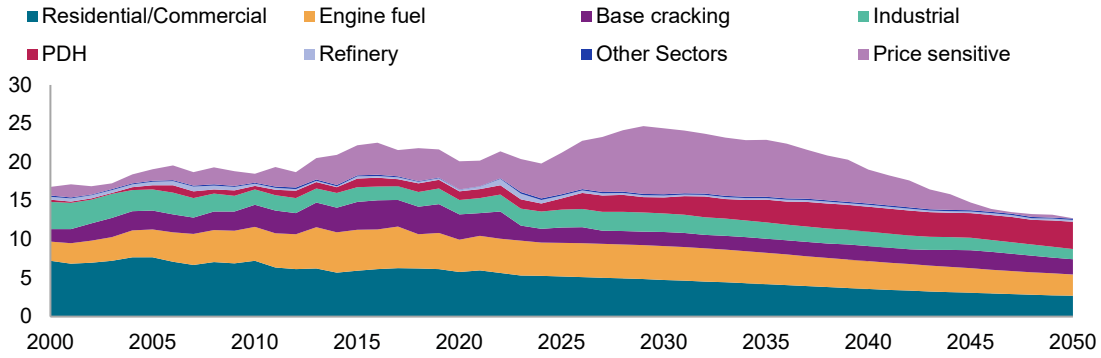
- In Europe, LPG is widely used, with the residential and commercial sectors consuming about one-quarter of the total demand.
- However, this demand is declining as natural gas and electricity become preferred heating and cooking fuels, a trend that will accelerate due to climate change policies.
- While LPG consumption may not vanish entirely, especially in rural areas where alternatives are limited, declines are expected across all fuel sectors, including Autogas.
  - Despite losing policy support, Autogas will persist, as many will continue using their internal combustion engine (ICE) vehicles for longer.
  - Compared to our 2024 ASW, we expect Autogas demand to remain flat through the early 2030s, influenced by potential delays in the Fit for 55 implementation and a longer lifespan for LPG vehicles.
- Most olefins production in Europe is naphtha-based, but there is flexibility to utilize LPG as an alternate feedstock, with expected increases in price-sensitive cracking in the near term.
- By 2035, we anticipate tightening LPG markets and a shift to less price-sensitive demand, with residential, commercial, and refinery sectors potentially absorbing the additional supply.
- LPG use is balanced between Northern and Southern Europe, and this distribution is expected to continue.
- Meanwhile, industrial demand is showing a consistent decline compared to 2024.

Europe: Propane supply and demand

Europe propane supply by source (million metric tons)



Europe propane demand by sector (million metric tons)

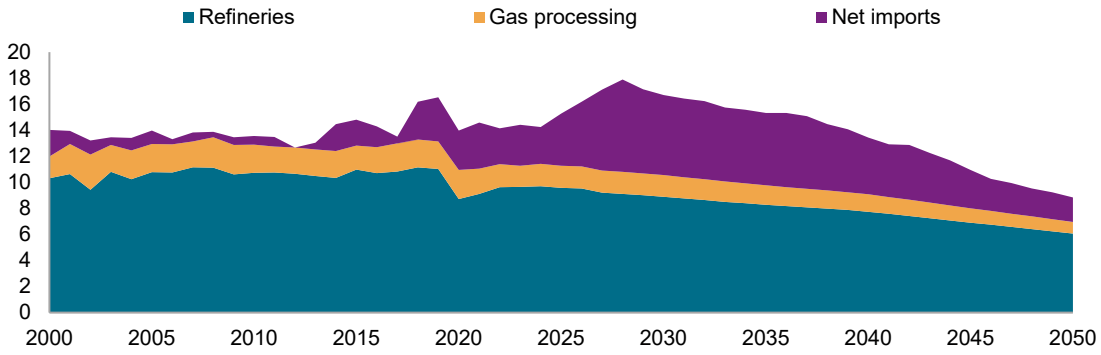


- Propane production from refineries accounts for nearly twice as much as from gas processing, but both will decline in the long term.
- With domestic propane production in decline, imports will account for over half of the propane supply.
- Europe added the PDH Polska propane dehydrogenation (PDH) plant in 2023, driving base chemical demand for propane higher through the forecast period.
- Demand for propane will also be supported with a hypothetical PDH capacity addition in 20235 in Poland.
- Consumption in other sectors will continue to decline as propane loses market share to natural gas, electricity, and renewables.

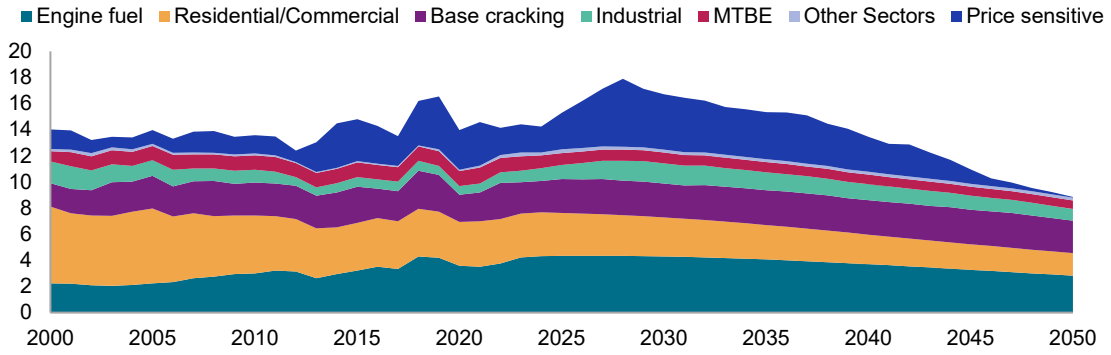
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Europe: Butane supply and demand

Europe butane supply by source (million metric tons)



Europe butane demand by sector (million metric tons)

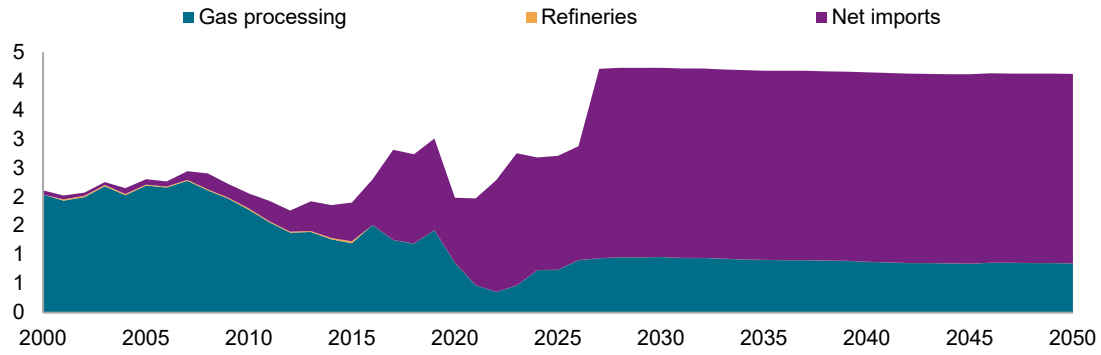


- Consumption in all fuels sectors will decline. This includes res/com, refinery gasoline blending, and direct engine fuel use as Autogas.
- Price sensitive demand for butane is smaller than propane, largely because global butane markets are more balanced than propane.
- We anticipate butane markets will be somewhat more volatile than propane, leading to greater fluctuation in price sensitive use of butane over time, though generally declining more steadily by the 2040s as global production declines and balances tighten somewhat.

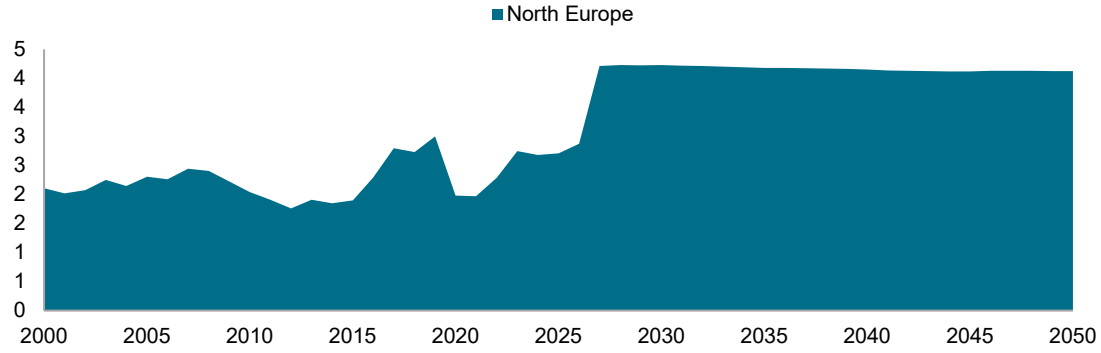
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Europe: Ethane supply and demand

Europe ethane supply by source (million metric tons)



Europe ethane demand by region (million metric tons)

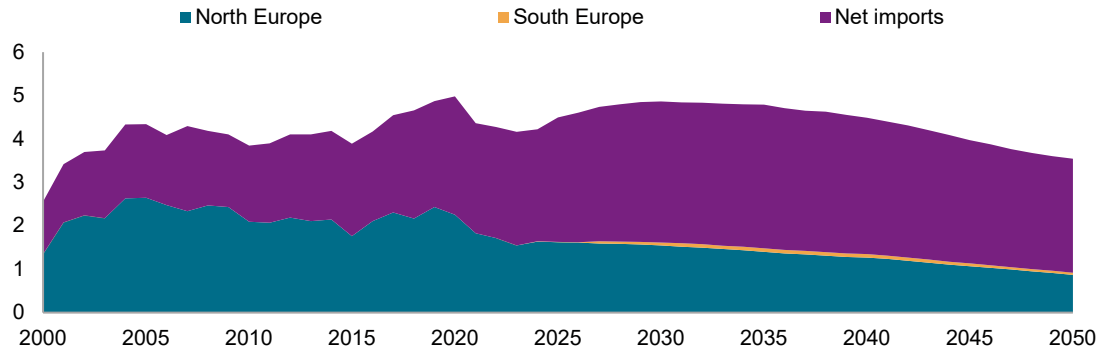


Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

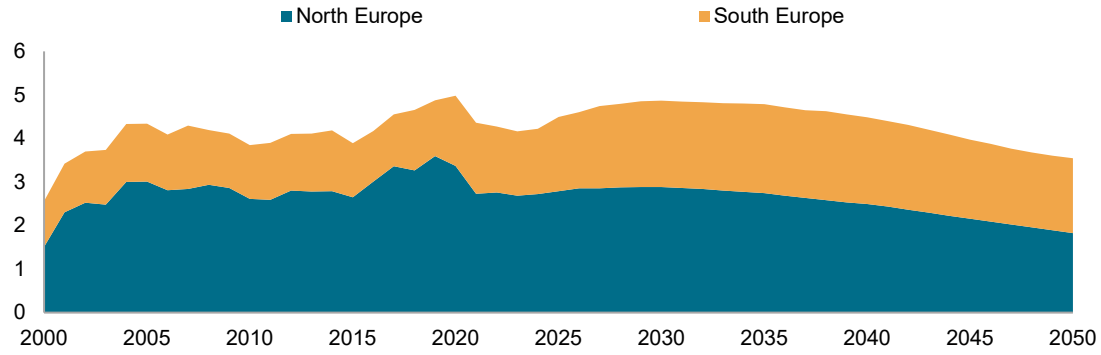
- Ethane production in north Europe has recovered in recent years owing to relatively strong natural gas output in Norway. However, production will decline in line with the path of North Sea natural gas production.
- The United Kingdom and Norway are the only producers of ethane in Europe, and all ethane is used in north Europe as olefins feedstock.
- Norway exports ethane to Sweden for use in the Borealis cracker in Stenungsund. Norway also imports from the United States.
- Imports from the United States have allowed ethane consumption in the region to rise sharply since 2016.
  - Total ethane imports to Europe have grown consistently from 1.4 million tons in 2020 to 2.4 million tons in 2023.
  - Ethane's competitiveness as a petrochemical feedstock, driven by stable and relatively low gas prices in the US, will continue to support ethane demand.
  - Imports will continue growing through 2027, when they are forecast to reach 4 million tons. Imports should remain stable in the long term.
- We expect INEOS' Project One in Antwerp to be fully operational by 2027. The company announced a JV with Enterprise for building an export terminal that would support feedstock requirements for the project.

Europe: Natural gasoline supply and demand

Europe natural gasoline supply by region (million metric tons)



Europe natural gasoline demand by region (million metric tons)



- All the natural gasoline in Europe is produced from the North Sea gas processing in the United Kingdom and Norway.
- Production grew in both countries in recent years as several new fields started production but will decline over the long term.
- Natural gasoline is consumed locally in chemicals production and refining.
- Natural gasoline is imported from the CIS and Africa.

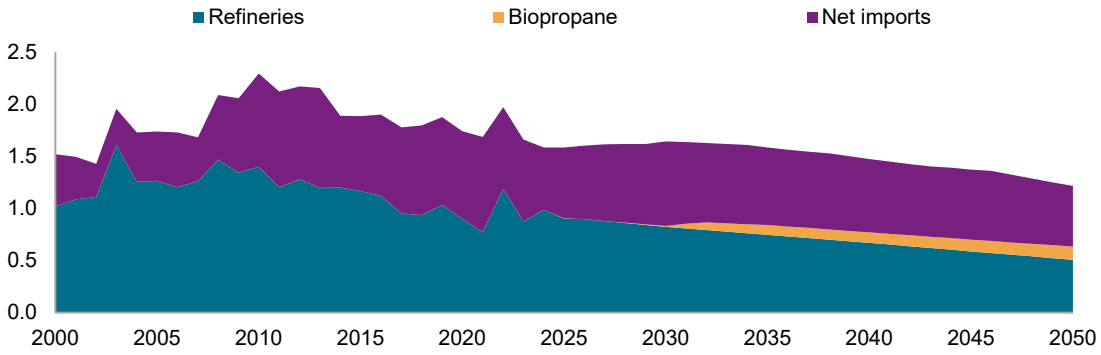
Data compiled September 2025.
Source: S&P Global Commodity Insights.

Europe
Country Profiles

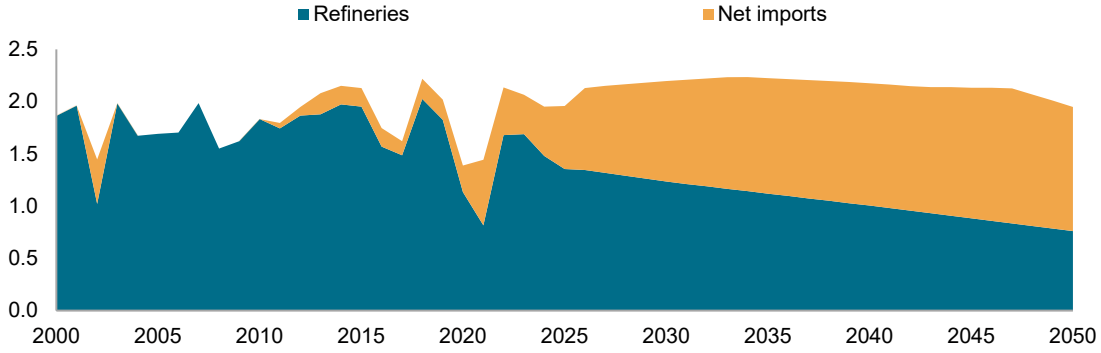
- Germany
- France
- Italy
- Netherlands
- Belgium
- Portugal
- Spain
- Poland
- Austria
- Czech Republic
- Hungary
- Romania
- Turkey
- Sweden
- Finland
- Norway
- United Kingdom

Germany: LPG supply

Germany propane supply by source (million metric tons)



Germany butane supply by source (million metric tons)

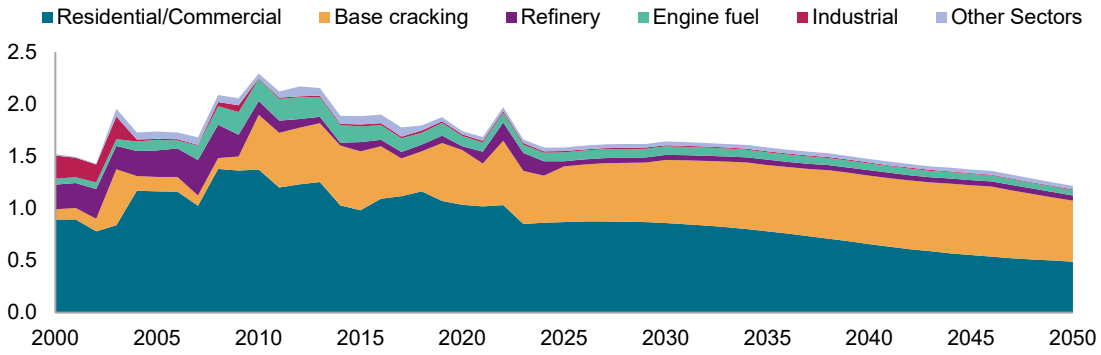


- Germany has no gas-based LPG production and LPG recovery from refineries is declining along with crude runs.
- Historically, Germany was a net exporter of butane, but imports began to be required in 2011.
- Waterborne imports are mostly sourced from the North Sea, United States via VLGC to ARA.
- Germany used to receive supplies overland and via waterborne from Russia, however volumes on this route have disappeared and have been replaced by expanded waterborne flows from the United States, the North Sea, and to a lesser extent from Spain.
- Germany imports LPG at ports along its northern coast including Brunsbuttel and Emden, as well as the ARA ports in the Netherlands and Belgium. It is then transported by barge along the Elbe, Weser, and Rhine Rivers to inland distribution points and transferred to rail/truck for delivery to bottling plants and end-users.

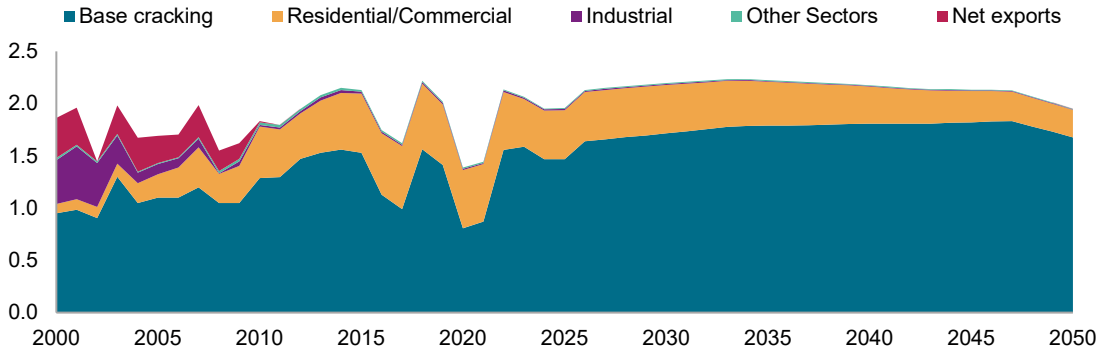
Data compiled September 2025.
Source: S&P Global Commodity Insights, DVFG, IEA, Eurostat.

Germany: LPG demand

Germany propane demand by sector (million metric tons)



Germany butane demand by sector (million metric tons)

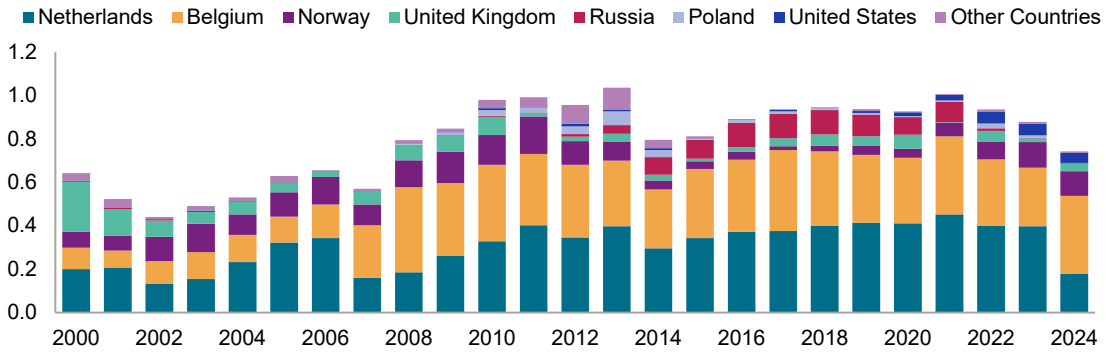


- The residential/commercial market is Germany's largest end-user for propane, though it is forecast to decline over time as energy transition gains momentum. The market consists mainly of bulk propane sales to remote customers.
- The petrochemical sector is the largest butane end-user, where it is mainly used as olefins plant feedstock—plant configuration and logistics limit feedstock switching.
- Butane consumption fell in 2020 from all-time highs reached in 2019 owing mainly to the pandemic. LPG consumption more broadly is on a long-term decline.
- INEOS completed its 135,000 CBM butane tank located at the Antwerp Gas Terminal in October 2020. The tank is now Europe's largest, with butane imported via VLGC then barged inland to INEOS' Cologne cracker or sold to other users.
- Autogas demand will continue declining despite favorable pricing, due mainly to consumer preference for gasoline and diesel plus competition from electric vehicles and CNG within the overall alternative fuel vehicle fleet. Autogas in Germany uses 90% propane, 10% butane.
- The industrial market is quite small as it has suffered from competition with natural gas. Industrial markets are served by bulk butane and propane deliveries.
- There are a large number of companies active in LPG wholesale and distribution in Germany. Larger players include SHV subsidiary Primagas, ButanGas subsidiary DrachenGas, Totalgaz, and a number of independent companies such as Tyczka Energy (and its JV with Totalgaz).

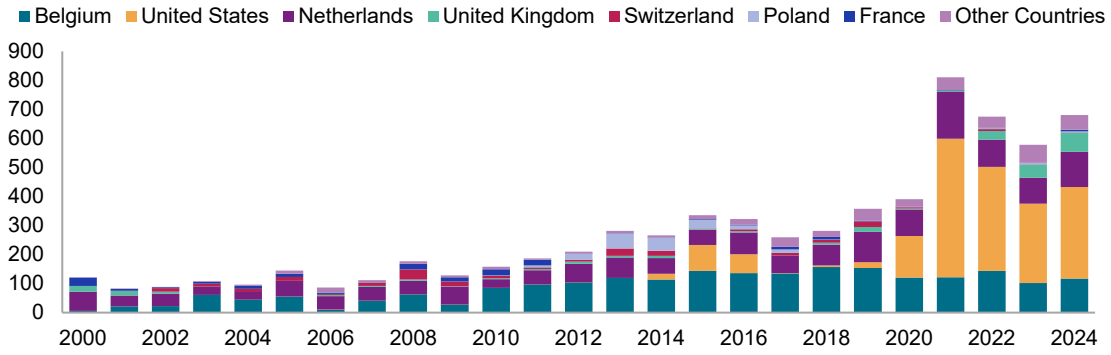
Data compiled September 2025.
Source: S&P Global Commodity Insights, DVFG, IEA, Eurostat.

Germany: LPG imports

Germany propane imports by country of origin (million metric tons)



Germany butane imports by country of origin (thousand metric tons)

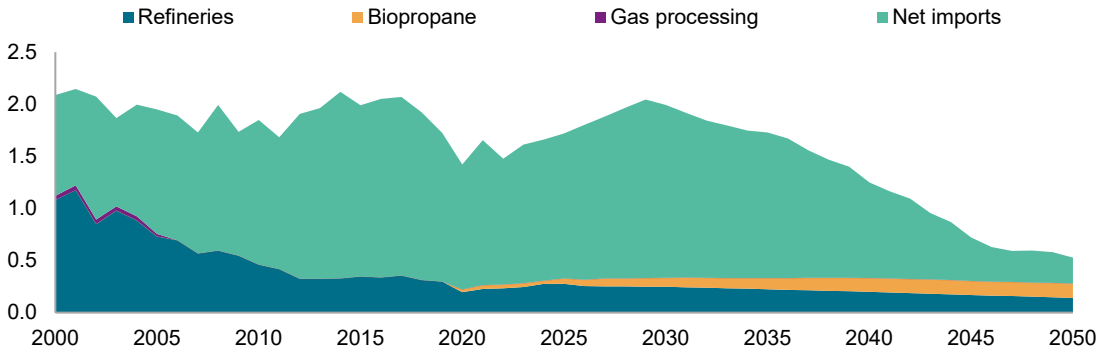


- Germany's LPG imports are weighted towards propane, and mostly come by sea from the North Sea and the United States either directly via one of the two waterborne ports, or indirectly via barge from the Netherlands and Belgium.
- Russia used to supply LPG to the country, but these imports have stopped since the invasion of Ukraine.
- Following refinery rationalizations that limited butane availability and made Germany a larger net importer, the share of butane in LPG imports has risen since 2014, however, it remains small relative to propane demand.
- INEOS' construction of a butane tank in Antwerp was aimed mainly to increase butane availability to its cracker in Cologne, and as a result the butane share of imports should continue to increase.

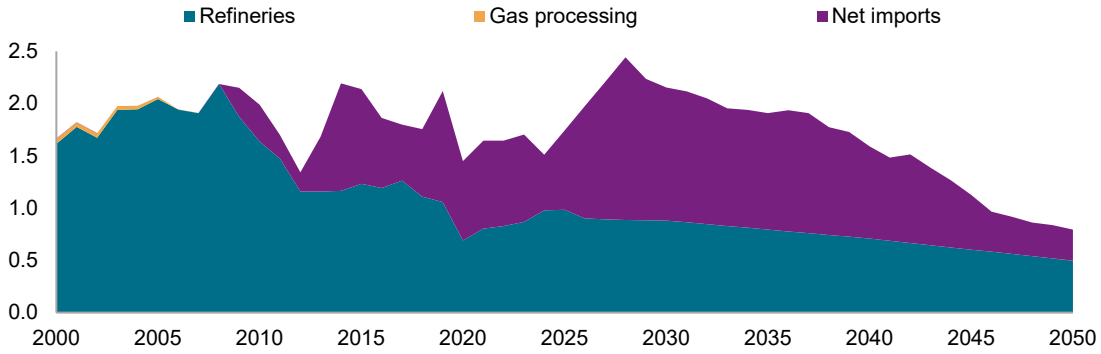
Data compiled September 2025.
Source: S&P Global Commodity Insights.

France: LPG supply

France propane supply by source (million metric tons)



France butane supply by source (million metric tons)

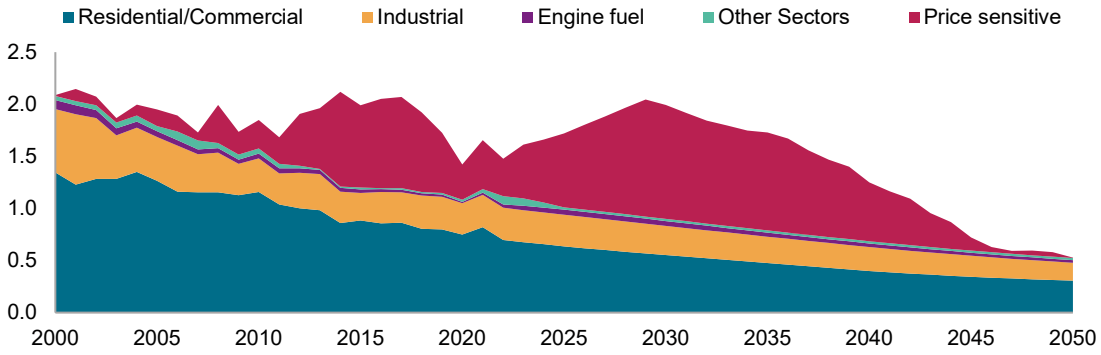


- Propane production from refineries fell sharply during the last round of refinery rationalization that coincided with the economic downturn in 2008-2012.
- The refinery downturn during 2020 led to another sharp dip in supply, and this was only partially reversed in 2021 and 2022.
- Long term, we expect lower refined product demand to lead to lower crude runs and thus declining LPG output.
- Propane supply from refineries falls far short of domestic demand, so France imports propane at Lavera on the southern coast and at Le Havre on the northern coast.
- France's butane supply and demand had in the past been much more balanced than propane, but this changed in recent years as production declined. Imports vary somewhat year to year based on fluctuating demand in the chemical sector.
- Waterborne LPG imports at Lavera are mostly sourced from Algeria; LPG imports at Le Havre are mostly from the North Sea (Norway and UK).
- Like its neighbors in Northwest Europe, France now also imports more LPG from the United States.

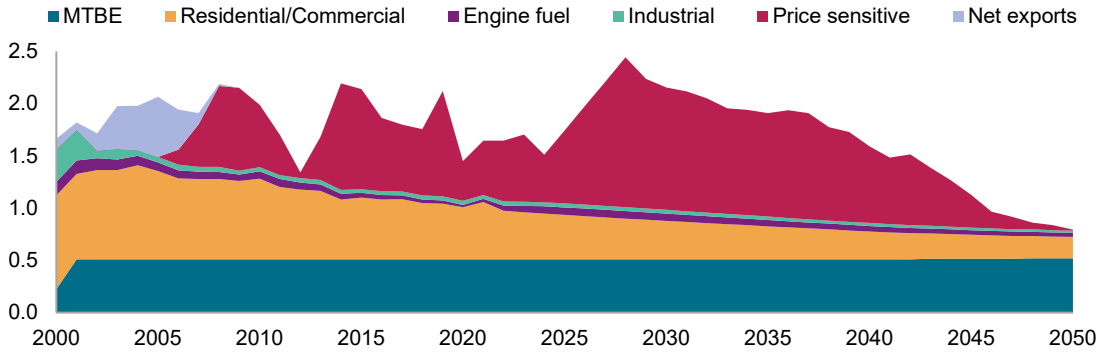
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, CFBP, Eurostat.

France: LPG demand

France propane demand by sector (million metric tons)



France butane demand by sector (million metric tons)

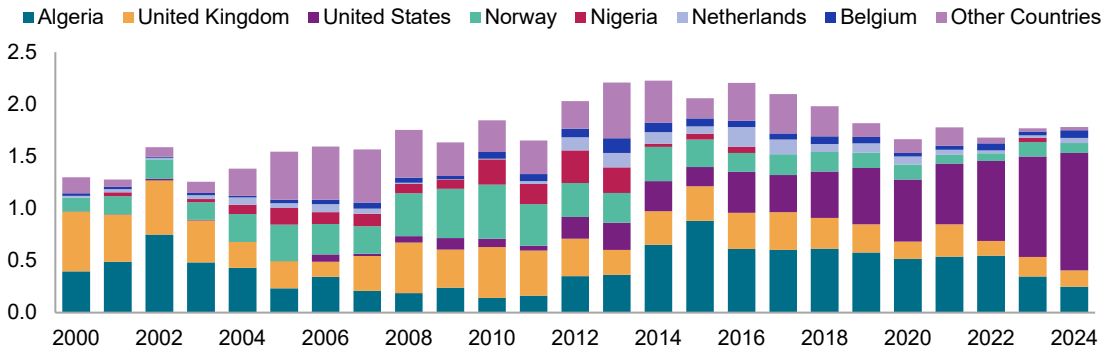


- Residential/commercial demand is the largest market for LPG in France; mostly for cooking and water heating rather than space heating. Consumption declined over the past decade due to competition from natural gas and electricity. Long term, declines will be caused mainly by demographics and efficiency gains.
- Industrial demand is serviced mostly by bulk propane. Demand has also been eroded by competition from natural gas and like residential/commercial demand will continue to decline.
- The chemical market has historically used butane for production of propylene oxide and as a substitute for naphtha in olefins crackers. Price sensitive demand for butane should rise during the 2030-2040 period as Europe becomes increasingly long butane, but after 2040 we expect tighter butane markets, driving price sensitive butane cracking lower.
- Diesel vehicles continue to be preferred over LPG in France. The Autogas market peaked in 2000 at about 220,000 metric tons but has declined to less than 50,000 tons and demand is expected to continue to decline.
- Key players in French LPG wholesale and distribution include UGI subsidiary Antargaz, SHV subsidiary Primagaz, and Totalgaz. Shell sold its Butagaz subsidiary to DCC Energy in May 2015.

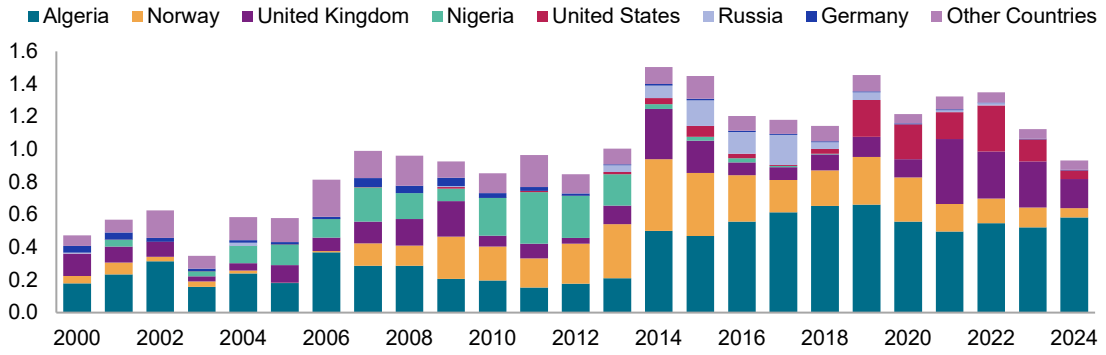
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, CFBP, Eurostat.

France: LPG imports

France propane imports by country of origin (million metric tons)



France butane imports by country of origin (million metric tons)

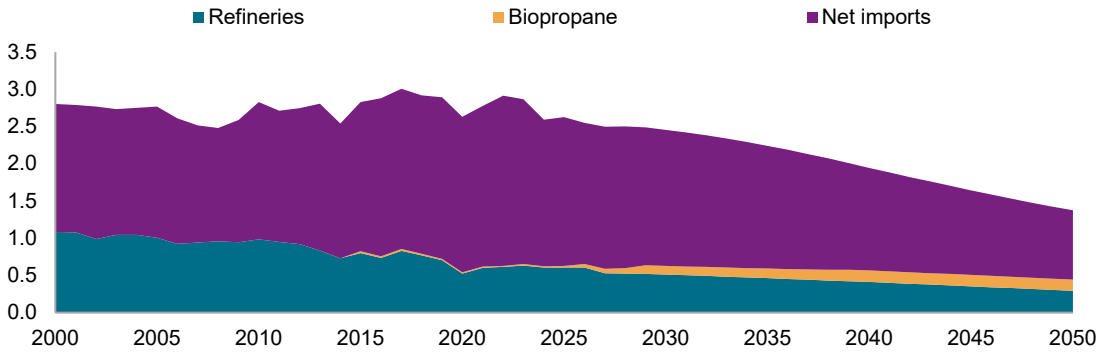


- Total LPG imports to France declined sharply in 2020, as lower demand during the COVID lockdowns combined with an unusual period of LPG unfavourability in cracking (owing to lower naphtha prices).
- France's LPG imports are weighted towards propane, and most volumes are split between the North Sea, Algeria, and the United States (more recently).
- LPG from the Middle East rarely reaches the Western Mediterranean. Sonatrach sets prices to remain competitive against deliveries from the Middle East, forcing those volumes to flow in the opposite direction.
- As with elsewhere in the region, declining refinery production led to an increase in net imports (except for 2020).

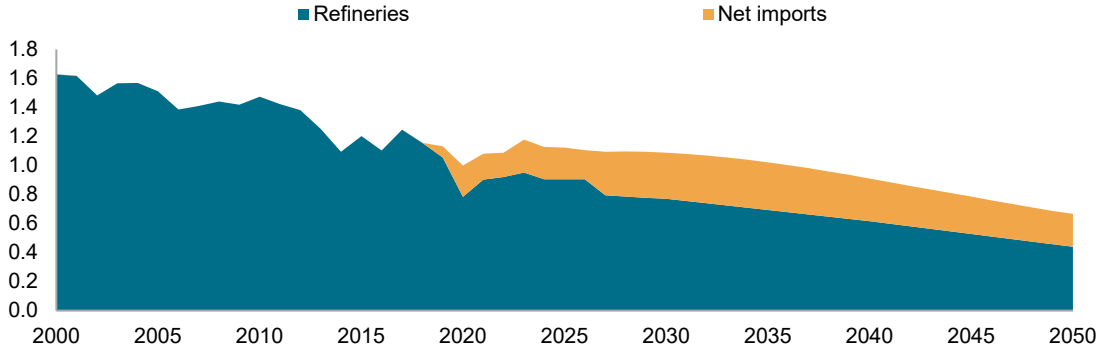
Data compiled September 2025.
Source: S&P Global Commodity Insights.

Italy: LPG supply

Italy propane supply by source (million metric tons)



Italy butane supply by source (million metric tons)

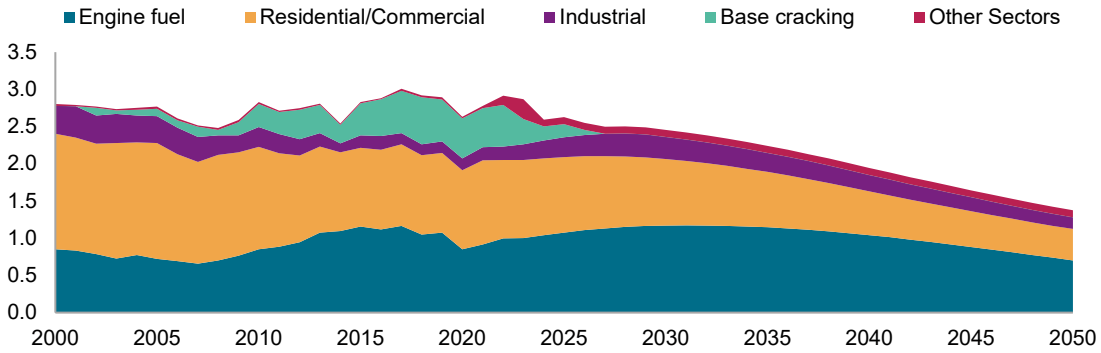


- Italy's LPG production comes only from refineries. The country has some natural gas production, but the gas is dry and does not require processing.
- Production of both propane and butane declined during the past decade due to reduced crude runs. As with other countries in the region, Italy experienced a sharp decline in 2020 as refineries reduced or suspended operations. The recovery in refined product demand led to higher production in 2021, but refinery operations will resume their slow decline through the remainder of the forecast period.
- Demand for propane is declining but remains well above supply, necessitating imports.
- Italy's butane market is much closer to balance, since the residential/commercial and Autogas markets are weighted towards propane. Lower Autogas demand means that Italy is likely to remain close to balanced in butane, with no need for large-scale butane imports

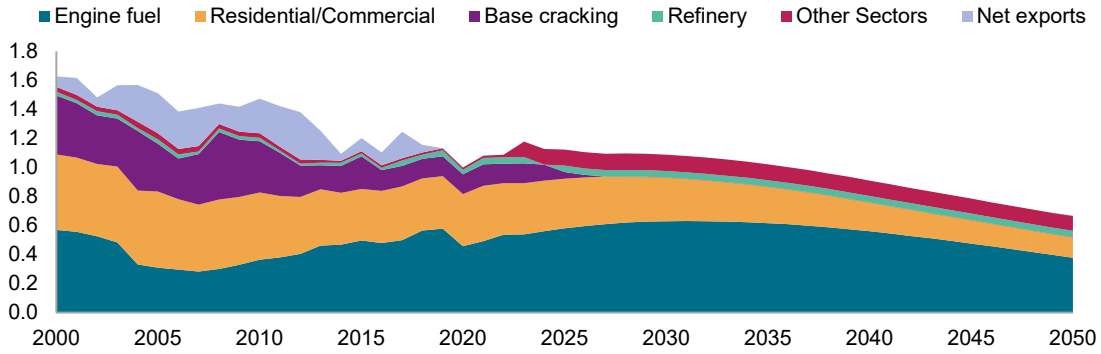
Data compiled September 2025.
Source: S&P Global Commodity Insights, Assogasliquidi Federchimica, IEA, Eurostat.

Italy: LPG demand

Italy propane demand by sector (million metric tons)



Italy butane demand by sector (million metric tons)

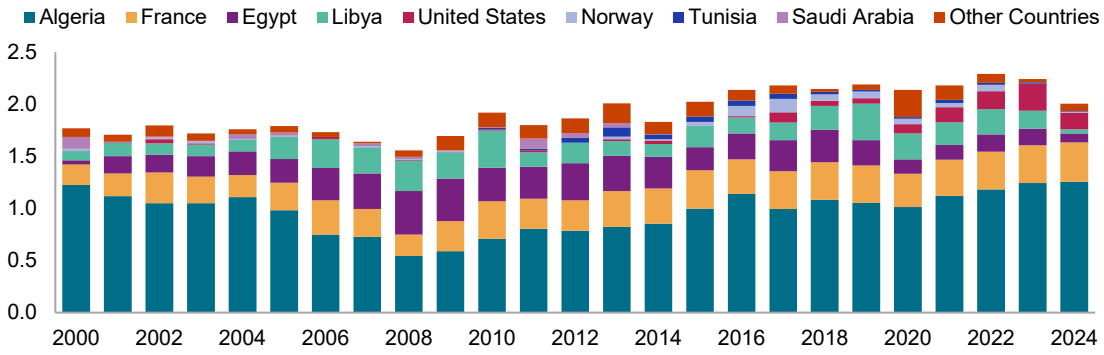


Data compiled September 2025.
Source: S&P Global Commodity Insights, Assogasliquidi Federchimica, IEA, Eurostat.

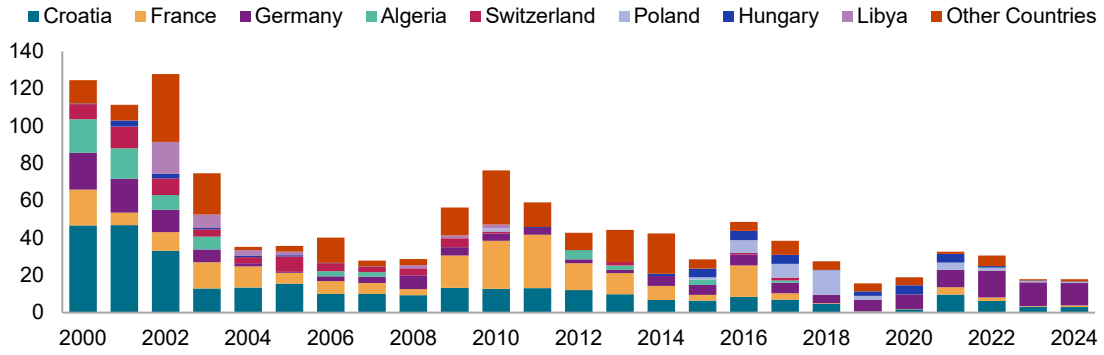
- Residential/commercial demand is the largest market for propane in Italy, but consumption will continue to decline owing to competition from natural gas and energy transition.
- Industrial LPG demand also faces stiff competition from natural gas, though we believe most fuel switching has already been completed and the remaining demand will decline only slowly since it is in areas unlikely to be connected to gas.
- Some butane is used in the residential/commercial sector, but its largest use in Italy is for Autogas. Long-term declines in Autogas will contribute to the overall decline in demand.
- Italy has one of the largest Autogas markets in Europe. Its initial growth was due in large part to favorable taxes and cash incentives put in place in the mid-2000s.
  - Over time Autogas will be replaced by electric vehicles as the primary alternative to gasoline and diesel as Italy pushes for greater reductions to carbon emissions.
  - Autogas vehicle sales and consumption per year per vehicle is expected to increase slightly through 2030, then decline at a slower pace.
- Eni's Versalis subsidiary operated several steam crackers in Italy, mainly using naphtha.
  - In recent years more propane was used, as was some butane, but both the Priolo and Brindisi crackers were shut down in 2025. As a result, there is no more LPG base cracking in the country.
  - Versalis announced in 2020 it will close its Porto Marghera cracker near Venice, but this mainly impacts naphtha.
- SHV's Liquigaz, Eni's Agipgas, ButanGas, and a number of smaller independent companies are active in the Italian LPG market.

Italy: LPG imports

Italy propane imports by country of origin (million metric tons)



Italy butane imports by country of origin (thousand metric tons)

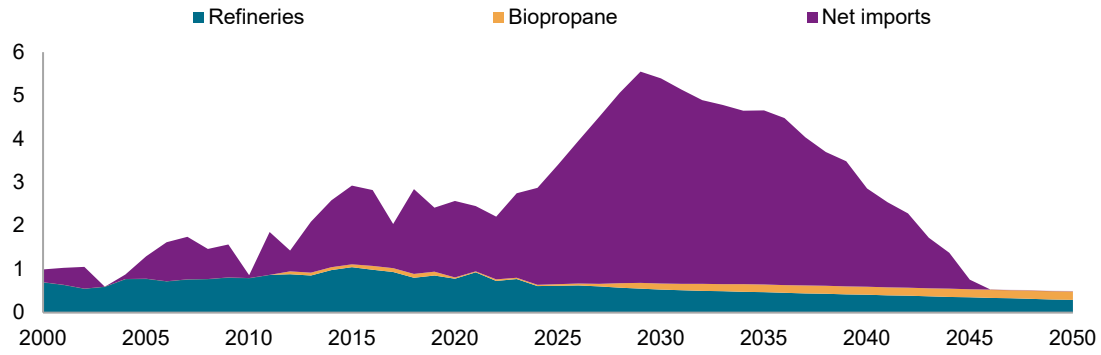


- Italy's LPG imports are mostly propane, though it does import (and export) small volumes of butane.
- Strong propane demand has led to increased imports.
- The closure of crackers in Italy has impacted propane and butane imports.
- Most propane is imported from Algeria, along with other Mediterranean countries (e.g. Egypt, Libya, re-exports from Lavera), and the US.
- Sonatrach pricing has not prevented low-cost US propane on VLGCs from reaching Italy (and even more commonly Turkey), though these volumes represent a small fraction of what is sourced from Algeria.

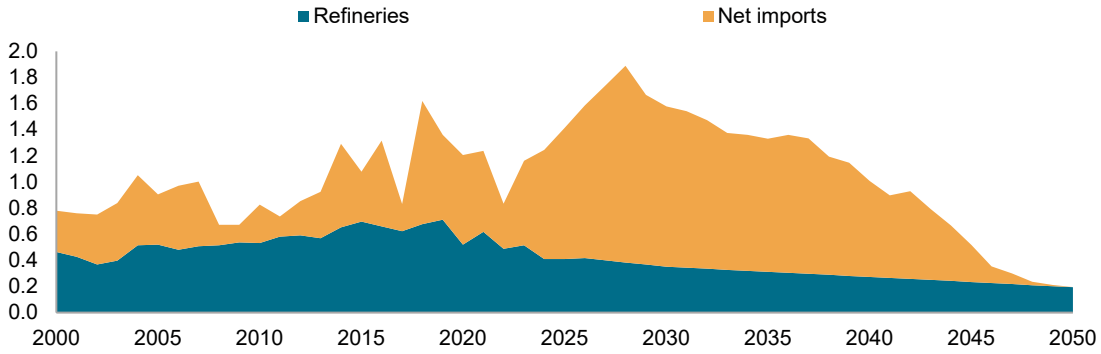
Data compiled September 2025.
Source: S&P Global Commodity Insights.

Netherlands: LPG supply

Netherlands propane supply by source (million metric tons)



Netherlands butane supply by source (million metric tons)

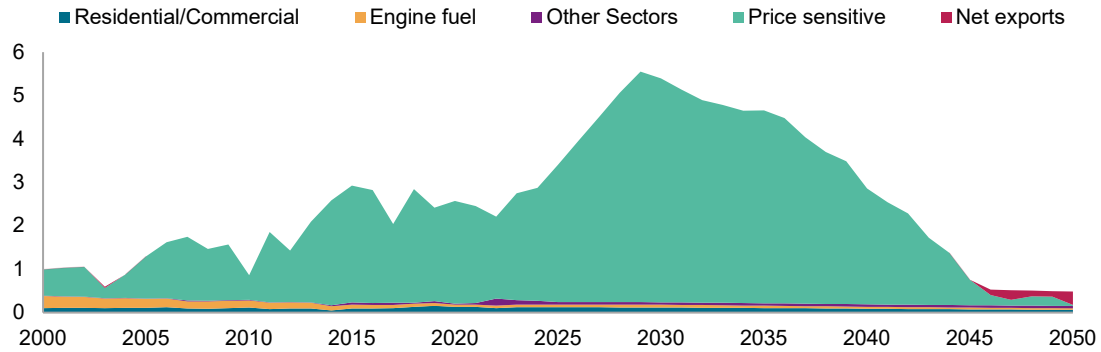


- Despite being a longstanding natural gas producer, the Netherlands' LPG production comes only from refineries. The country's natural gas is quite dry and is not processed to extract LPG.
- Production of both propane and butane from refineries was mainly stable before the COVID-19 pandemic, even as production in the region fell.
- Refinery runs fell sharply in 2020, and we expect that the lower LPG production that resulted will continue through the long term, with some future refinery capacity rationalization leading to further declines.
- Propane, and to a lesser extent butane, are imported mainly on a price-sensitive basis to be used as feedstock for olefins production in place of naphtha when market conditions warrant.
- Some of this LPG is also re-exported by barge to inland chemical producers, as well as industrial users and cylinder market distributors. Most exports are sent to Germany and Belgium, and increasingly, to Poland.
- The increase in availability of and competitiveness of US LPG is expected to lead to a rise in LPG in the country's petrochemical sector in the period 2025-2035, as the Netherlands is one of the countries with the ability to take LPG beyond its base cracking capability. Other demand sectors could also absorb these volumes.

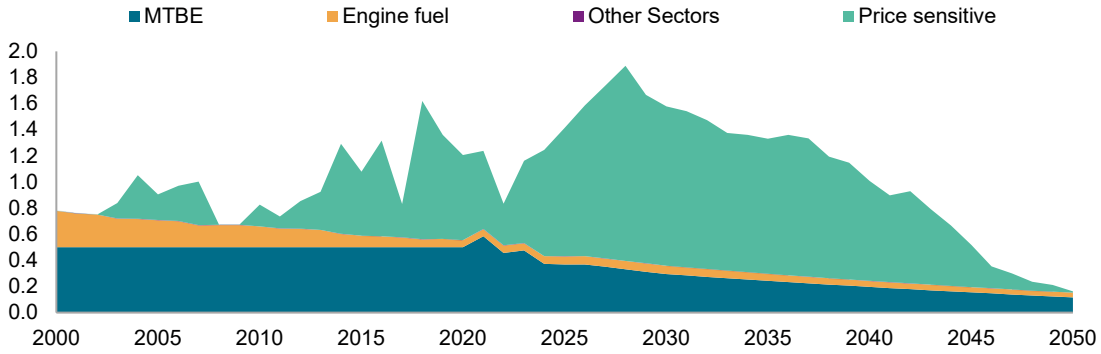
Data compiled September 2025.
Source: S&P Global Commodity Insights, Statistics Netherlands, IEA, Eurostat.

Netherlands: LPG demand

Netherlands propane demand by sector (million metric tons)



Netherlands butane demand by sector (million metric tons)

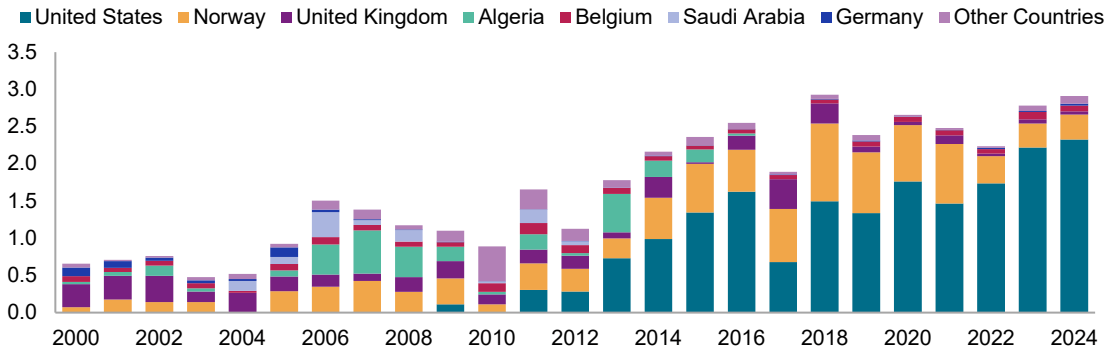


Data compiled September 2025.
Source: S&P Global Commodity Insights, Statistics Netherlands, IEA, Eurostat.

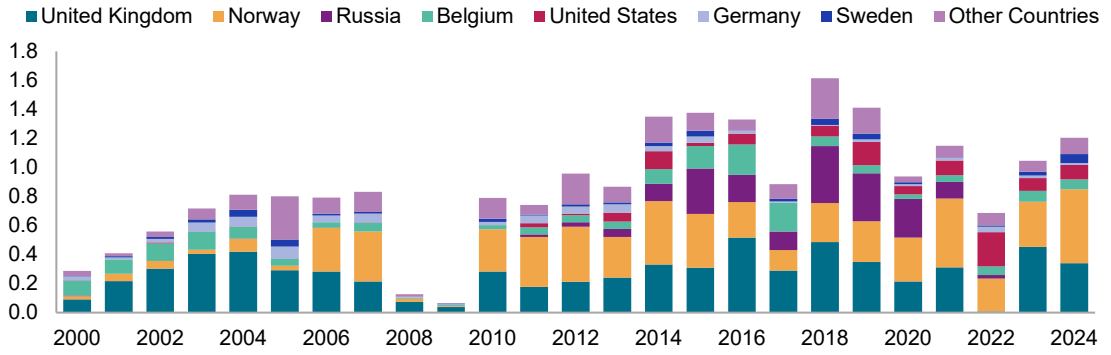
- The longstanding existence of extensive natural gas supply and distribution infrastructure in the Netherlands means there is only very small use of propane in the residential/commercial sector.
- The Netherlands reportedly has about 15,000 households using propane. These existing users are unlikely to switch, so demand is expected to decline only slowly over the long term, as these households primarily switch to electric heat pumps and stoves.
- The Netherlands also has a small Autogas market, but despite extensive refueling infrastructure and favorable pricing relative to gasoline and diesel, the market has not caught on broadly with consumers. We expect demand to continue to decline.
- There is structural demand for butane for the production of propylene oxide and also price-sensitive use of butane for cracking. The use of propane in chemicals is price-sensitive—it will remain relatively high as propane prices remain low compared to other feedstocks.
- We expect some volatility in price-sensitive use of propane in cracking through the 2020s and into the 2030s, based mainly on global balances. After 2035, as global markets tighten, we see a longer trend away from price-sensitive demand.
- The global butane market remains closer to balance, but we do expect some price-sensitive butane cracking to 2040 based on regional surplus, followed by a period of decline as base demand growth starts to outpace supply growth globally. This will likely lead to a period of net exports for the country.
- Large European companies, including Shell and SHV, are active in the Netherlands LPG sector; however, many small companies also compete in the sector. The largest independent local propane distributor is NEFCO, which owns OK Gas. Shell has sold its French LPG subsidiary to DCC and is seeking buyers for its subsidiaries in other European markets.

Netherlands: LPG imports

Netherlands propane imports by country of origin (million metric tons)



Netherlands butane imports by country of origin (million metric tons)

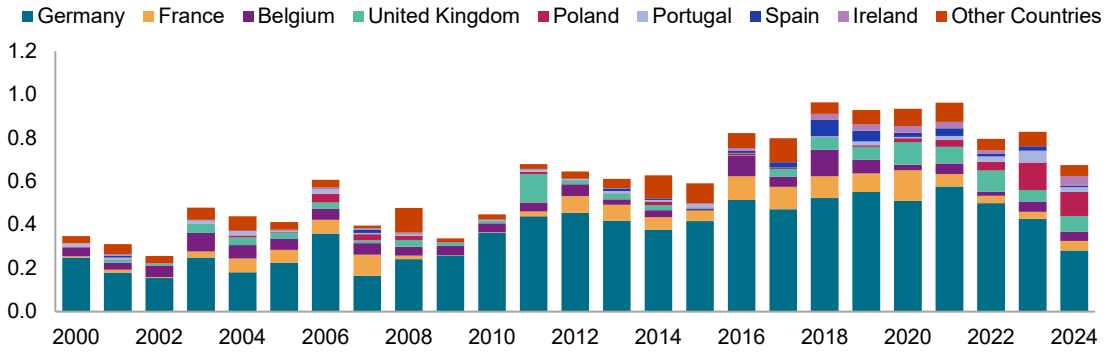


- Before the US shale boom and subsequent rise in propane exports, the Netherlands was not a major LPG importer, particularly for product to be used within its borders.
- The large port capacity in Amsterdam/Rotterdam allowed for a liquid market to grow, but most product was then passed inland by barge to Germany and France.
- Now the ARA region (Netherlands and Belgium) is a bellwether of the global LPG market: as US exports proliferated (and prices fell) in the 2013-2016 period, olefins producers in the Netherlands with feedstock flexibility moved to take advantage of cheap feedstock. When US growth temporarily slowed in 2017, so did Dutch imports, and the pattern reversed again in 2018.
- Propane imports were up in 2020 overall despite an unusual period of naphtha favorability at the height of the pandemic during spring/summer. The return of propane favorability later in the year drew in a large number of US VLGC cargoes.
- Import levels of US LPG have increased in recent years along with higher availability, as it has been competitive relative to other petrochemical feedstocks.
- The Netherlands used to be Russia's most important buyer of waterborne LPG in Europe up until the invasion of Ukraine. It no longer imports any LPG from Russia; instead, it relies on the United States and the North Sea.

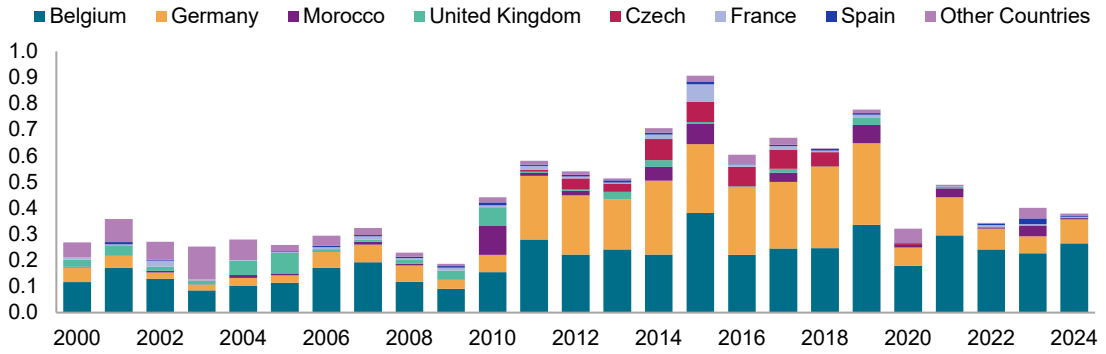
Data compiled September 2025.
Source: S&P Global Commodity Insights.

Netherlands: LPG exports

Netherlands propane exports by country of destination (million metric tons)



Netherlands butane exports by country of destination (million metric tons)

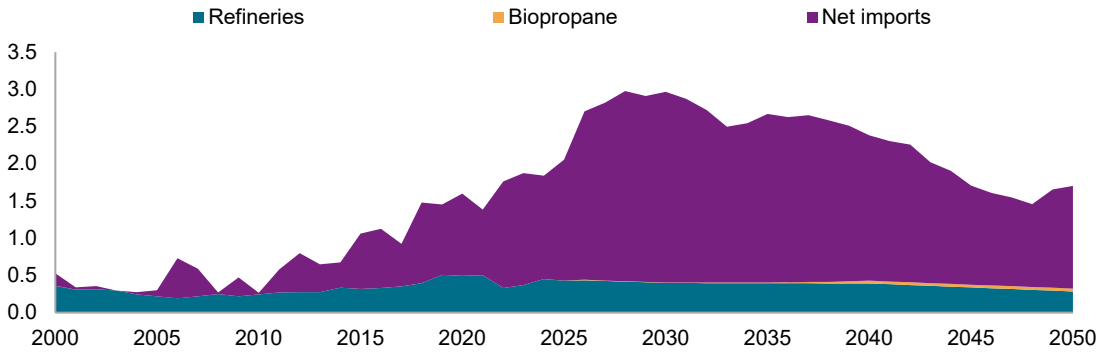


- As with imports, exports from the Netherlands into the European interior have risen following global market length and lower prices.
- However, with feedstock flexibility concentrated mainly along the coast, where operators are best positioned from a logistics standpoint, imports have generally grown faster (and shown greater volatility) than exports.
- The Netherlands is also used to break bulk, with low-priced US LPG imported via VLGC re-exported on smaller ships to markets like Italy, Ireland, Denmark, and Portugal.

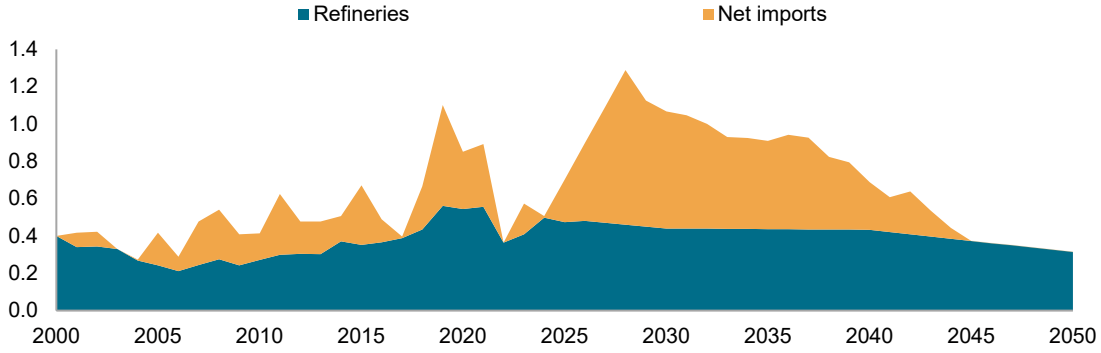
Data compiled September 2025.
Source: S&P Global Commodity Insights.

Belgium: LPG supply

Belgium propane supply by source (million metric tons)



Belgium butane supply by source (million metric tons)

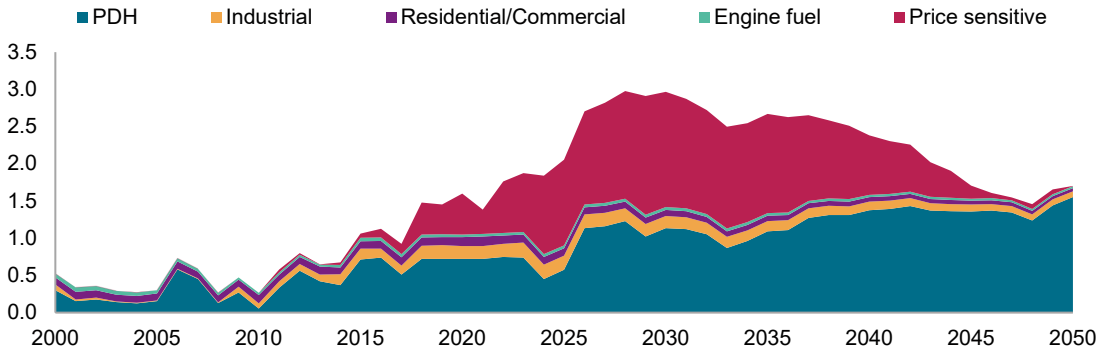


- Until about 2010, Belgium was about balanced in both propane and butane. The port of Antwerp was used to import and break bulk for shipment inland via barges, mostly to Germany.
- Propane and butane produced by the country's refineries was mostly sufficient to meet demand, and occasionally there were small net imports of both products.
- Belgium began importing more LPG to be used in the country's petrochemical sector as PDH feed and replacing naphtha on a price sensitive basis in crackers.
- We expect net imports of propane to remain quite high through the forecast period, mainly to provide feedstock to the country's PDH plants. Price sensitive use of propane should decline over the long term.
- Butane markets are tighter globally and there is less need for price sensitive cracking of butane. We expect butane consumption to decline starting after 2035 as global markets tighten.

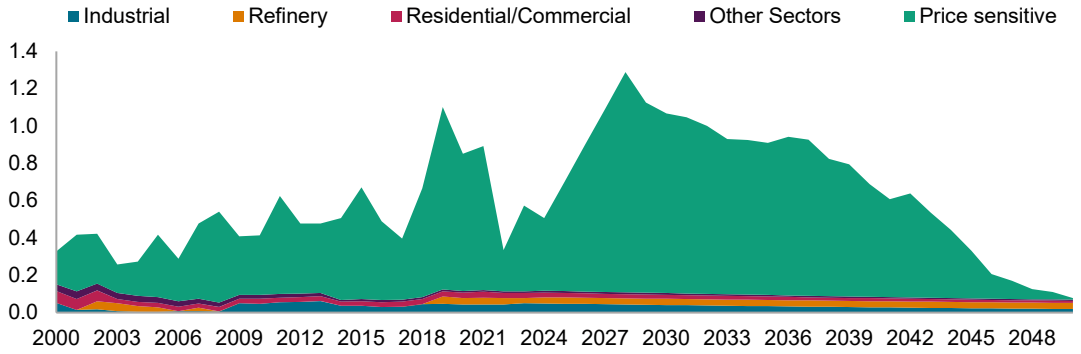
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Belgium: LPG demand

Belgium propane demand by sector (million metric tons)



Belgium butane demand by sector (million metric tons)

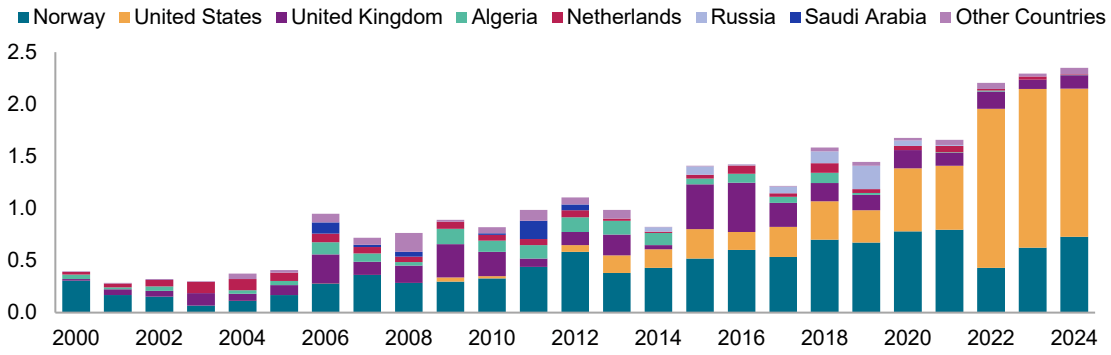


- Belgium has expanded the use of propane in the chemical sector in recent years, split between the existing PDH plant at Kallo and price-sensitive feedstock use at several steam crackers. The expansion at Kallo was complete in mid-2022, with operations ramping up into 2023, and demand reaching a new plateau in 2024.
- INEOS Project One ethane cracker is expected to come online fully by 2027.
- The residential/commercial and industrial sectors are quite small, consume mainly propane, and would not require net imports on their own.
- Butane consumption in the chemical sector is smaller than propane and mainly represents price-sensitive replacement of naphtha.
- After 2035, we expect propane and butane markets to begin to tighten as US production growth slows to the point where base demand grows faster than production globally, leading to less need for price-sensitive cracking to balance markets.
- Our current chemical balances assume a hypothetical demand increase for PDH starting in the mid-2030s.
- The increase in availability of and competitiveness of US LPG is expected to lead to an increase in LPG in the country's petrochemical sector in the period 2025-2035, as Belgium is one of the countries with the ability to take LPG beyond its base cracking capability. These volumes could also be absorbed by other demand sectors.

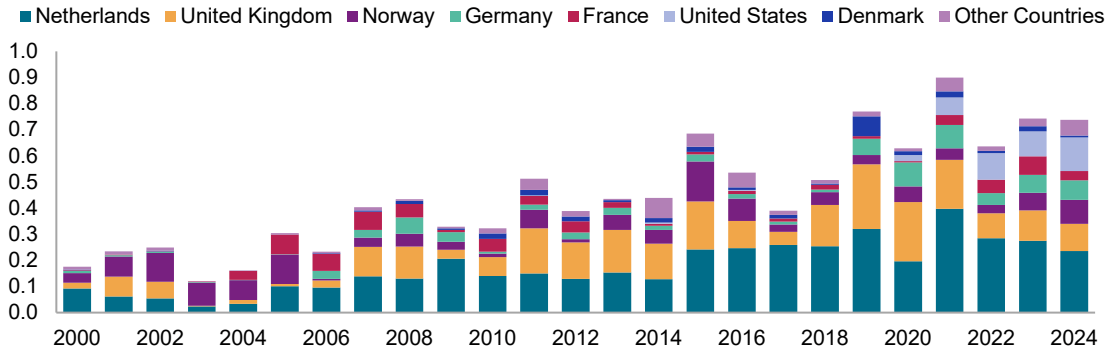
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Belgium: LPG imports

Belgium propane imports by country of origin (million metric tons)



Belgium butane imports by country of origin (million metric tons)

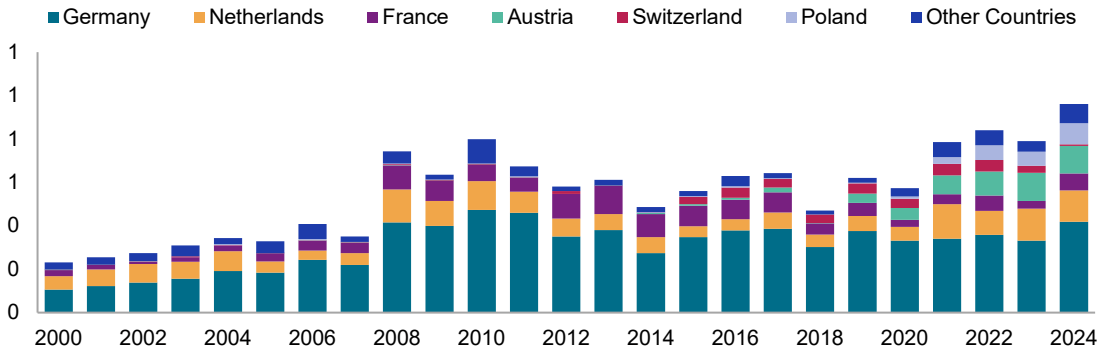


- Belgium has expanded use of propane in the chemical sector, first in 2006 with the first Borealis PDH plant, and then again in 2015/2016 when prices fell based on booming US exports.
- Imports have increased in recent years with the new PDH capacity at Kallo, expected to be fully operational in the second half of 2026.
- Like the Netherlands, Belgium has become a bellwether for the global propane balance, with imports reflecting the length of the market. The trade pattern in 2020/2021 was similar to the Netherlands, with more propane imported, especially from the US, in the second half of the year, as cash costs favored propane again.
- Butane imports have also grown, but by far less than propane, as global butane balances have remained closer to balance than propane, with less need for price-sensitive demand.
- Over the 2030-2040 period, more butane will be imported for price-sensitive use.

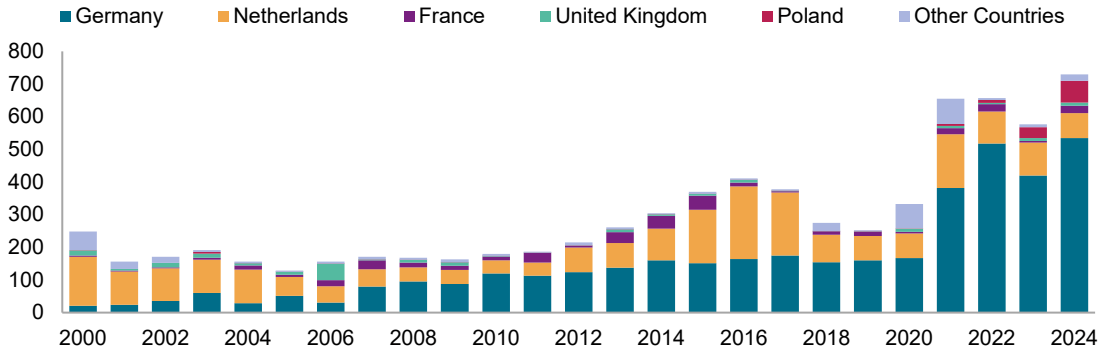
Data compiled September 2025.
Source: S&P Global Commodity Insights.

Belgium: LPG exports

Belgium propane exports by country of destination (million metric tons)



Belgium butane exports by country of destination (thousand metric tons)

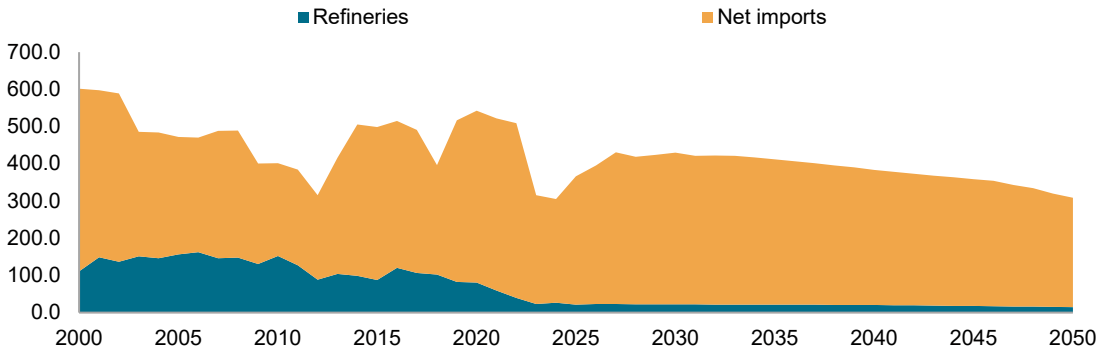


- INEOS completed its 135,000 CBM butane tank in Antwerp in late 2020, so imports from the US are increasing.
- Both imports and exports of butane are likely to increase as more butane is brought in and barged inland to INEOS' Cologne cracker (and likely sold elsewhere as well).
- About 40-50% of the propane imported into Belgium is re-exported by barge along the region's waterways, sometimes passing through the Netherlands or going directly to Germany and France.
- Occasionally, smaller volumes make their way further inland to Luxembourg, Austria, Switzerland, and others.
- Propane exports expanded significantly in recent years, primarily to Germany, but also to other European countries, such as Poland.
- Demand for propane and butane is less price-sensitive in Germany and France (and interior Europe in general) than it is on the coast, where it is easier to take advantage of arbitrage value importing VLGC cargoes from the United States.
- Once the time and expense of barge freight is added, the attractive cash cost value of propane and butane, relative to naphtha, is often reduced or eliminated.
- As with imports, butane exports are smaller than propane due to the greater availability of propane in recent years, especially from the United States.

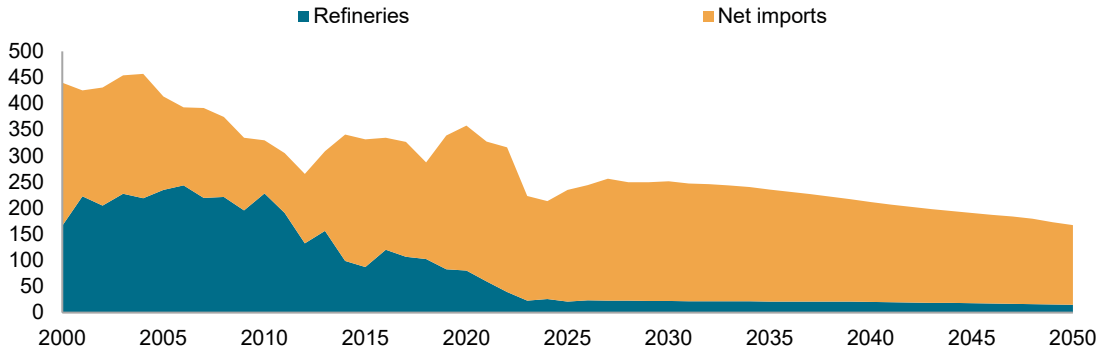
Data compiled September 2025.
Source: S&P Global Commodity Insights.

Portugal: LPG supply

Portugal propane supply by source (million metric tons)



Portugal butane supply by source (thousand metric tons)

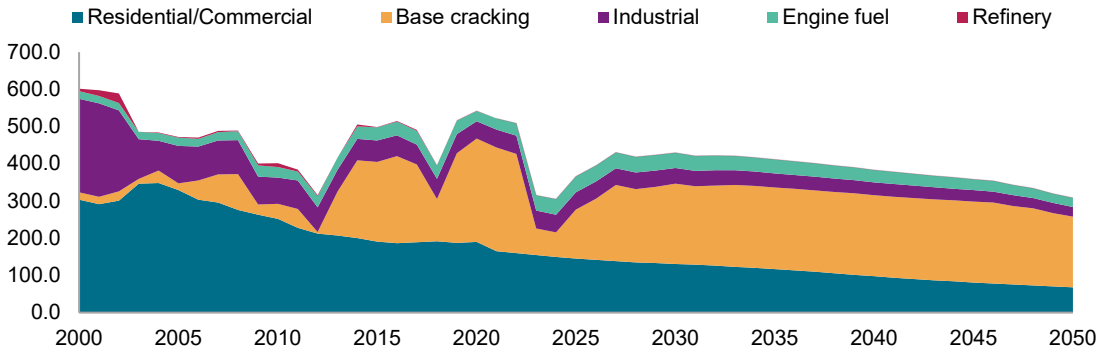


- Portugal produces propane and butane from its refineries, though production has declined over the past decade.
- Demand for LPG exceeds domestic supply, so Portugal has long been a net importer of both propane and butane.
- Total demand for propane declined along with supply until 2013, when suddenly cheap and available supply from the United States spurred import demand. We expect continued use of propane in the chemical sector
- Butane demand has been somewhat volatile in recent years. We expect the total consumption of butane to decline over time, resulting in smaller net imports. There is little prospect of investment in new butane-consuming sectors, as there is increasing pressure to reduce the use of hydrocarbon fuels.
- The Sines refinery is transitioning to become a biorefinery, leading to lower crude runs and lower production of conventional LPG.

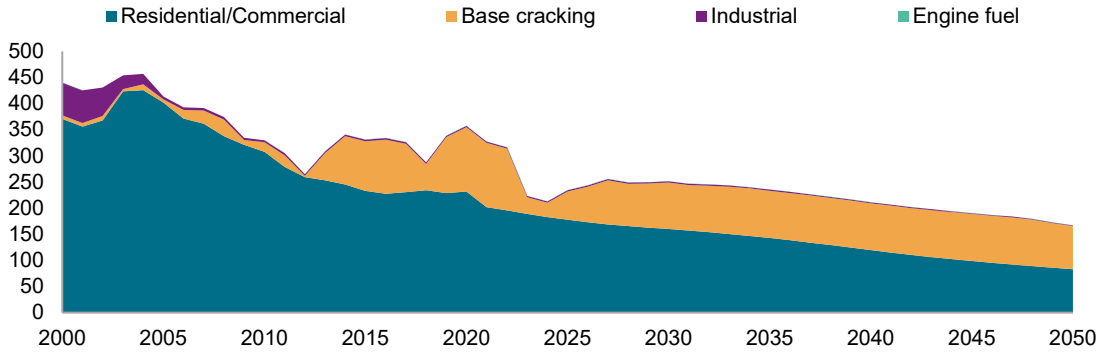
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Portugal: LPG demand

Portugal propane demand by sector (million metric tons)



Portugal butane demand by sector (thousand metric tons)

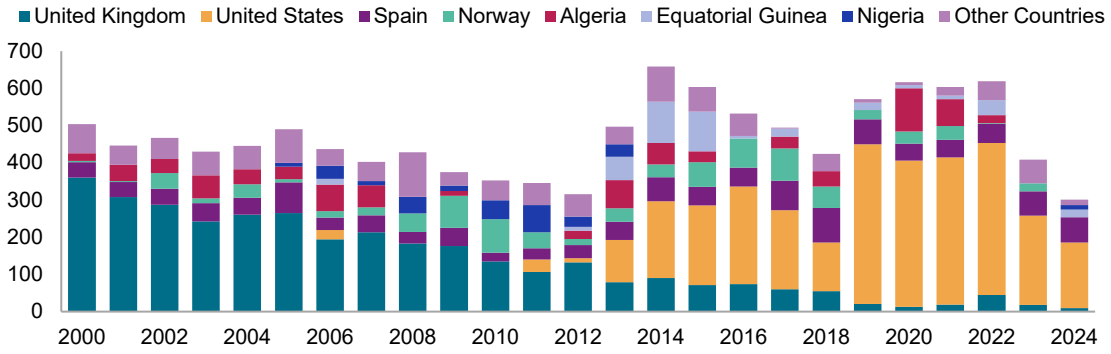


- Residential/commercial demand for propane and butane is declining in Portugal. Butane demand is declining faster than propane due to the overall split in residential/commercial consumption moving in the direction of propane.
- We expect continued decline in demand driven by population decline, slow economic growth, ongoing efficiency gains, and competition from natural gas and electricity.
- Portugal has one steam cracker with flexibility to run LPG (it is mainly naphtha-based), and in the 2013-2016 period, owner Repsol began to take advantage of cheap propane from the United States to increase throughput. The cracker is located near the Sines deep-water port however storage limitations and limited feedstock flexibility mostly prevent Repsol from taking full advantage of the cost advantage of using propane on VLGCs from the United States.
- Propane cracking has been somewhat volatile in recent years, following the changing trends in the market. Higher prices and restricted availability from the US in 2017/18 led to lower imports, followed by a resurgence in 2019 when US exports returned to rapid growth.
- In 2020-2021 consumption was again up as relative prices favored propane for much of the year. 2022 saw a slight decline.
- For the future we forecast more steady use of propane at near the average level over the past few years, but this will likely be subject to both seasonal and annual fluctuations based on short term trends. We now see a return to more seasonality in European ethylene feedstock economics, and Portugal will follow this trend, though swings may be less drastic than in the Netherlands and Belgium.

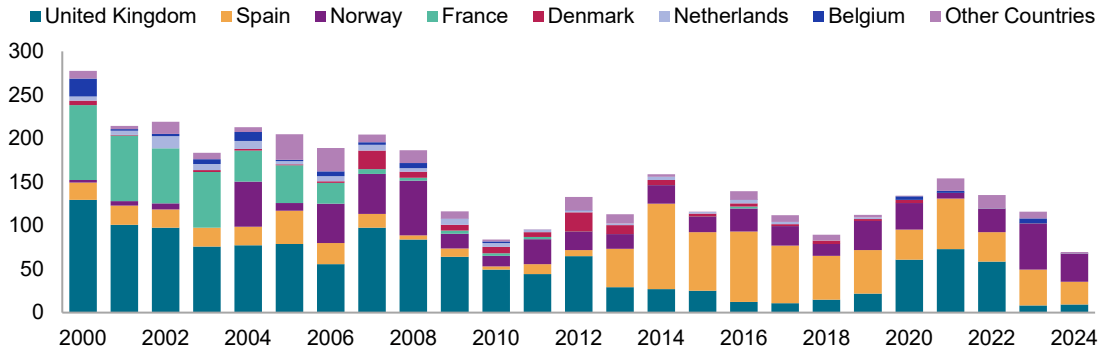
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Portugal: LPG imports

Portugal propane imports by country of origin (thousand metric tons)



Portugal butane imports by country of origin (thousand metric tons)

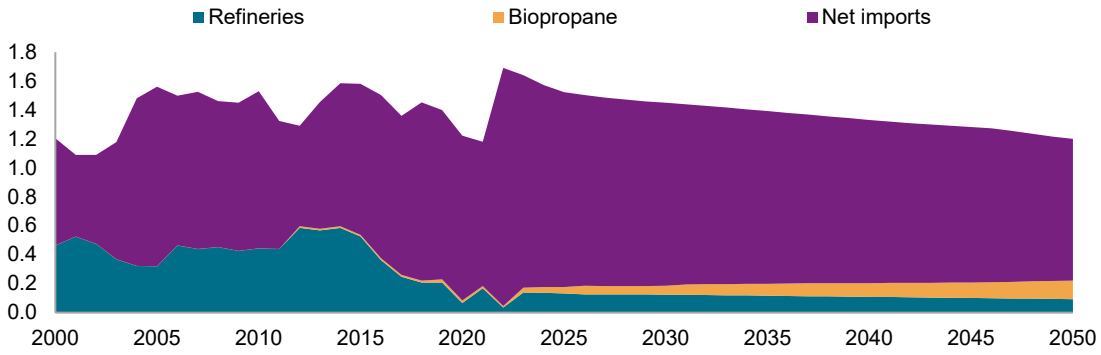


- Portugal traditionally imported much of its propane (and to a lesser extent, butane) from the United Kingdom.
- As UK LPG exports declined steadily in the 2000-2013 period, Portugal diversified its supply somewhat, importing cargoes from the US, other European countries, and, until 2022, from Algeria.
- Then, starting in 2013 when US propane became very cheap, Portugal was among the first to take advantage of the wide arbs and greatly increase propane imports.
- Much of this propane came from the United States to Sines on VLGCs to provide feedstock to Repsol's cracker, but normally these ships only partially unloaded there, before going on to Tarragona or Lavera.
- In 2017/18, Repsol shifted away from this strategy somewhat as the cash cost picture changed but returned to high levels of US imports in 2019-21 when propane was again strongly favored (with the exception of several months in summer 2020). We expect this volatility will continue going forward based on short-term market fundamentals.
- Portugal imports only small amounts of butane, primarily from the Netherlands and the United Kingdom, supplemented by smaller cargoes from other countries.

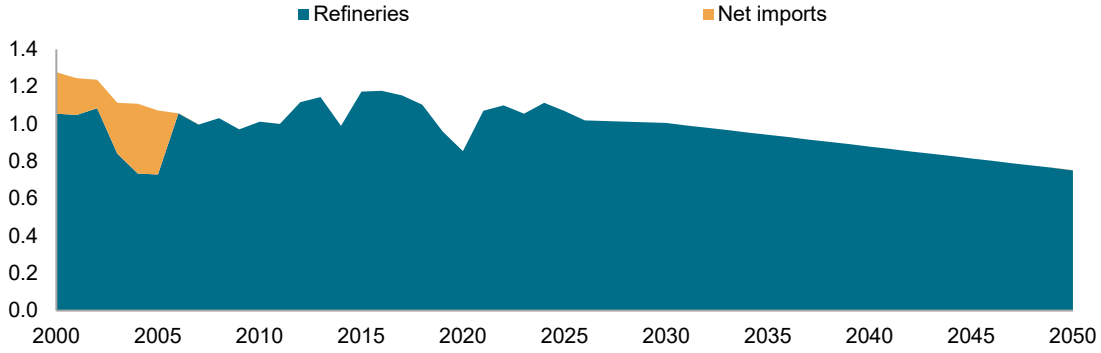
Data compiled September 2025.
Source: S&P Global Commodity Insights.

Spain: LPG supply

Spain propane supply by source (million metric tons)



Spain butane supply by source (million metric tons)

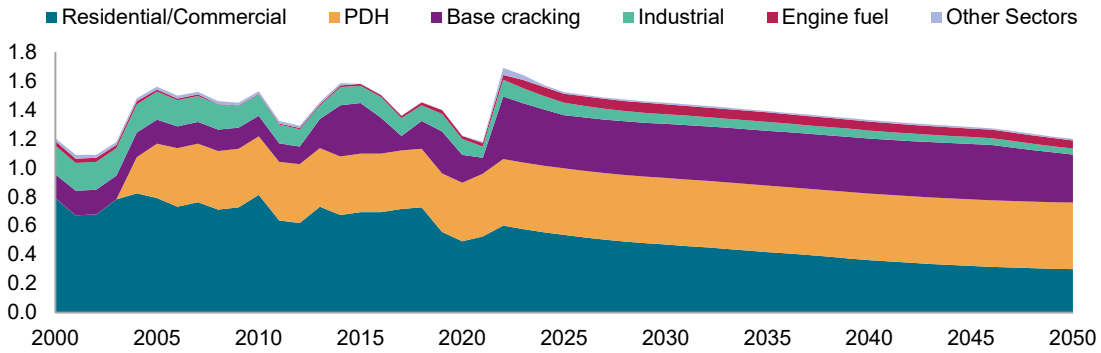


- Spain's LPG production comes exclusively from refineries. Production is weighted towards butane, as is typical of a diesel-optimized refining sector.
- LPG recovery from refining had been declining steadily since 2012, and in 2020 reached a low point during the pandemic lockdown. Production rebounded in 2021 back quickly, but we expect production will continue to decline slowly through the forecast period.
- LPG demand is heavily weighted towards propane, so Spain is dependent on propane imports to meet demand. Spain is a net butane exporter.
- We expect net imports of propane to decline over time, while Spain will remain a net butane exporter as domestic demand falls faster than production.

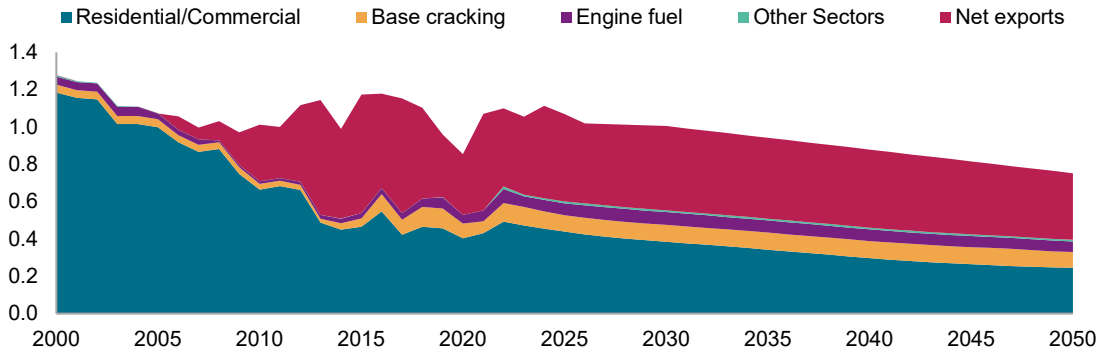
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Spain: LPG demand

Spain propane demand by sector (million metric tons)



Spain butane demand by sector (million metric tons)

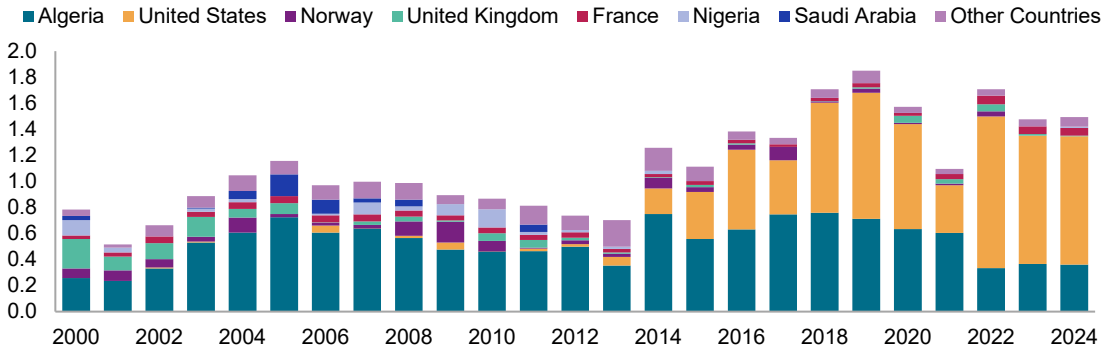


- The residential/commercial market is Spain's largest consumer of both propane and butane. Residential/commercial consumption of LPG is falling mainly due to competition from natural gas.
- The country's residential/commercial LPG mixture has undergone a gradual shift from about 40% propane in 2000 to nearly 75% propane, currently.
- The propane-to-butane ratio is expected to remain stable as Spain has likely reached the limit of how much propane it can put into its existing stock of cylinders while still meeting vapor pressure specifications.
- In addition to the cylinder market, Spain also has several legacy bulk LPG distribution networks served primarily by dedicated pipelines. These were all expected to undergo conversion to natural gas service, but work has stalled in recent years, leaving some legacy industrial demand for propane intact.
- Spain uses propane in the chemical sector as feedstock for olefins production.
- Declining demand for butane has allowed Spain to become a net exporter to some nearby countries with higher butane demand, including Morocco, Portugal, Senegal, and Mauritania.
- Key players in the Spanish LPG wholesale and distribution include Repsol, Cepsa, SHV subsidiary Primagas, and Vitogas.

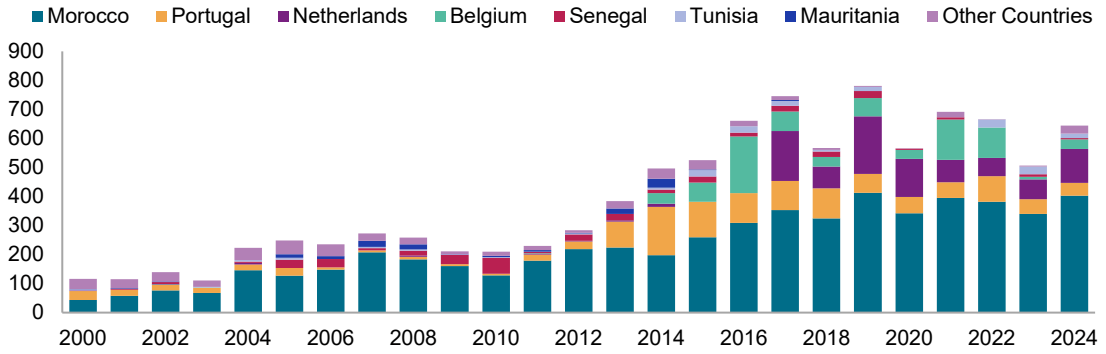
Data compiled September 2025.
Source: S&P Global Commodity Insights, Spain Ministry of Industry Trade and Tourism, IEA, Eurostat.

Spain: LPG trade

Spain propane imports by country of origin (million metric tons)



Spain butane exports by country of destination (thousand metric tons)

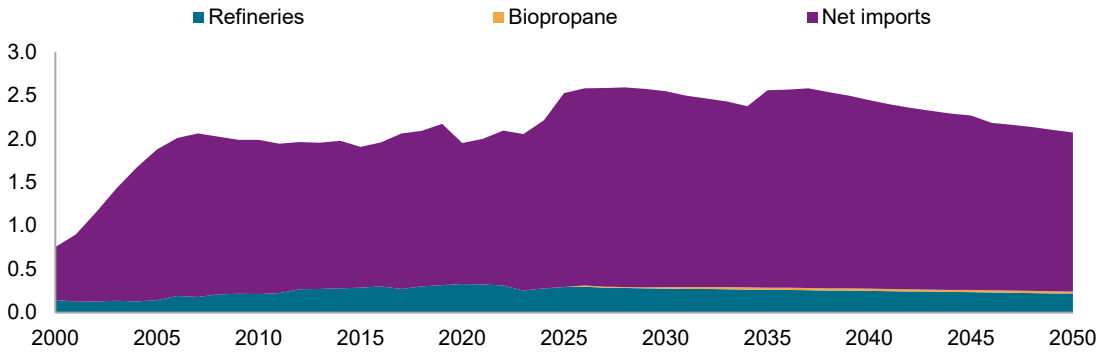


- Like Portugal, Spain has taken advantage of the US propane surplus to source more product. Repsol commonly brings VLGC cargoes (or partial cargoes) to Tarragona, where it sometimes substitutes propane for naphtha at its cracker.
- At the same time, propane imports from Algeria have been relatively steady, while other sources have been mostly pushed out (West Africa).
- None of these sources was very significant to begin with, so the net result is that propane imports to Spain have pushed higher, passing 1.6 million tons in 2019 before dipping slightly lower through 2022, when it imported 1.5 million tons. Imports have increased in recent years as propane becomes more favorable relative to naphtha.
- Exports have also grown in recent years as the switch from butane to propane in the residential/commercial sector has freed up more butane to be sold internationally. This trend appears to have reached its limit as exports are trending down. We expect butane exports will hover around 500,000 metric tons through the early 2030s, before slowly reducing through 2050.

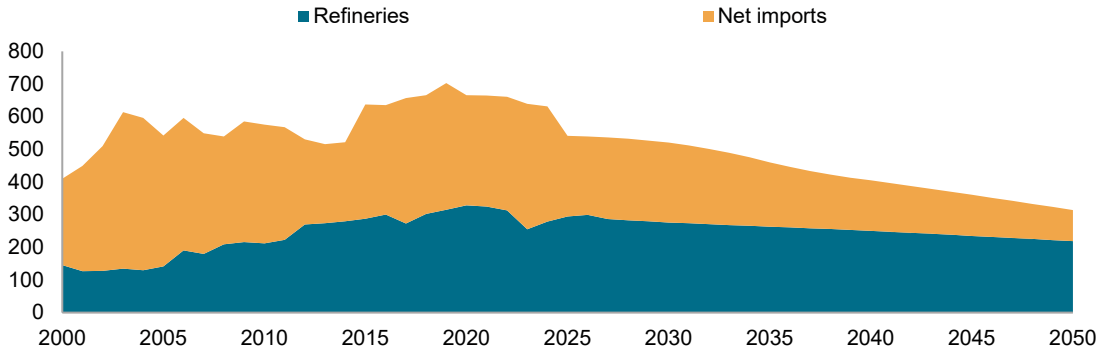
Data compiled September 2025.
Source: S&P Global Commodity Insights.

Poland: LPG supply

Poland propane supply by source (million metric tons)



Poland butane supply by source (thousand metric tons)

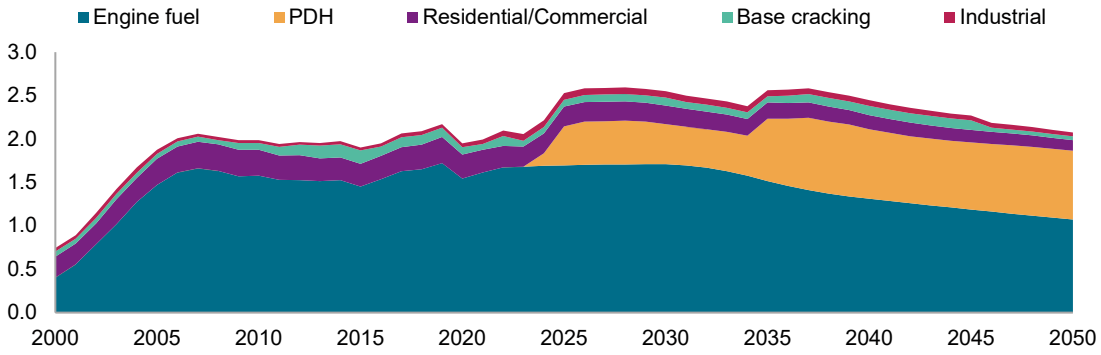


- Poland's domestic LPG production comes only from refineries. The country has sought to develop its shale gas reserves, but results have been disappointing. No LPG is expected to be produced from gas processing during the forecast period.
- Refinery production of both propane and butane grew beginning in 2000 with expanded refinery capacity and throughput. However, output has been stable since 2016, and with refineries near capacity and no expansions expected, we anticipate refinery LPG production to be nearly flat over the long term.
- Production is not large enough to meet demand, so Poland imported LPG mainly from the CIS. In the past, most imports came via rail through Belarus from Russia, but this declined sharply since 2019.
- Poland increased its imports of Russian LPG in the months following the war in Ukraine in order to supply Ukraine. Up until 2024, Poland imported more LPG from Russia than it did since 2018. These volumes are being replaced with imports from other regions, such as the North Sea, the United States, other inland European countries, and potentially, CIS countries like Kazakhstan.
- Poland still passes on a small portion of the LPG it imports (mostly via rail) into the Czech Republic, Slovakia, Germany, and more recently, Ukraine.

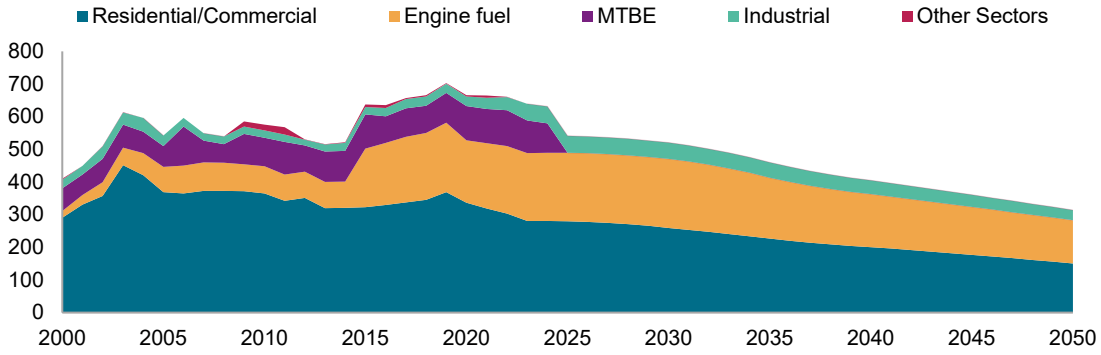
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Poland: LPG demand

Poland propane demand by sector (million metric tons)



Poland butane demand by sector (thousand metric tons)

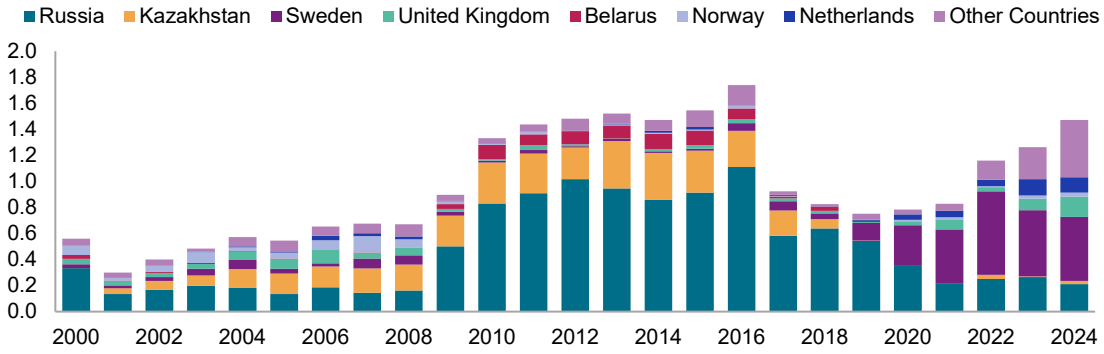


- Poland has a relatively steady demand for LPG in the industrial and residential/commercial sectors, though competition from natural gas limits the scope for growth. Demand is forecast to be on a long-term decline path for both of these sectors.
- Poland uses both propane and butane as feedstock to produce olefins, which is also projected to grow slowly through the forecast period.
- Grupa Azoty completed its new propane PDH plant near Police. At full capacity, this plant will equal about 500 thousand tons of propane demand per year.
- We have a hypothetical PDH plant in our chemical balances starting operations in 2035.
- Poland has the second-largest Autogas market in Europe. Its Autogas uses 95% propane. Autogas consumption dropped in 2020 and did not recover in 2021. Demand is likely to have peaked in 2019 and will continue to decline.
- The Autogas market will remain the largest end-use for LPG in Poland; however, shifting policy winds now favor electric vehicles over CNG and LPG in Poland. Absent a drastically different fuel tax structure, we do not expect Autogas to become expensive compared to gasoline and diesel, so those drivers who do own Autogas vehicles can still be expected to drive them, preventing a complete collapse of the market.
- The Polish engine fuel market will see some growth through the near term, partly due to new drivers from Ukraine, then starts declining around 2030 at a slower rate than other countries that are declining faster, particularly in Northern Europe.
- Companies active in LPG distribution in Poland include ButanGas subsidiary DragonGaz, SHV subsidiary GasPol Energy, and UGI.

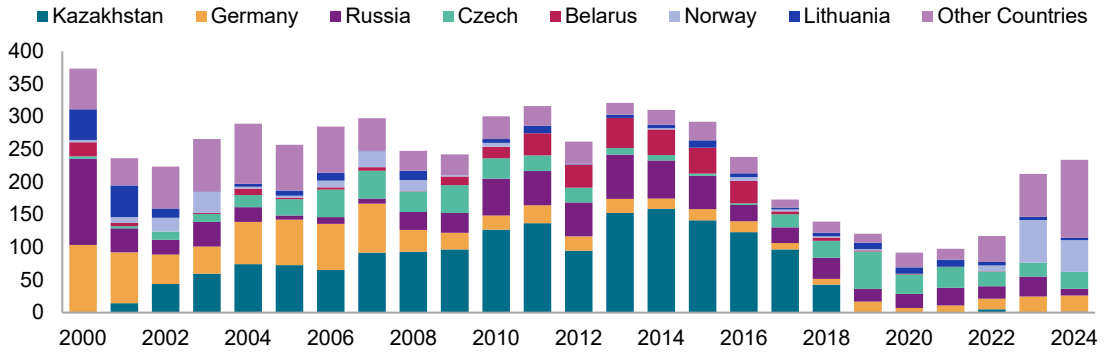
Data compiled September 2025.
Source: S&P Global Commodity Insights, Central Statistical Office of Poland, IEA, Eurostat.

Poland: LPG imports

Poland propane imports by country of origin (million metric tons)



Poland butane imports by country of origin (thousand metric tons)

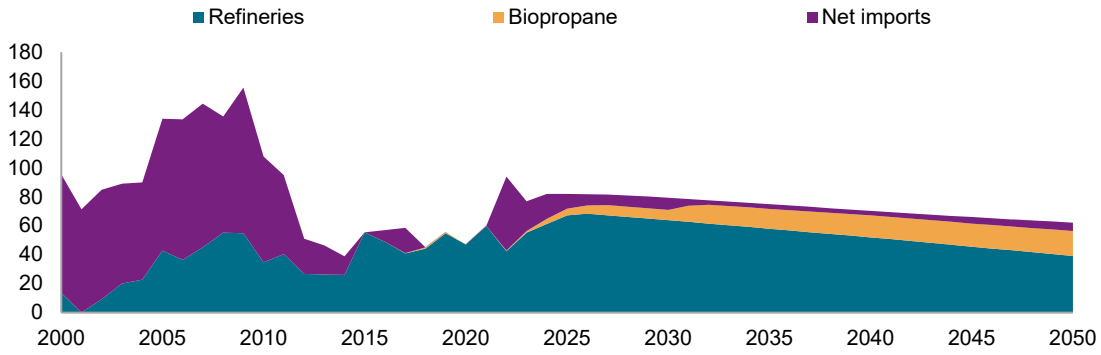


- Since 2017, a large portion of the LPG Poland imports is classified as mixed hydrocarbon gases and is difficult to square with the propane and butane trade data. Total imports remain near the 2.0 million metric ton level.
- Poland imports propane for use primarily in the Autogas sector, and most propane used to originate in Russia, now shifting to Sweden and other suppliers.
- Poland's port infrastructure has traditionally been incapable of receiving VLGCs, so it has not been able to import significant quantities of US LPG. However, investment in port infrastructure driven by the need to shift away from rail imports from Russia/Belarus has led to some changes in how the country manages its waterborne imports. Grupa Azoty's PDH Polska, for example, will utilize its own port infrastructure at Police to import with VLGCs from the US.
- Polish butane imports have always been much smaller than propane, as the Autogas and chemical feedstock sectors use mostly propane. This will continue going forward.
- Imports of LPG have now shifted to be primarily from the North Sea as the EU's 19th package of sanctions on Russia now excludes both propane and butane imports.

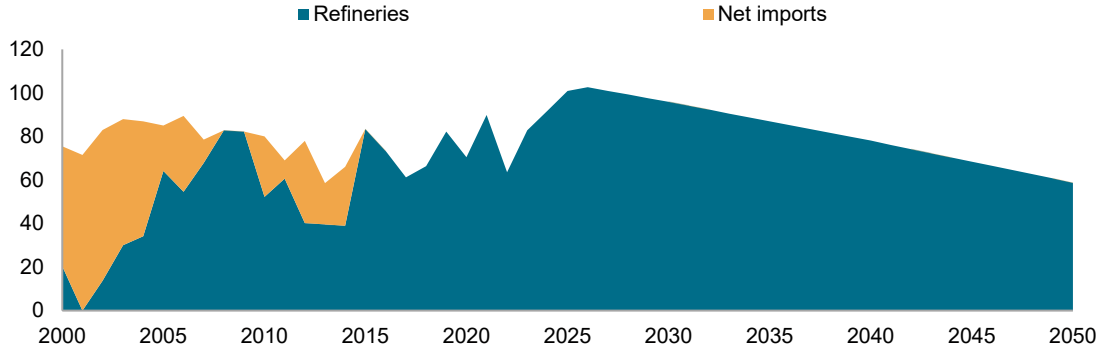
Data compiled September 2025.
Source: S&P Global Commodity Insights.

Austria: LPG supply

Austria propane supply by source (thousand metric tons)



Austria butane supply by source (thousand metric tons)

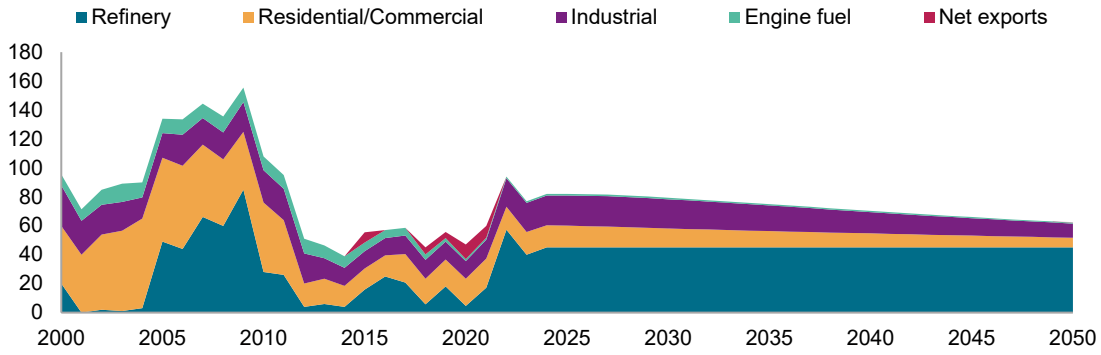


- Austria recovers small volumes of propane and butane from its refineries, and production over the past decade has been volatile year-to-year as crude runs fluctuated, though the overall trend was growing production.
- Austria also produces small volumes of bio-propane, and this will expand in the 2030s.
- Austria formerly consumed far more propane than it produced and relied on imports mainly from its neighbors (Germany, Czechia, Hungary, and Russia/Kazakhstan via these others).
- Demand peaked in 2009 but has since stabilized around 50,000 metric tons. Austria is generally a net exporter of propane, but volumes are typically small.
- Austria is close to balance in butane, but in recent years, Austria has become a net exporter of butane.
- Austria is expected to add significant bio-LPG capacity in the coming years.

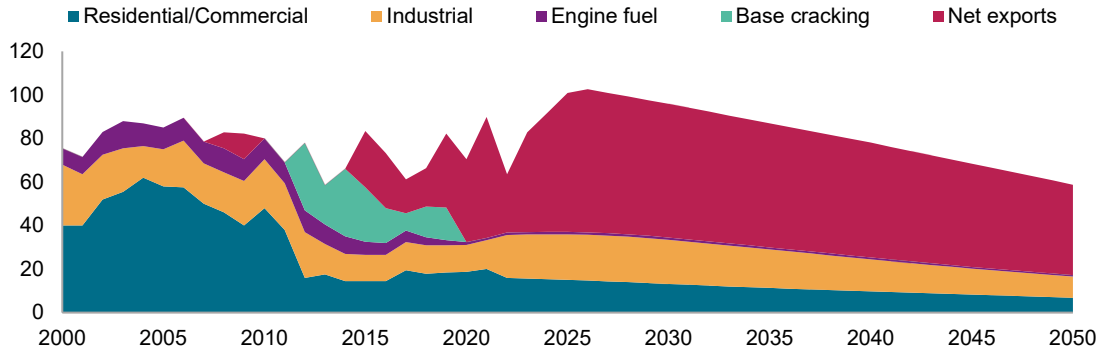
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Austria: LPG demand

Austria propane demand by sector (thousand metric tons)



Austria butane demand by sector (thousand metric tons)

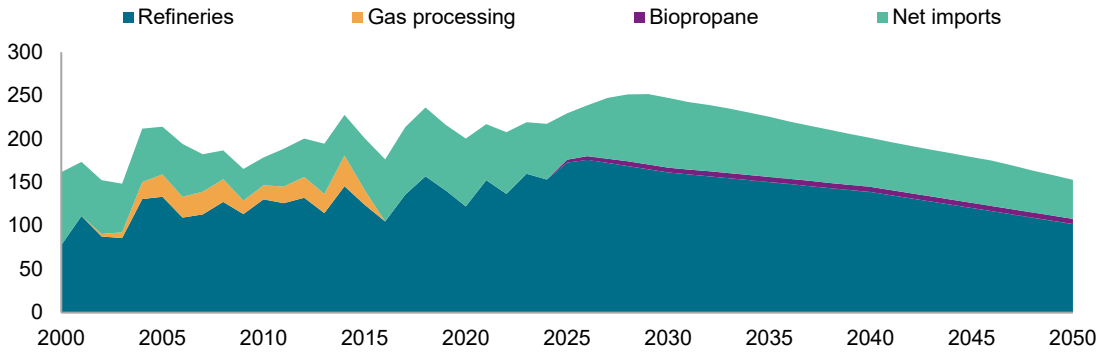


- Austria formerly consumed over 100,000 tons of propane per year in its residential/commercial sector, but this has declined steadily in recent years, to around 30,000 tons per year.
- This decline is attributable primarily to displacement by natural gas. We expect most of the remaining households and businesses using propane for heating and cooking will continue to do so, as there are only a small number and located away from natural gas infrastructure, and thus, not cost-effective to connect. This will slowly over time be converted to electricity, leading to continued slow demand decline.
- Austria also has small industrial and Autogas markets which have held steady even as residential/commercial demand has been displaced. We expect this trend will continue through the forecast period.
- Most of the butane recovered from refineries is used to produce chemicals.
- Refinery demand increased temporarily as natural gas prices became higher than propane on a energy basis. We do not expect this demand to return in a significant fashion, as natural gas prices have largely stabilized.

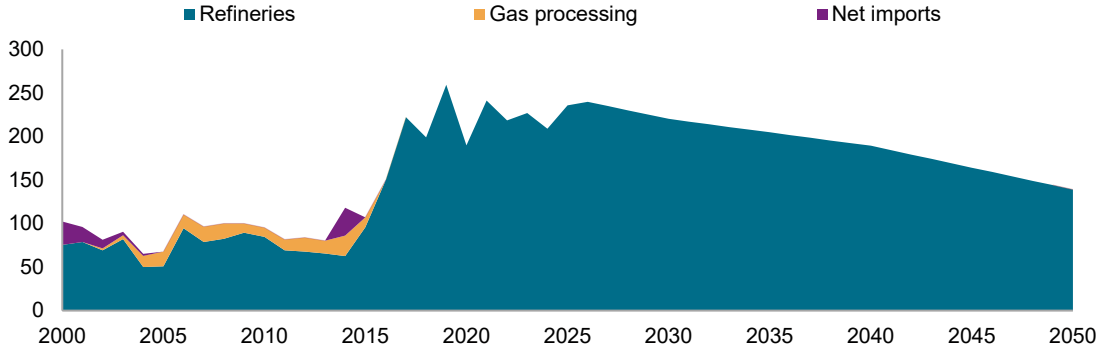
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Czech Republic: LPG supply

Czech propane supply by source (thousand metric tons)



Czech butane supply by source (thousand metric tons)

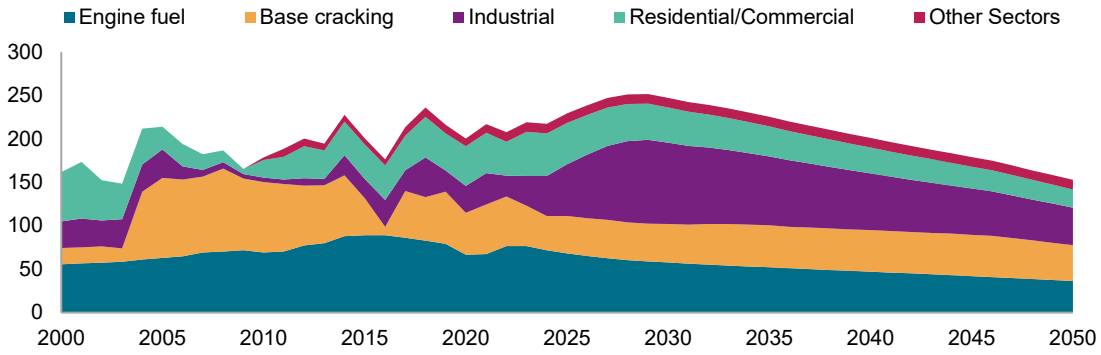


- The Czech Republic once produced small volumes of LPG from natural gas processing, but production ceased in 2015 and is not expected to resume during the forecast period.
- Refinery production of propane has been relatively stable in recent years and meets more than half of propane demand. Remaining propane demand is met via overland imports of LPG originating mostly in the Poland, though some comes in via Germany as well.
- Butane supply from refineries has increased sharply in recent years as reconfiguration of refinery production left more butane unused within the refinery.
- The Czech Republic is about balanced on butane with trade bouncing between imports and exports.

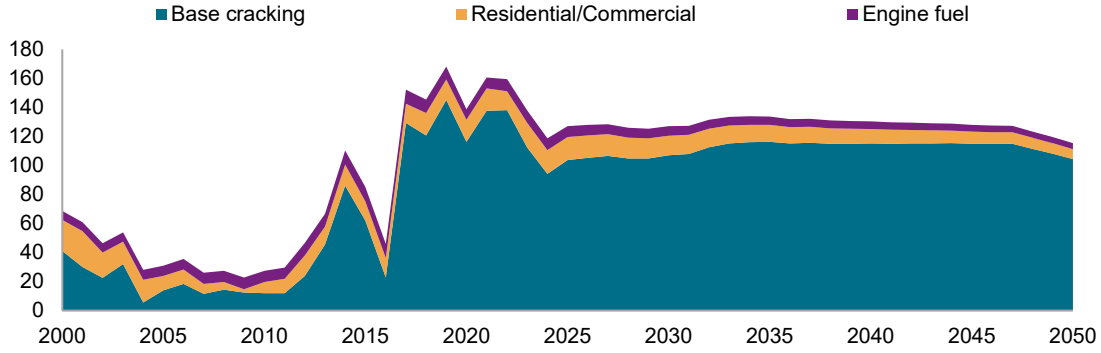
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Czech Republic: LPG demand

Czech propane demand by sector (thousand metric tons)



Czech butane demand by sector (thousand metric tons)

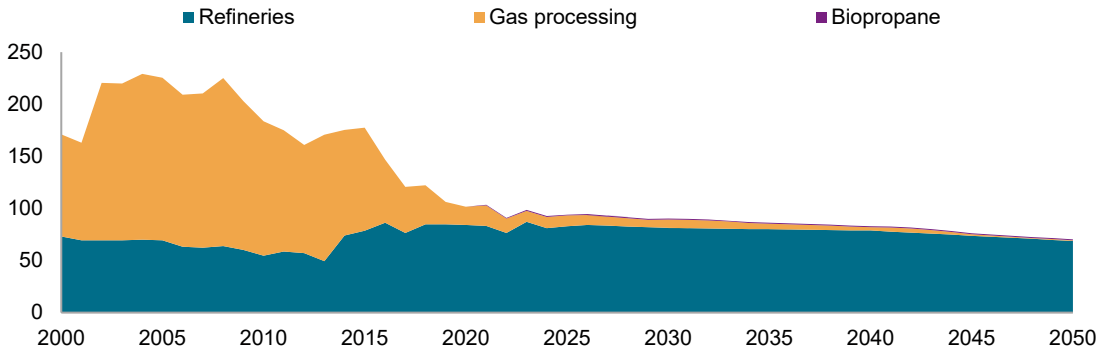


- The Czech Republic has a small residential/commercial sector that mostly uses propane. Consumption is likely to continue to decline.
- There are two steam crackers in the Czech Republic, and both are capable of running LPG feedstock.
- We expect a reduction in base cracking in Czech Republic in the next few years that will also impact imports.
- Propane consumption in chemicals has been declining slowly in recent years as expanding fuels sector use has absorbed more locally produced supply and cracker owners see better returns running naphtha rather than more expensive imported propane.
- Butane is expected to continue to be used to produce chemicals along with naphtha.

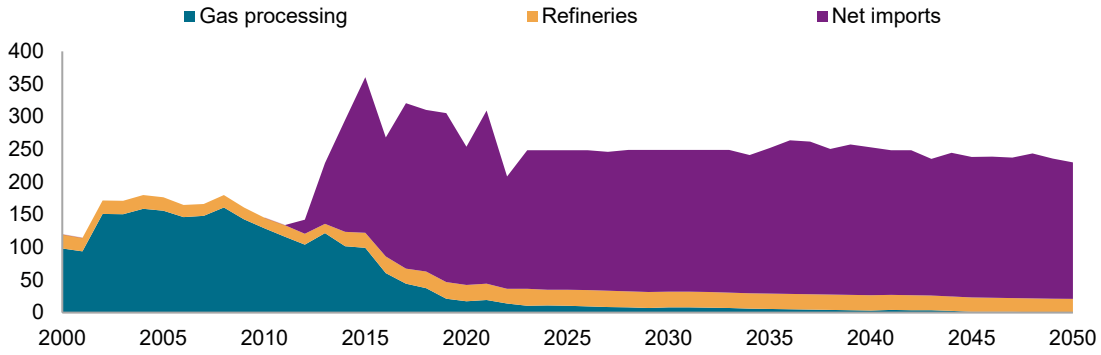
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Hungary: LPG supply

Hungary propane supply by source (thousand metric tons)



Hungary butane supply by source (thousand metric tons)

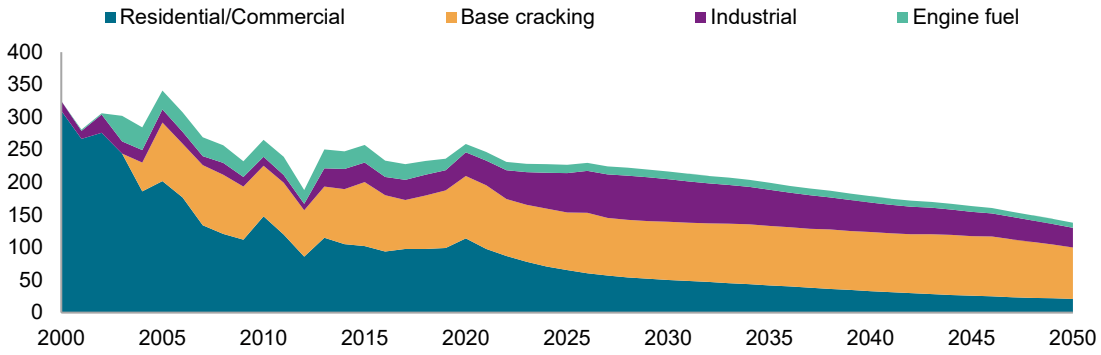


- Hungary is now the only country in Central Europe still producing propane and butane from natural gas processing. Volumes of both have declined since 2008 and will continue to do so going forward.
- Refinery LPG production to remain flat over the forecast period.
- Despite declining demand for propane, and nearly flat demand expected for butane, Hungary will remain a net importer of both propane and butane.

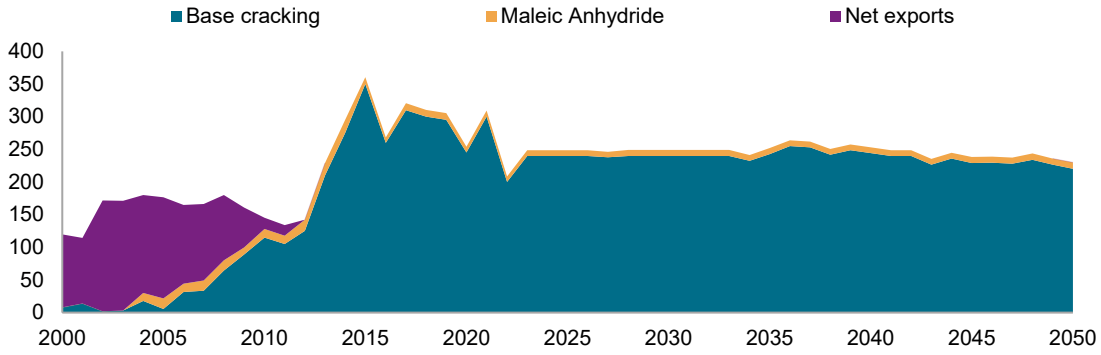
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Hungary: LPG demand

Hungary propane demand by sector (thousand metric tons)



Hungary butane demand by sector (thousand metric tons)

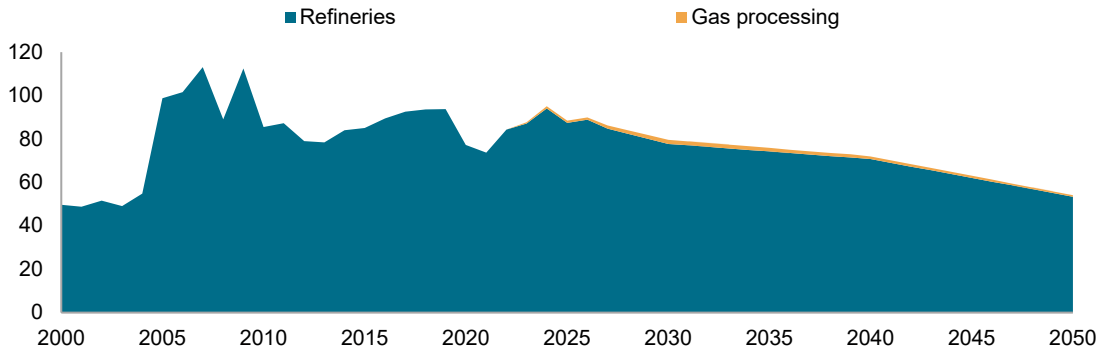


- Residential/commercial, industrial, and Autogas consumption of LPG in Hungary uses only propane, and demand has fluctuated from year-to-year but overall declined from about 325,000 tons in 2000 to about 150,000 tons per year since 2015. We expect declines to continue, driven primarily by a declining population and energy efficiency gains.
- Hungary does not use propane in PDH but does use it in cracking.
- About 10,000 tons of butane per year goes into maleic anhydride production. Plant operation has been relatively stable since 2005, and we expect it will continue through the forecast period.

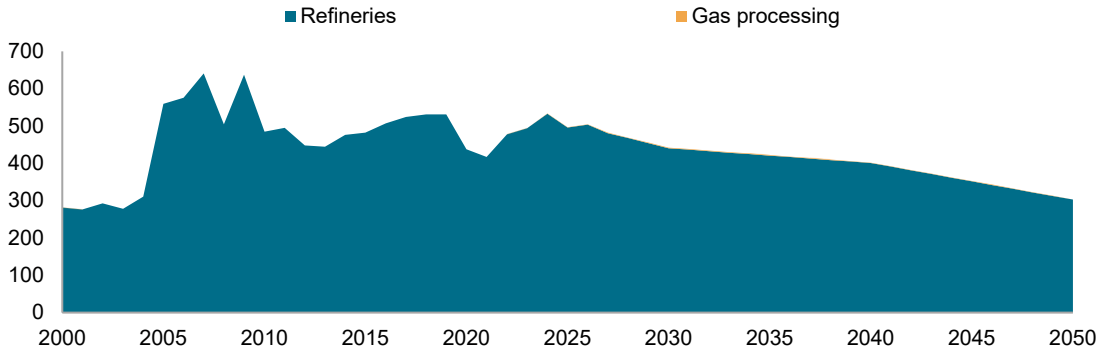
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Romania: LPG supply

Romania propane supply by source (thousand metric tons)



Romania butane supply by source (thousand metric tons)

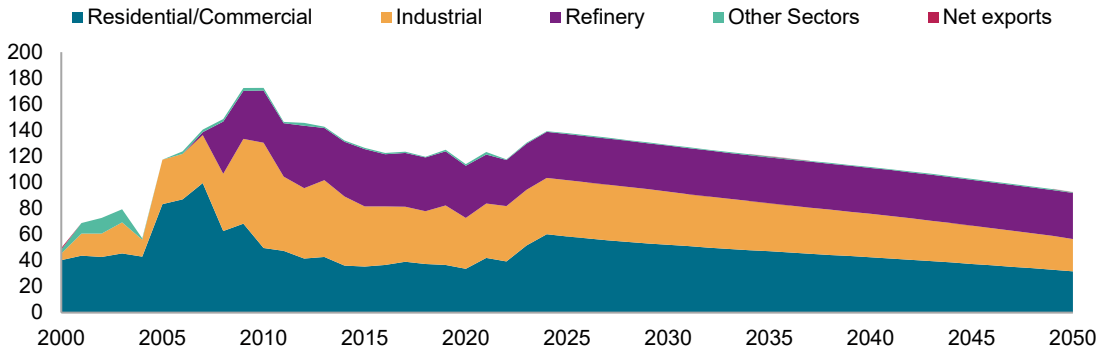


- Almost all of Romania's production of LPG comes from its refineries, and, as with most diesel-optimized refining sectors, production is heavily weighted towards butane.
- Production peaked in 2007 but has declined since. Refinery runs will slowly decline as oil product demand in the region matures, leading to declines in propane and butane production.
- Romania has seen some production of LPG from natural gas processing, likely peaking around 2030.
- Romania is a net importer of propane and a net exporter of butane.

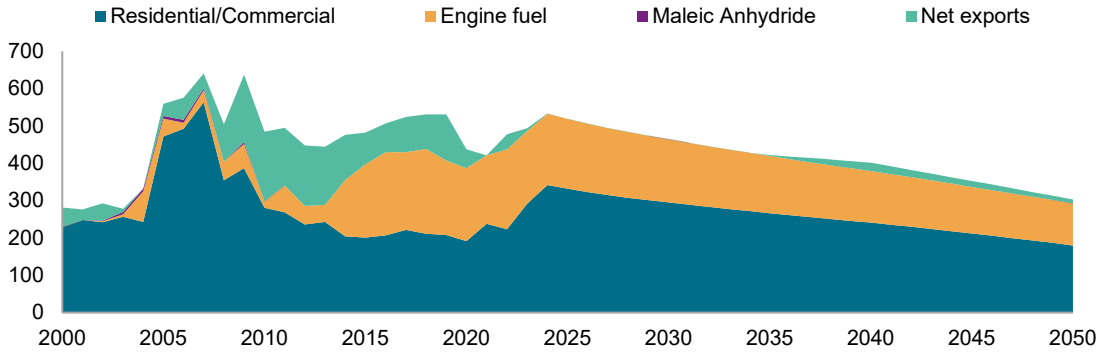
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Romania: LPG demand

Romania propane demand by sector (thousand metric tons)



Romania butane demand by sector (thousand metric tons)

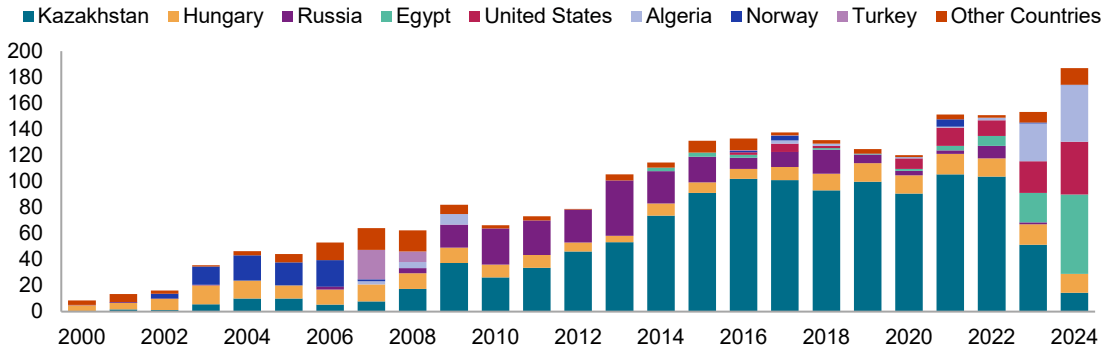


- Residential/commercial sector usage is mainly butane, but demand is declining. The market is limited by a declining population, and the push for decarbonization is expected to lead to slow declines over the long term.
- Autogas (about 50/50 propane/butane) is a relatively popular alternative fuel in Romania, and as with elsewhere in the region, we expect long term declines based on a preference for electric vehicles as the primary alternative to gasoline and diesel. The pandemic had a minimal impact on Autogas demand in Romania, and we expect a moderate recovery in the near term.
- Butane exports should stay relatively steady through the long term, as declining production is matched with declining demand. Romania will continue to be a net importer of propane.

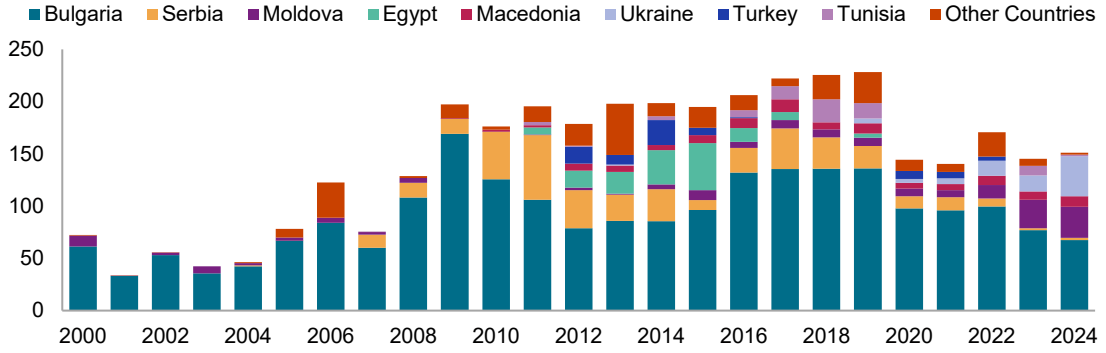
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Romania: LPG trade

Romania propane imports by country of origin (thousand metric tons)



Romania butane exports by country of destination (thousand metric tons)

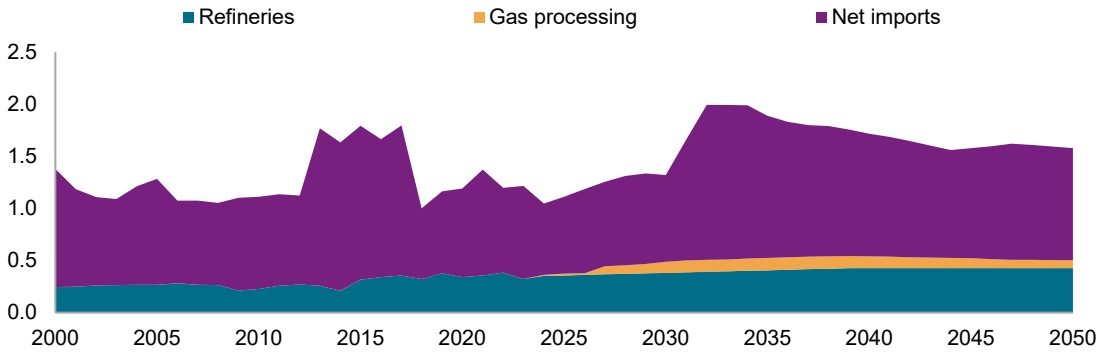


- Romania is a net importer of propane and a net exporter of butane. Propane imports used to come mainly from the CIS, particularly Kazakhstan, but has now shifted to include suppliers such as the United States and Egypt.
- Most CIS imports arrived on small ships via the Black Sea, which is still the route used for Egyptian imports. Some propane also comes overland from Hungary, Bulgaria, and other sources.
- When demand growth in the industrial and Autogas sectors in the 2013-2017 period led to growing import demand, most of the incremental volumes originated in Kazakhstan.
- Romania's butane exports go mainly to its near neighbors, Bulgaria and Serbia, as well as other neighboring countries, and occasionally Austria.
- Propane imports from Russia increased after the invasion of Ukraine, as the country was a re-exporter supplying the Ukrainian LPG market (along with Poland and others). This dynamic has gone away with the ban on Russian LPG imports.

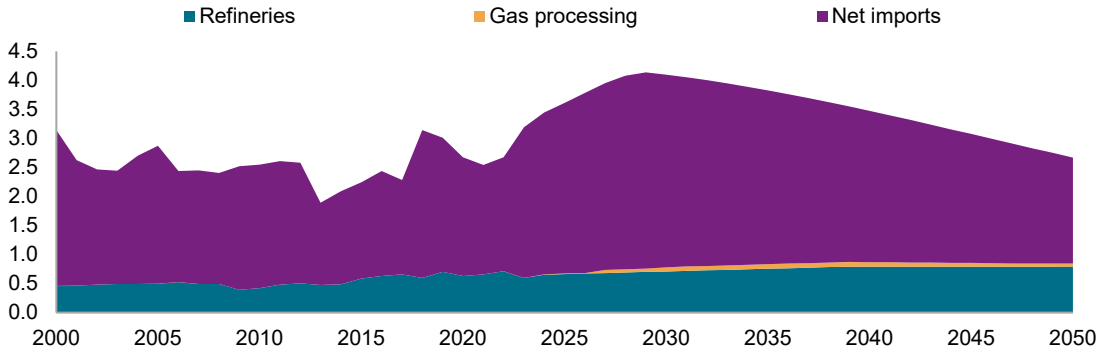
Data compiled September 2025.
Source: S&P Global Commodity Insights.

Turkey: LPG supply

Turkey propane supply by source (million metric tons)



Turkey butane supply by source (million metric tons)

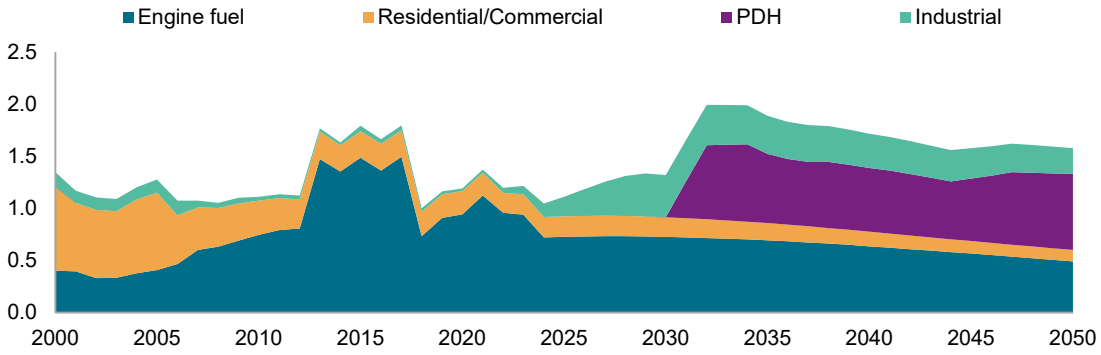


- Turkey produces a small amount of LPG from its refineries but must import the majority of its supply.
- Crude oil throughput in Turkey's refineries peaked in 2017 resulting in growing LPG production.
- LPG imports come mainly from Algeria, the United States, and the CIS (largely from Kazakhstan but also from Russia).
  - While imports of Russian LPG had been declining steadily since 2020, they picked up since the invasion of Ukraine.
  - Turkey is likely to continue importing Russian LPG for its domestic demand.
- Turkey has several terminals with the capability to receive VLGCs, including at Izmir, Dortyol, and Yarimca.
  - This has proven valuable in recent years as Turkish importers have been able to take advantage of low VLGC freight and low prices at the US Gulf Coast to access US propane at competitive prices (sometimes enjoying a discount to the delivered cost of propane from Algeria).
- Gas production is expected to increase in Turkey. However, this increase will not be ever-growing, as these are mostly dry, and will therefore have a declining LPG profile over time.

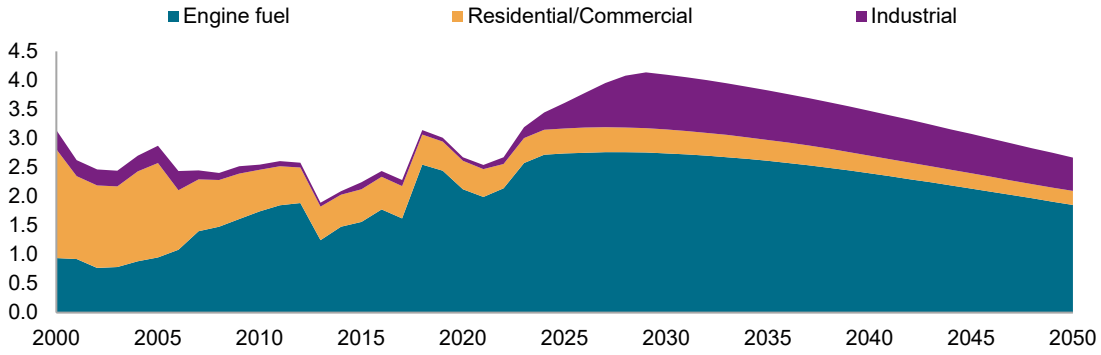
Data compiled September 2025.
Source: S&P Global Commodity Insights, EMRA, IEA, Eurostat.

Turkey: LPG demand

Turkey propane demand by sector (million metric tons)



Turkey butane demand by sector (million metric tons)

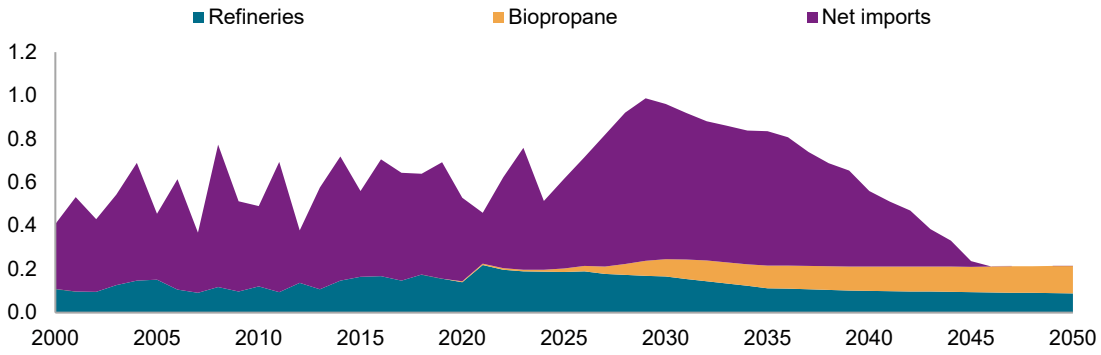


- Turkey's residential/commercial LPG market has declined due to increasing competition from natural gas. As natural gas supply from Central Asia expands further, demand for LPG cylinders will be restricted to remote rural areas only.
- However, the Turkish Autogas market remains strong.
  - At 3.5 million metric tons, Turkey has the largest LPG engine fuel market in Europe, and the second largest in the world (after Russia).
  - Autogas demand fell somewhat in 2020 and shifted from 23% propane to 27% propane, as butane supply was more constrained. Long-term Autogas demand will decline slowly as hydrocarbon fuels are slowly replaced by electric vehicles.
  - Over 40% of vehicles on the road are either OEM or converted to be capable of using Autogas. Prices for Autogas in Turkey are high relative to those in some other European markets due to high taxes. However, because taxes are also high on gasoline and diesel, Autogas is competitive with other fuels.
  - While the country is not an EU member and thus not directly affected by Fit for 55, we expect that it will follow a similar profile, if only because the availability of new LPG-fueled vehicles will be constrained.
  - Turkey is therefore expected to grow its engine fuel market slightly through 2030, before starting a slow decline in the long term.
- We have new PDH capacity coming online in Turkey in 2030, leading to higher propane demand through the forecast period. We assume this demand will be met with US imports.
- The main marketers of LPG in Turkey include domestic firms Aygaz (the largest marketer), Milangaz, and İpragaz.

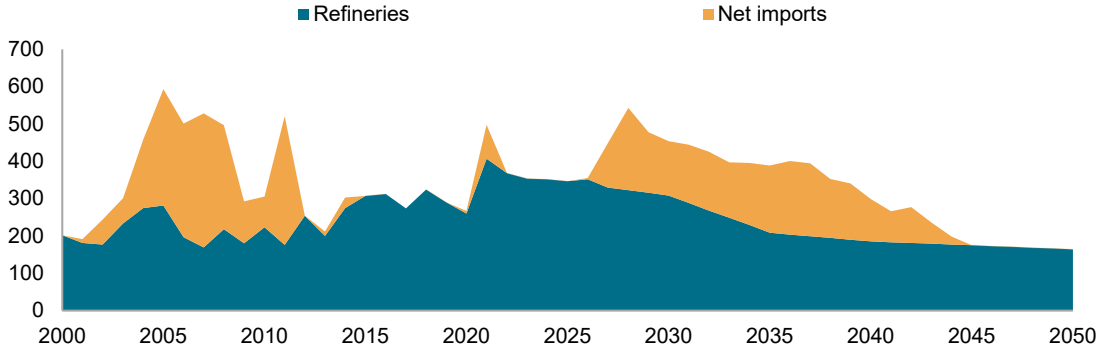
Data compiled September 2025.
Source: S&P Global Commodity Insights, EMRA, IEA, Eurostat.

Sweden: LPG supply

Sweden propane supply by source (million metric tons)



Sweden butane supply by source (thousand metric tons)

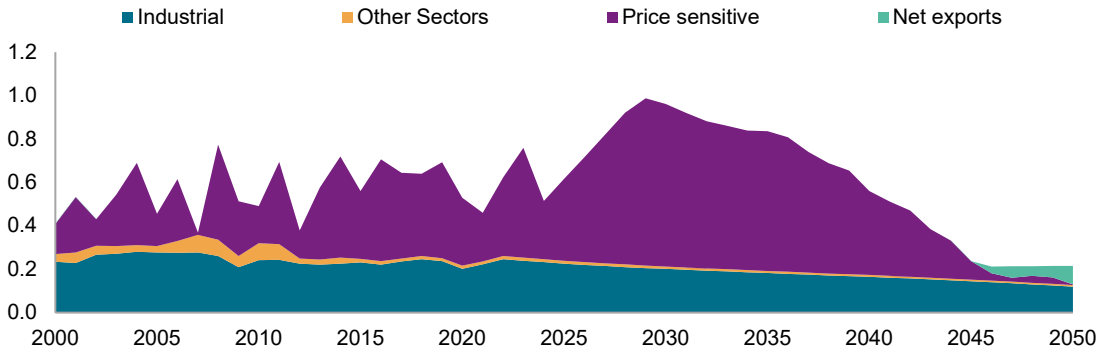


- Sweden produces propane and butane from its refineries, and in the past has been a net importer of both, mainly for chemical feedstock.
- Going forward, as with other European countries, we expect higher potential demand in chemicals due to the price competitiveness as a petrochemical feedstock of US supply.
- For butane, Sweden became a net importer in 2022 as butane became available to be used for price-sensitive cracking to absorb global excess volumes.
- Though trade is small in net terms, Sweden has the largest underground storage in Europe, which is employed by traders in the region to help balance short-term swings in supply and demand. Imports and exports are higher in some months than domestic fundamentals would indicate.
- Sweden is expected to add significant bio-LPG capacity in the coming years.

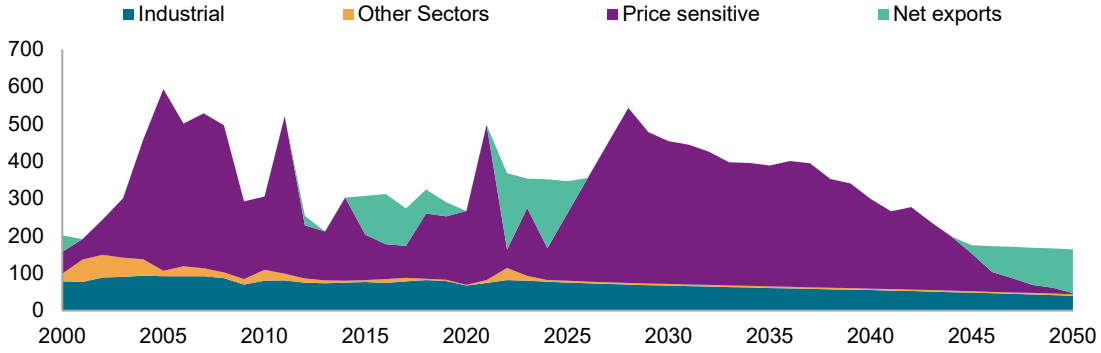
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Sweden: LPG demand

Sweden propane demand by sector (million metric tons)



Sweden butane demand by sector (thousand metric tons)

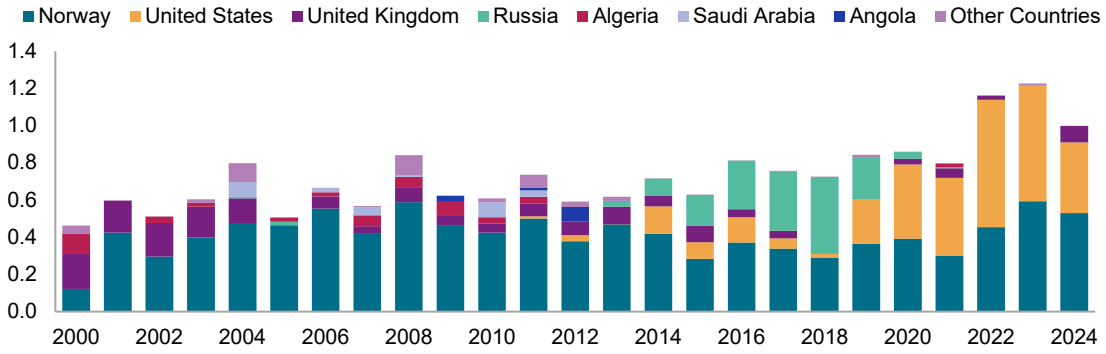


- The largest demand sector for propane in Sweden is in light industry. In some areas of the country, there is little competition from natural gas, and thus, local power and heat generation for industrial processes, in certain cases, relies on propane.
- Sweden has very little residential/commercial LPG demand.
- There is a single steam cracker in Sweden, at Stenungsund. Operator Borealis runs both propane and butane but has consistently increased the use of US ethane.
- The increase in availability of and competitiveness of US LPG is expected to lead to an increase in LPG the country's petrochemical sector in the period 2025-2035, as Sweden is one of the countries with the ability to take LPG beyond their base cracking capability. These volumes could also be absorbed by other demand sectors.
- Sweden is expected to become a net exporter of propane towards the end of the forecast period.

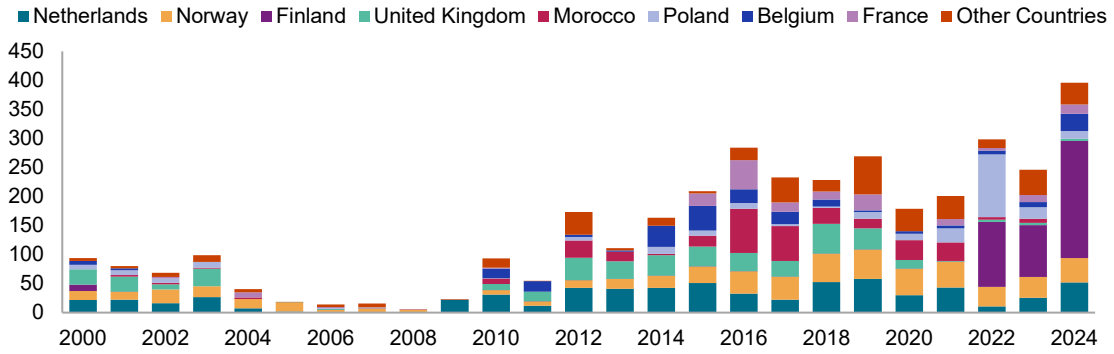
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Sweden: LPG trade

Sweden propane imports by country of origin (million metric tons)



Sweden butane exports by country of destination (thousand metric tons)

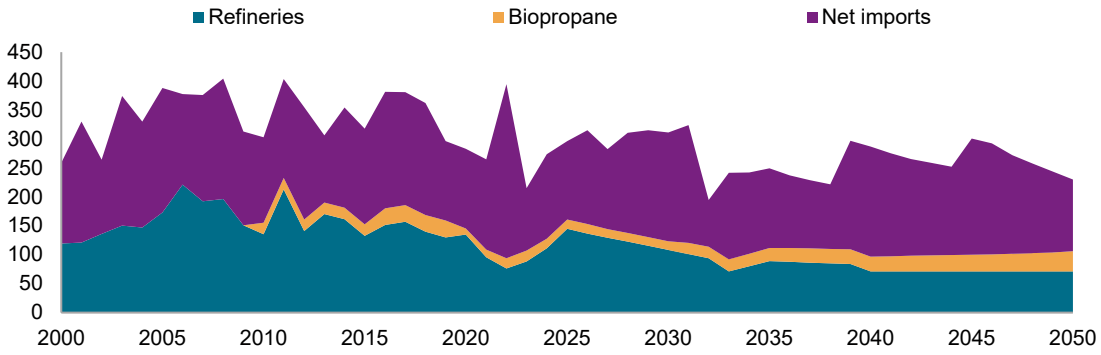


- In the past, propane imports to Sweden came almost entirely from the North Sea, with Norway being the largest supplier.
- Russia's Ust-Luga exports captured market share from Norway, but the restriction on Russian exports in 2020 led to replacement mainly with US cargoes.
- Butane exports began ramping up in recent years as production has exceeded demand, but Sweden became a net importer in 2020/2021.
- Sweden is now a key supplier to Poland and other Eastern European countries that have moved away from Russian LPG imports.

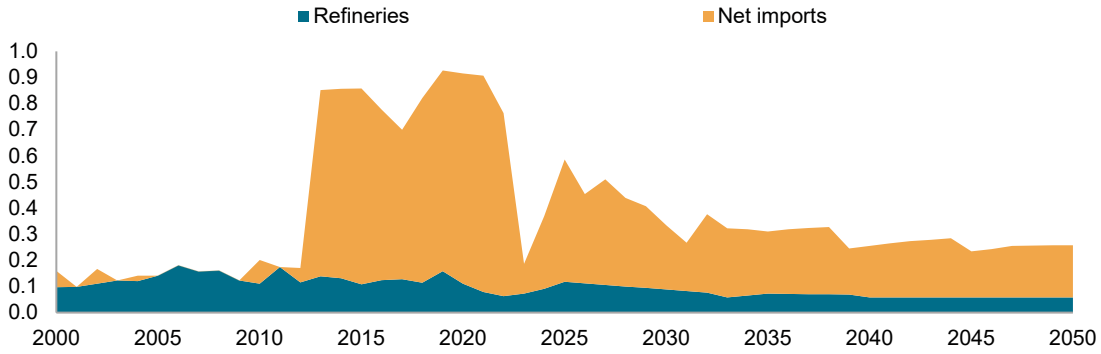
Data compiled September 2025.
Source: S&P Global Commodity Insights.

Finland: LPG supply

Finland propane supply by source (thousand metric tons)



Finland butane supply by source (million metric tons)

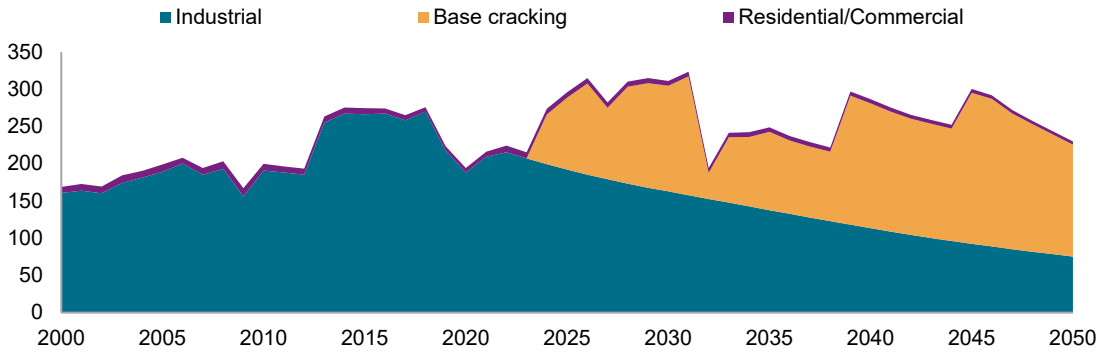


- In addition to refinery LPG production, Finland also produces some bio propane as a byproduct of the HVO process to produce renewable diesel. This production will expand going forward.
- Finland imports about 60% of the propane and butane it uses. Imports have been higher in recent years as Borealis has taken advantage of favorable cash costs to crack more butane at Porvoo.

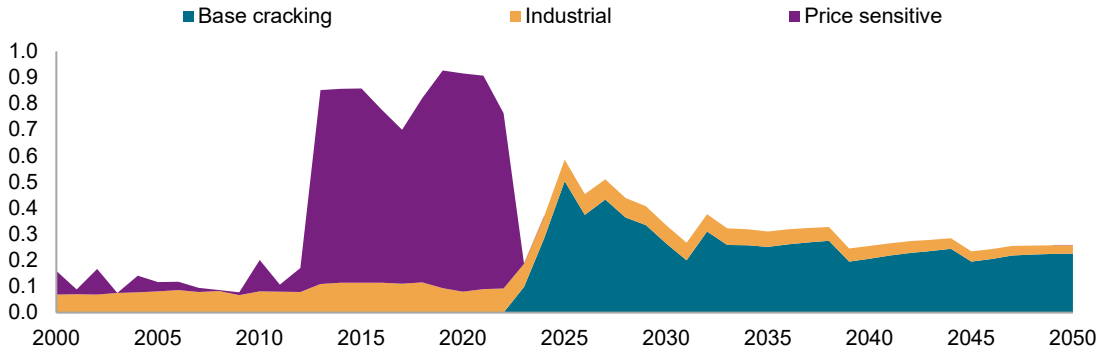
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Finland: LPG demand

Finland propane demand by sector (thousand metric tons)



Finland butane demand by sector (million metric tons)

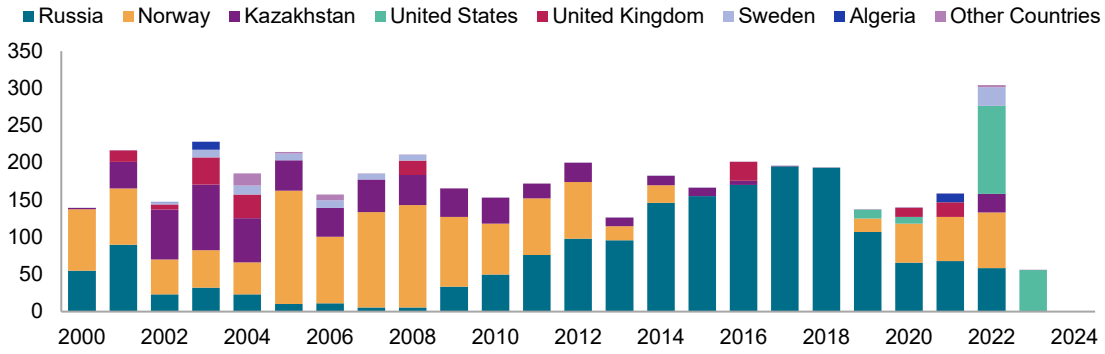


- Propane demand is concentrated in the industry and chemicals sectors but has shifted towards industry and away from chemicals in recent years.
- Finland's propane market is larger than butane—very little butane is used as a fuel in Finland owing to the high northern latitude and cold temperatures, which lead to insufficient vapor pressure in butane cylinders.
- Butane that is recovered from refining goes to industrial fueling and for olefins feedstock at the Borealis steam cracker in Porvoo. Recently, Borealis has run more butane feedstock at Porvoo.
- Going forward, we expect continued opportunistic feedstock use of both propane and butane, though normally at lower levels than in some recent years.
- The increase in availability of and competitiveness of US LPG is expected to lead to an increase in LPG the country's petrochemical sector in the period 2025-2035, as the Finland is one of the countries with the ability to take LPG beyond their base cracking capability. These volumes could potentially be absorbed by other demand sectors as well.

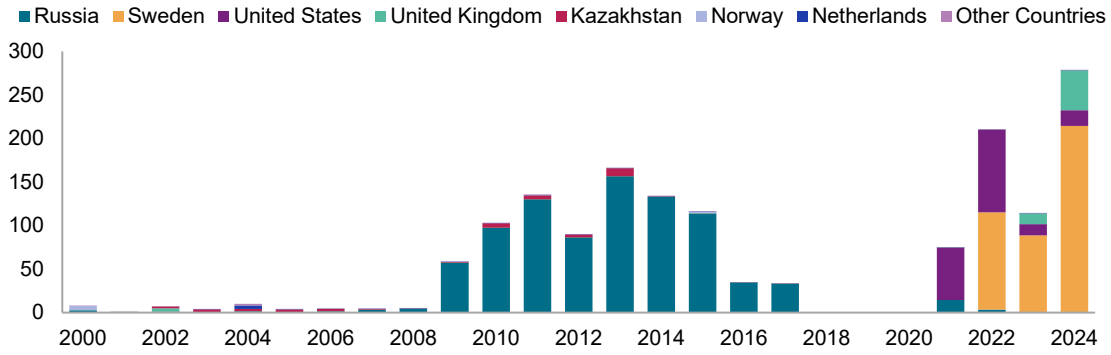
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA, Eurostat.

Finland: LPG imports

Finland propane imports by country of origin (thousand metric tons)



Finland butane imports by country of origin (thousand metric tons)

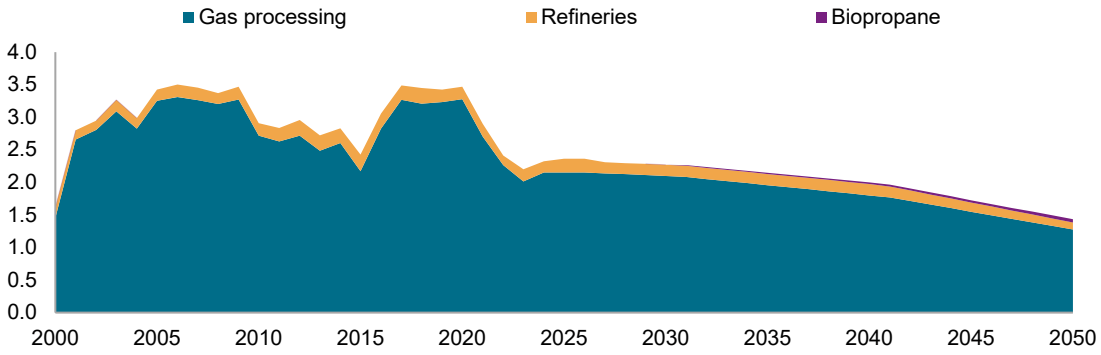


- Following the start of the Ust-Luga export terminal in Russia, Finland's propane and butane imports came almost exclusively from Russia.
- Over time, Ust-Luga imports have been replaced with cargoes from Norway, the UK, and the US.

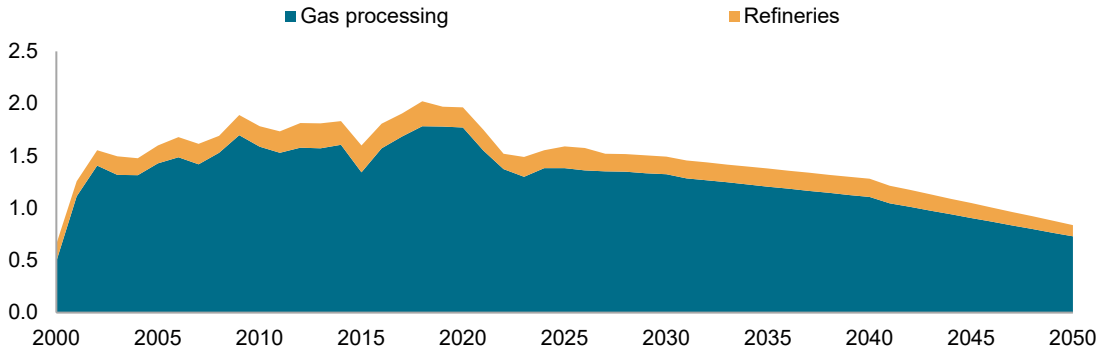
Data compiled September 2025.
Source: S&P Global Commodity Insights.

Norway: LPG supply

Norway propane supply by source (million metric tons)



Norway butane supply by source (million metric tons)

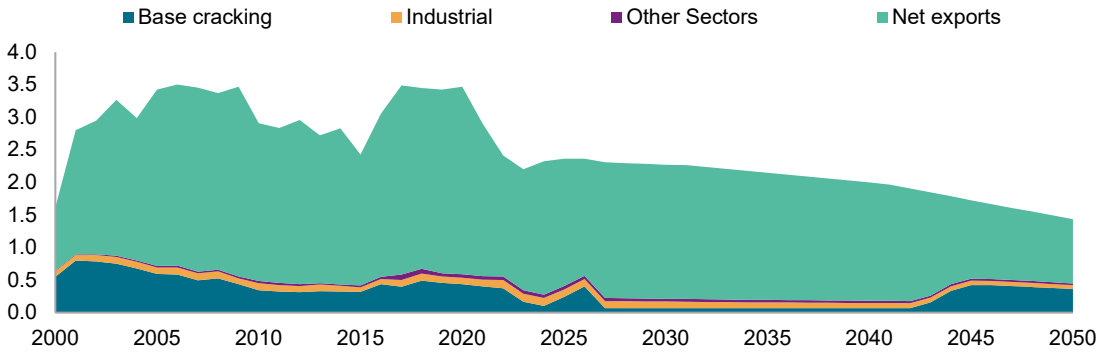


- Norway's LPG production from gas processing plants appears to have peaked in 2020. Production is expected to slowly decline.
- Developments such as Phase 2 of the Johan Sverdrup field in Norway have allowed sustaining gas production, but the impact on NGL production is minimal. The region will continue its long-term decline.
- After 2025, underlying declines in mature fields should begin to pull production lower, and after 2030, declines may accelerate.
- As is typical of LPG extracted from natural gas, propane accounts for about 60% of production.
- Norway produces some LPG from refineries, but production from refineries is forecast to decline very slowly through the forecast period.

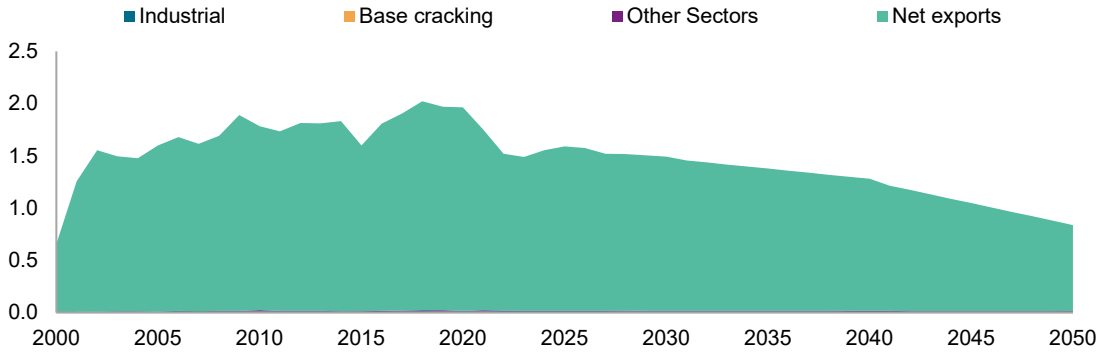
Data compiled September 2025.
Source: S&P Global Commodity Insights, NPD, IEA, Eurostat.

Norway: LPG demand

Norway propane demand by sector (million metric tons)



Norway butane demand by sector (million metric tons)

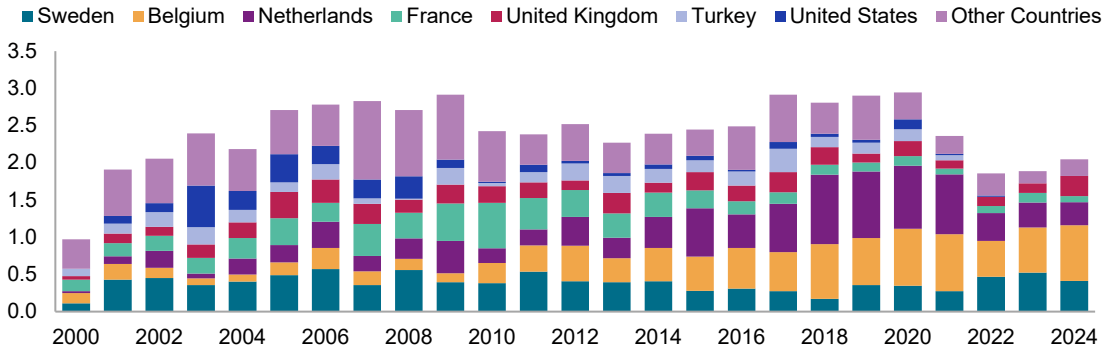


- Domestic consumption of LPG in Norway is small relative to supply, with minor amounts used in the residential/commercial and industrial sectors.
- Propane and butane are both used in the chemical sector as feedstock for olefins production. Norway has one steam cracker with feedstock flexibility. It has increasingly cracked ethane due to its attractive economics. Norway also has a fertilizer plant that uses some propane as feedstock, which is unusual in that sector.
- Annual LPG exports have reduced from being close to 5 million metric tons over 2017-2020 to an average of 4 million metric tons in the past few years. Going forward, exports are expected to continue a long-term decline as gas production and refinery runs decrease.
- Equinor is the largest LPG producer in Norway and has a trading arm that handles exports on small ships to Northwest Europe and VLGCs to markets further afield. Equinor also markets volumes for Petoro, which manages the Norwegian state's share of production.

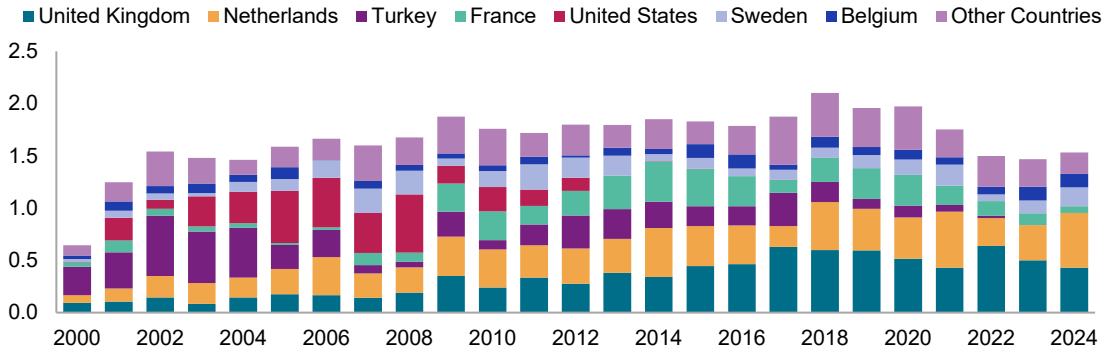
Data compiled September 2025.
Source: S&P Global Commodity Insights, Statistics Norway, IEA, Eurostat.

Norway: LPG exports

Norway propane exports by country of destination (million metric tons)



Norway butane exports by country of destination (million metric tons)

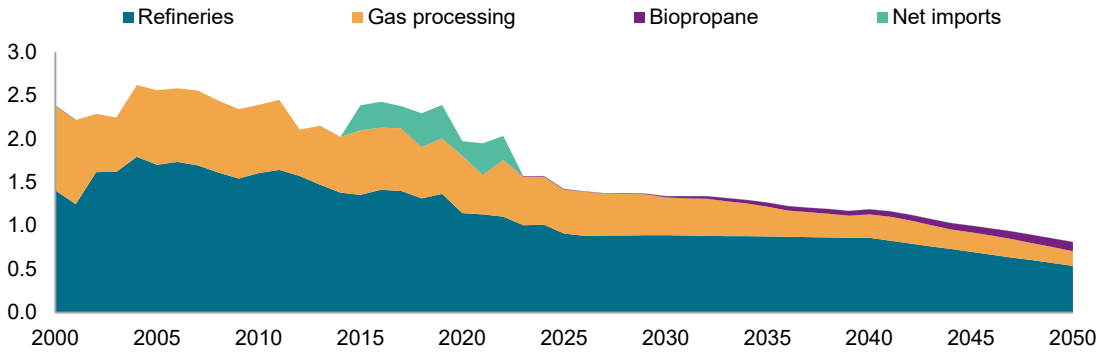


- Propane exports peaked in 2017 but have declined since then and the trend will continue.
- Butane exports peaked in 2018 but have declined since then as did propane.
- Norway continues to be a key supplier throughout Europe, with occasional cargoes to the Far East and West Africa.

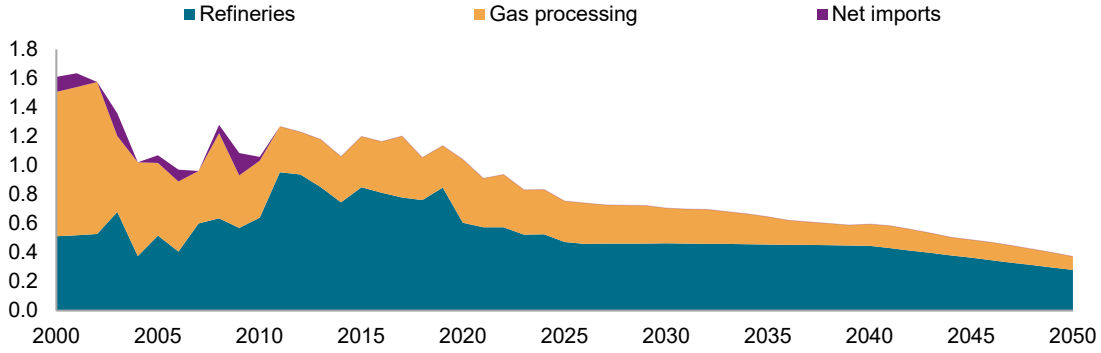
Data compiled September 2025.
Source: S&P Global Commodity Insights.

United Kingdom: LPG supply

United Kingdom propane supply by source (million metric tons)



United Kingdom butane supply by source (million metric tons)

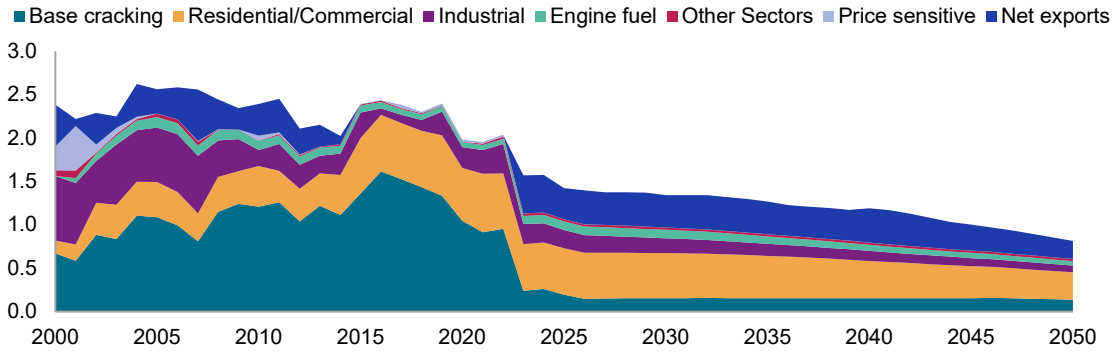


- Along with Norway, the United Kingdom has long been a key LPG exporter in Europe. The country produces a fair amount of LPG from its refineries.
- Despite a reduction in production in recent years, the long-term trend is towards lower recovery of propane and butane from natural gas, and relatively more stable production of LPG from refineries.
- The United Kingdom is expected to add significant bio-LPG capacity in the coming years.

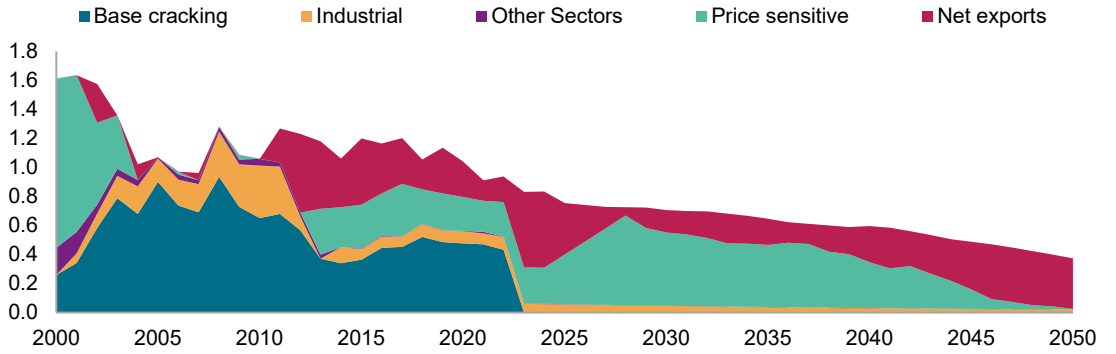
Data compiled September 2025.
Source: S&P Global Commodity Insights, DUKES, IEA, Eurostat.

United Kingdom: LPG demand

United Kingdom propane demand by sector (million metric tons)



United Kingdom butane demand by sector (million metric tons)

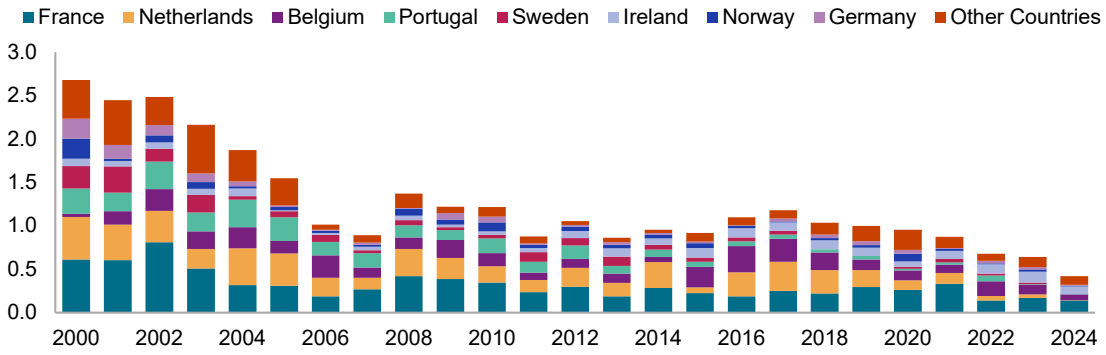


- The UK residential/commercial market uses mainly propane, but we expect demand to be nearly flat over the long term. The country has well-developed natural gas supply infrastructure, and propane is used mainly in rural areas and smaller islands.
- The other main uses of propane are in the industrial and chemicals sectors. Propane competes with natural gas in the industrial sector but is a popular fuel in certain types of industrial applications requiring precise temperature control, such as kilns and furnaces.
- There is structural demand for both propane and butane in the chemicals sector as feedstock for olefins production.
- The increase in availability of and competitiveness of US LPG is expected to lead to an increase in LPG the country's petrochemical sector in the period 2025-2035, as the United Kingdom is one of the countries with the ability to take LPG beyond their base cracking levels. These volumes could also be absorbed by other demand sectors.
- In the case of the United Kingdom, this is forecast to precipitate a transition from net exporter to net importer on an annual basis. Seasonal exports could continue in some years.
- SHV subsidiary Calor Gas and DCC subsidiary Flogas are the two largest players in UK LPG wholesale and retail. Flogas acquired British Gas' LPG unit in 2002, and BP's LPG unit in 2013.

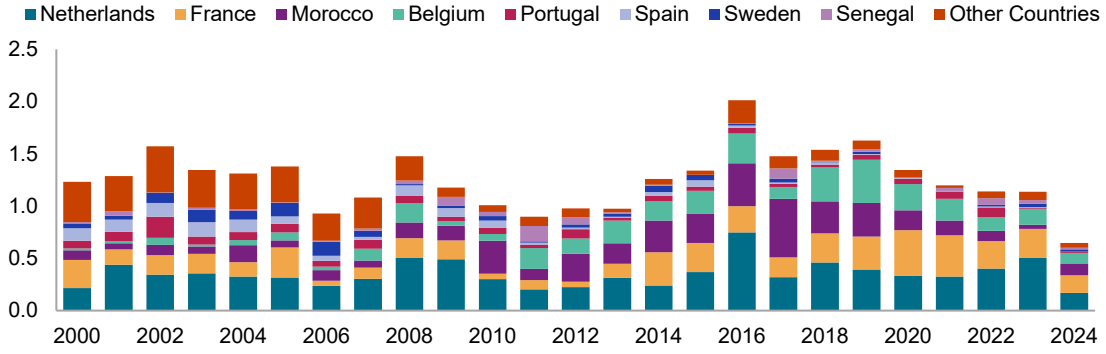
Data compiled September 2025.
Source: S&P Global Commodity Insights, DUKES, IEA, Eurostat.

United Kingdom: LPG exports

United Kingdom propane exports by country of destination (million metric tons)



United Kingdom butane exports by country of destination (million metric tons)



- The United Kingdom still reports exports of about 1 million tons per year of propane and 1.5 million tons of butane, but these statistics conflict with production and consumption data.
- We suspect that export data are inflated by the inclusion of some volumes that should more properly be classified as originating in Norway. However, because we cannot resolve this inconsistency, we continue to base our balance on official supply/demand data and report historical trade data as presented.
- Exports rarely go outside of Northwest Europe, the Baltic Sea, and the Mediterranean.
- Like Norway, the United Kingdom once regularly exported propane to the United States in the winter to meet heating demand in the US Northeast. Both countries still send the occasional winter cargo west.

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

Africa

- Key Insights
- Natural gas production and refinery runs
- LPG supply and demand
- Ethane supply and demand
- Natural gasoline supply and demand

Africa: Key insights

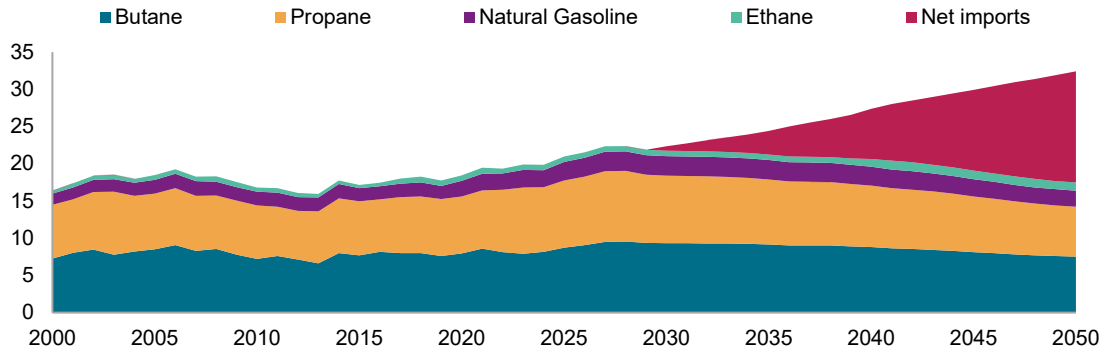
- Our outlook for African LPG supply and demand has changed from last year's outlook reflecting the changes that have occurred in the African market over the past two years.
  - Demand is significantly higher than in prior forecasts due to recent improvements in policy and infrastructure. While many countries continue to emphasize a switch to LPG from biomass for clean cooking, our forecasts rely on the actual effects of these policies on consumption.
  - Supply is higher in the medium term (through 2035), owing to recent developments in the continent's refining and upstream industries. However, we now project lower LPG supply after 2035 than in our prior outlook, as new fields will not be enough to reverse the trend of declining production from mature fields.
    - There is, however, significant upside potential from fields that have not yet reached FID. The next 2-3 years will prove crucial for the continent's plans of increasing its energy security.
- While LPG from natural gas processing will remain the largest source of domestic LPG, most of the growth will come from refinery production, particularly Nigeria's Dangote refinery.
  - LPG supply from natural gas processing will remain relatively stable through the long term. There is some growth expected particularly in Egypt and to some extent in Nigeria, but it will not be enough to make up for the decline in Algeria.
  - We expect Dangote to ramp up though 2028, pushing LPG supply from refineries to an average annual growth rate of more than 13% in that period. Most of that growth may not directly reach consumers, as we expect a significant portion to be used within the nearby petrochemical complex.
- There is some supply growth potential in other countries, but we do not expect that these projects will move the needle. As a result, our current outlook for supply and demand growth leads the continent to become a net LPG importer.
  - Smaller refinery projects in countries like Angola and Uganda will add some supply, but they will be minimal. Similarly, Sudan's struggling refining complex is expected to recover towards 2030, bringing back about 300,000 tons of LPG that went away over the past year.
  - The outlook on many of Africa's refineries (particularly older refineries in South Africa and in Nigeria) remain uncertain, and as demand continues to grow, existing refinery projects will not be enough to meet demand.
- Our estimates for supply growth are conservative, which means that there is some upside potential from addressing investment, infrastructure, and policy needs to unlock regional resources.

Africa: Key insights (continued)

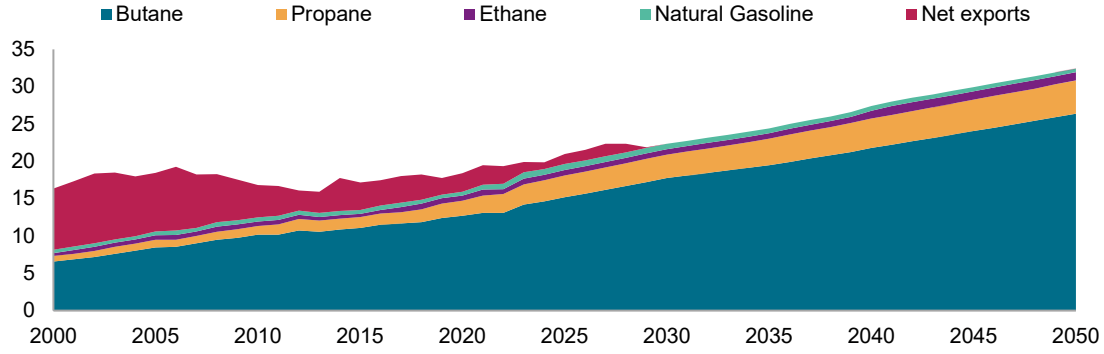
- Demand growing faster than supply in Africa, means that there will be a growing deficit that will need to be met with imports.
  - We estimate that by 2040, there will be a deficit of almost 10MT, jumping to over 15MT by 2050. This is more than half of the consumption expected in our base case.
  - While there is opportunity in the upstream and refining sectors in Africa, there are currently not enough projects with FID to completely change the trajectory of the deficit or even cushion its effect.
- Countries representing roughly a third of demand have grown by 50% in the past five years.
  - Morocco, Tanzania, Côte d'Ivoire, Uganda, Nigeria, South Africa, and Kenya have all grown significantly, as reflected in our new outlook.
  - Looking more closely, some of these countries have doubled their demand in the past few years.
  - While this is partly due to low global prices, which have improved affordability, it is also true that major changes to policy and infrastructure have stimulated demand at a higher rate than could be explained exclusively by price declines, economic growth, or population growth.
  - The most successful policies have been those that have been holistic, addressing new domestic supply, optimization of existing supply (i.e. reduced flaring), import infrastructure, market regulation, and access to foreign currency.

Africa: NGL supply and demand

Africa NGL supply by product (million metric tons)



Africa NGL demand by product (million metric tons)

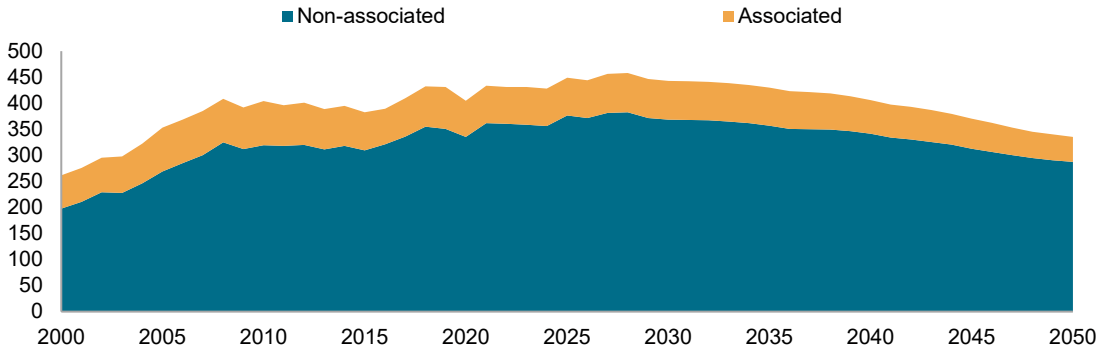


- NGL production has been unstable over the years, particularly due to changes in Algeria. As of late, Algerian production has been hovering around 8.7 million tons.
- Imports are still needed to balance the market.
- Africa is a large net importer of butane and a net exporter of propane. Major exporters, including Algeria, Nigeria, and Angola, export both propane and butane; however, many other importers across the continent are heavily weighted towards butane.
- Butane accounts for most of the NGL consumption in Africa. Butane is used in the residential and commercial sectors due to the largest markets being situated near the equator.
- Nearly all of Africa's NGL demand is in the residential and commercial sector. Nearly all ethane is left in the natural gas. LPG demand growth is constrained by affordability and infrastructure. Natural gasoline demand is relatively small.
- While an LPG trade surplus is likely for Africa through 2030, we expect that growing demand that is not accompanied by an equally significant increase in supply (as reflected in our current base case), will cement its status as a net importer through the long term.

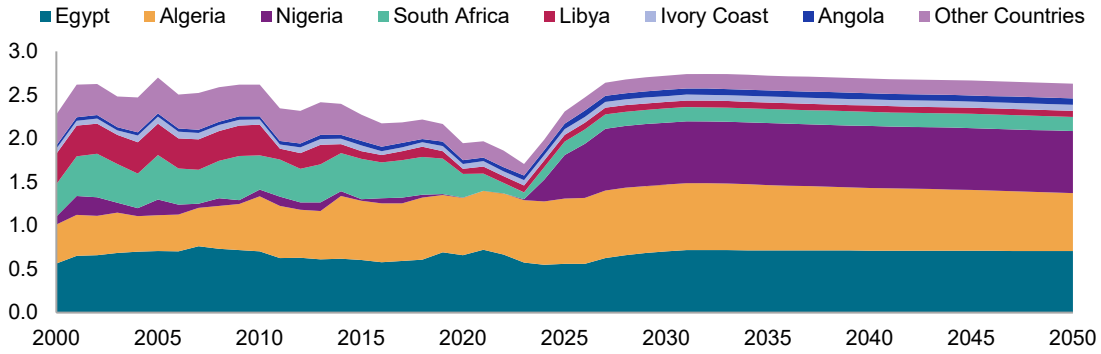
Data compiled September 2025.
Source: S&P Global Commodity Insights.

Africa: Natural gas production and refinery runs

Africa natural gas production by type (billion cubic meters)



Africa crude refinery runs by country (thousand barrels per day)

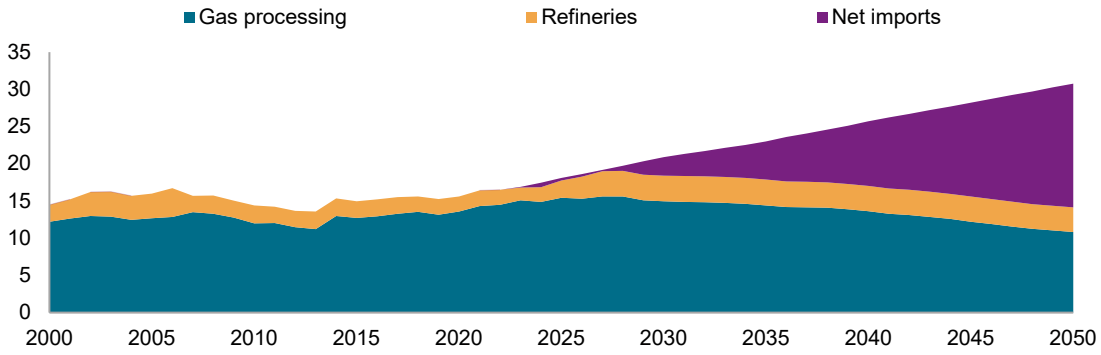


- Africa's natural gas production will see some further growth in the medium term as some of the key producers develop their extensive gas reserves (non-associated gas).
  - Associated gas will remain relatively stable and is not expected to grow dramatically.
  - Assuming no new upstream projects, gas production will then start a slow decline starting in the early 2030s.
  - This will inevitably put LPG supply from natural gas processing on a long-term decline curve.
  - Some notable exceptions are Nigeria (expected to grow long-term), Mozambique, and Uganda, which will be increasing their LPG supply from upstream developments.
- Refining in Africa peaked in 2005 at about 2.6 million barrels per day but declined to about 1.5 million barrels per day by 2023.
  - Dangote is contributing to growth, achieving 2.1 million barrels per day in 2025.
  - We expect a new average of 2.5 million barrels per day by 2030, which is expected to remain steady through 2050.
- Refinery LPG production will increase and remain steady along with Dangote's operational ramp-up period and the overall curve for the rest of Africa.
  - North Africa (Algeria and Egypt) accounts for half of the total runs and refining LPG production. This ratio will change as Dangote ramps up, setting Nigeria to be a leader on the continent.
  - Other countries in Sub-Saharan Africa will contribute to higher and stable production. These include Angola, Chad, Senegal, Niger, Uganda, and the Democratic Republic of Congo.

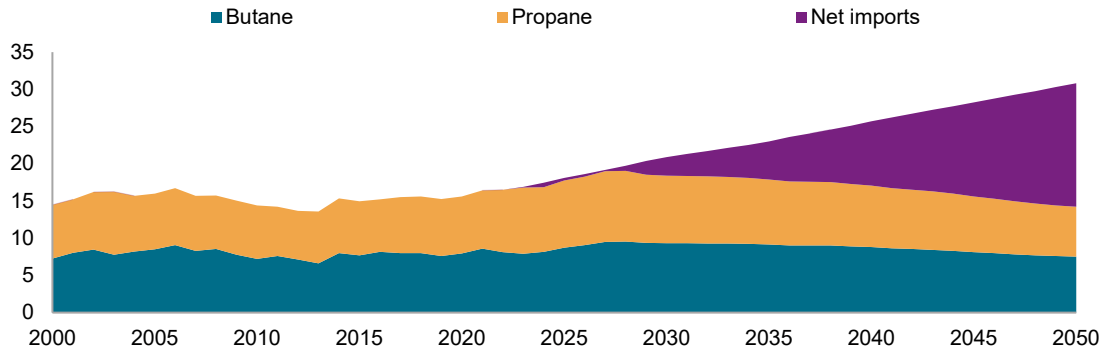
Data compiled September 2025.
Source: S&P Global Commodity Insights.

Africa: LPG supply

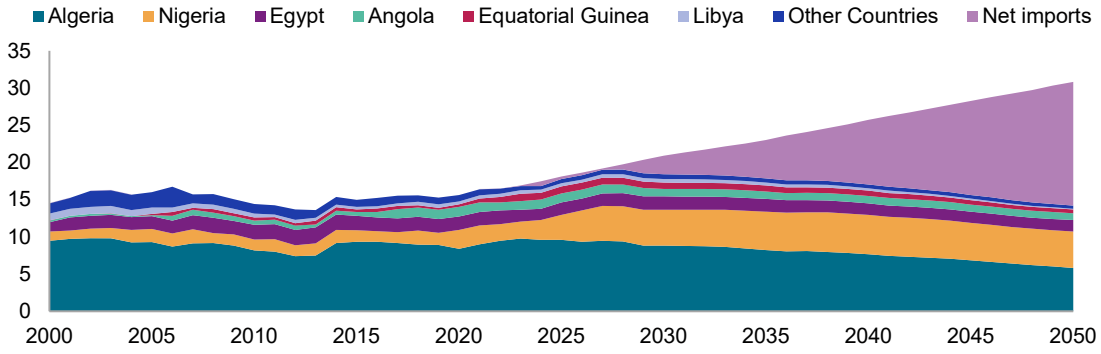
Africa LPG supply by source (million metric tons)



Africa LPG supply by product (million metric tons)



Africa LPG supply by country (million metric tons)



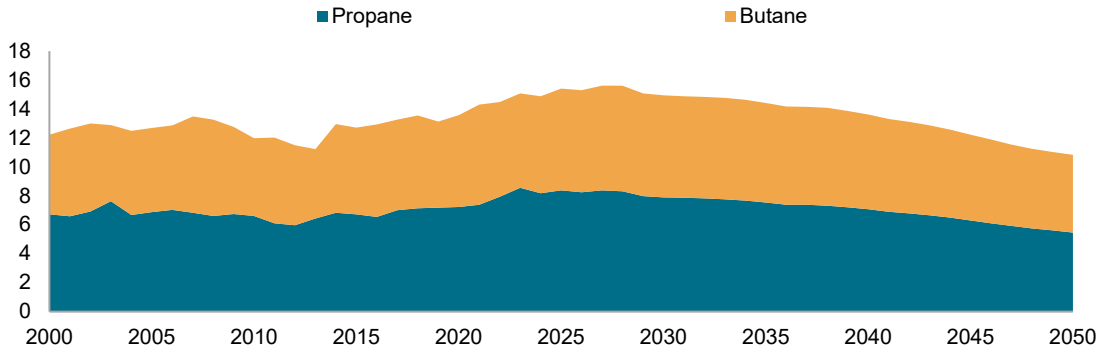
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

- LPG production in Africa is increasing as natural gas production grows in Algeria, Angola, Nigeria, and other countries.
- Natural gas processing will continue to be the major source of LPG in Africa as production from refineries will not increase significantly except in Nigeria.
- Algeria, Egypt, and Nigeria account for most of the LPG production in Africa due to the development of the large natural gas reserves in these countries.
- There is some growth potential in other countries, but we do not expect that these projects will move the needle. As a result, our current outlook for supply and demand growth leads the continent to become a net LPG importer by the early to mid-2030s.
  - Smaller refinery projects in countries like Angola and Uganda will add some supply, but they will be minimal. Similarly, Sudan's struggling refining complex is expected to recover by 2030, bringing back approximately 300,000 tons of LPG that were lost starting in 2022.
  - The outlook on many of Africa's refineries (particularly older refineries in South Africa and in Nigeria) remains uncertain, and as demand continues to grow, existing refinery projects will not be enough to meet demand.

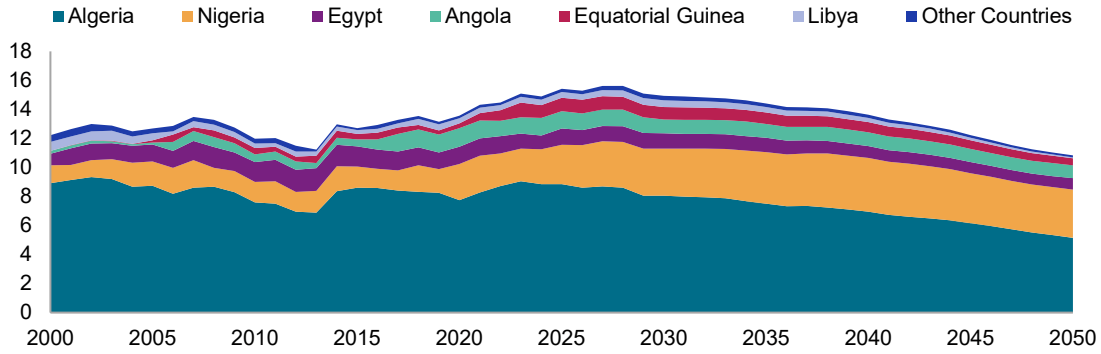
S&P Global
Commodity Insights

Africa: LPG production from gas processing

Africa LPG production from gas processing by product (million metric tons)



Africa LPG production from gas processing by country (million metric tons)

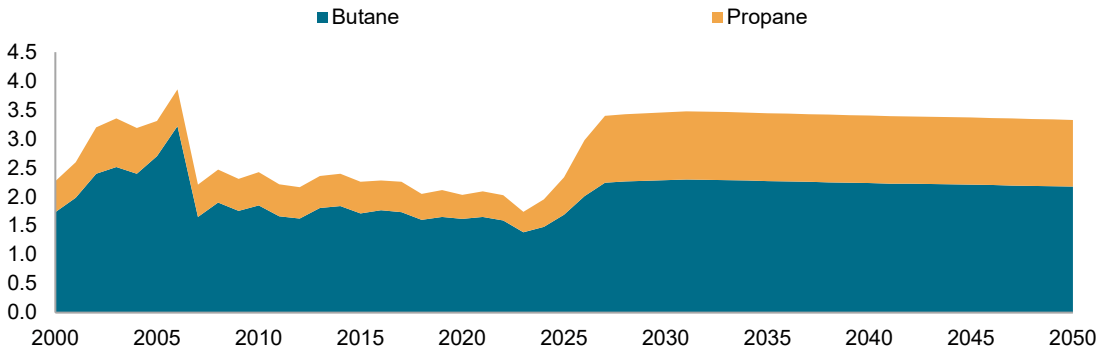


- LPG production from gas processing is split almost equally between propane and butane.
- LPG production from gas processing will continue to increase as natural gas production grows in Algeria, Angola, and Nigeria. A few other small countries also produced LPG from gas processing, however, very little growth is expected.

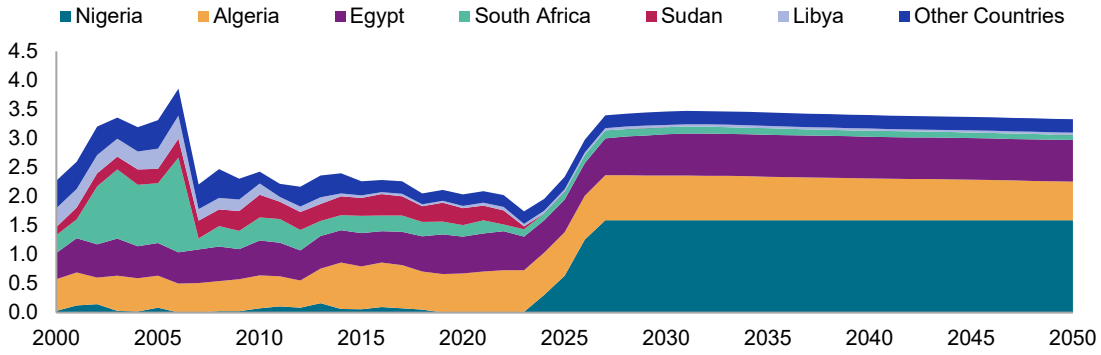
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

Africa: LPG production from refineries

Africa LPG production from refineries by product (million metric tons)



Africa LPG production from refineries by country (million metric tons)

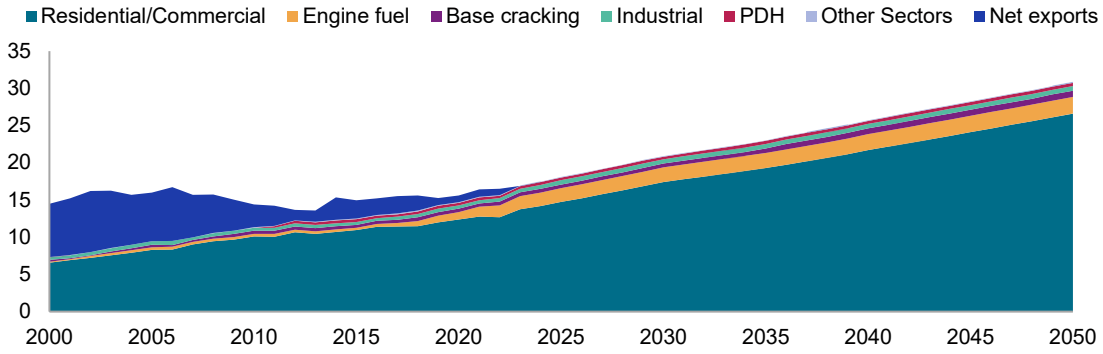


- LPG production from African refineries is weighted towards butane (about 80% of total production).
- We expect this to remain steady through the forecast period. Output from African refineries had been declining since the early 2000s.
- The addition of LPG from the Dangote refinery in Nigeria should reverse all recent declines, boosting refinery LPG production for the continent to over 2.5 million tons per year by 2030.
- We expect this will remain mostly steady through the long term as refined product demand will be more robust in emerging markets, even as refined product demand peaks and declines in North America, Europe, and parts of Asia.
- South Africa's refineries are mostly shut down because of fires and other operating issues. We expect LPG production from refineries to recover only slightly in the forecast period.

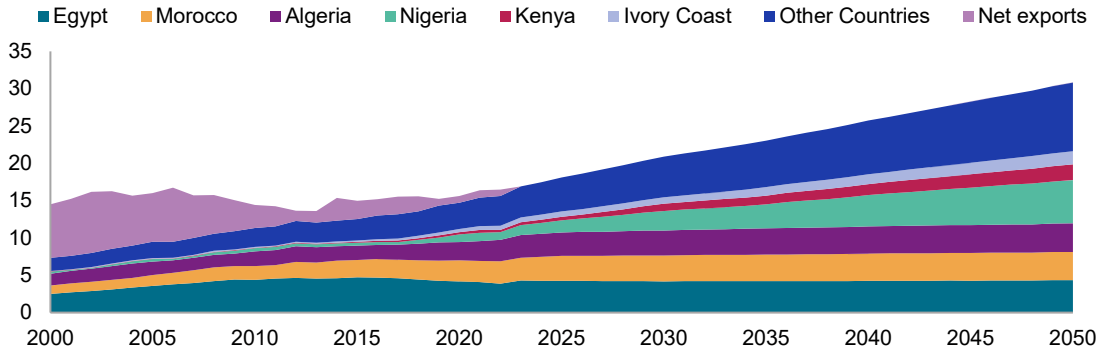
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

Africa: LPG demand

Africa LPG demand by sector (million metric tons)



Africa LPG demand by country (million metric tons)

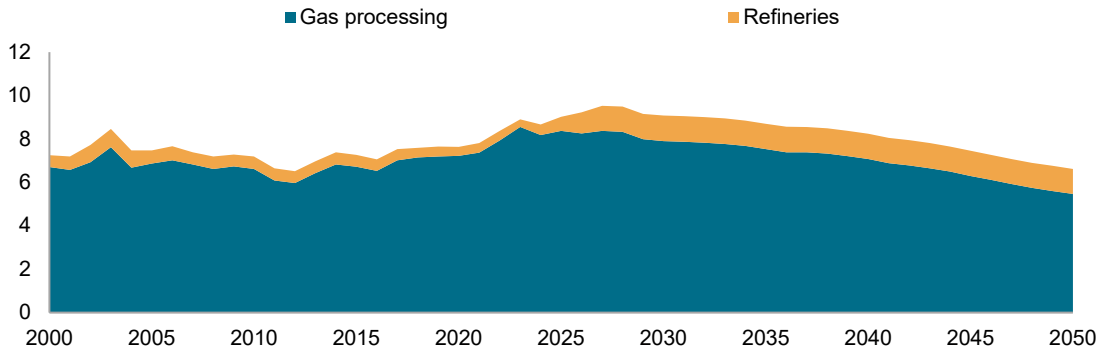


Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

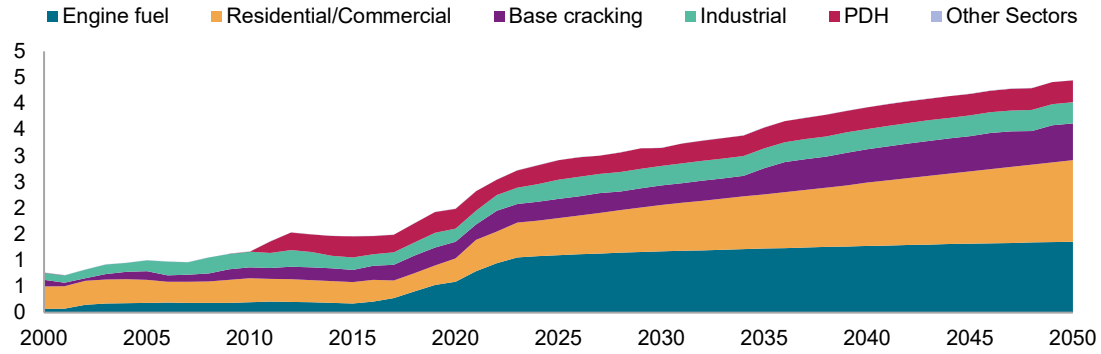
- The residential/commercial sector accounts for about 85% of the total LPG consumption in Africa, but Autogas is growing rapidly in Algeria.
- The largest LPG markets in Africa will continue to be Egypt, Morocco, and Algeria.
- Nigeria has a very small domestic market but very high potential demand—per capita consumption is only around 6 kg (higher by about 1 kg relative to last year's forecast) in a country of over 200 million. Boosting this even moderately would quickly create one of the largest markets in the region.
- Many countries remain constrained by a lack of infrastructure and currency exchange, but imports and waterborne deliveries of LPG are growing.
  - Additional policy changes will support further growth of LPG demand in the long term.
- This year's outlook for LPG demand in Africa is slightly higher in most key markets (and in Sub-Saharan Africa).
  - One major change from last year's outlook is that the gradual reduction of subsidies in Morocco has not had as strong an effect as expected, given the recent weakness in global LPG prices.
  - This weakness is expected to continue through 2027, at which point global benchmarks will start increasing again, potentially leading to affordability issues in Africa. We therefore have moderate growth expectations for African LPG demand in the 2027-2030 period.
  - An important portion of the increase relative to the 2024 ASW is within Other Africa, where countries like Tanzania, Kenya, and Côte d'Ivoire showed strong growth in recent years, and we believe can continue a growth track through the medium to long term.
- Further improvements to policy and investments in infrastructure will expand growth to other markets with significant upside potential.

Africa: Propane supply and demand

Africa propane supply by source (million metric tons)



Africa propane demand by sector (million metric tons)

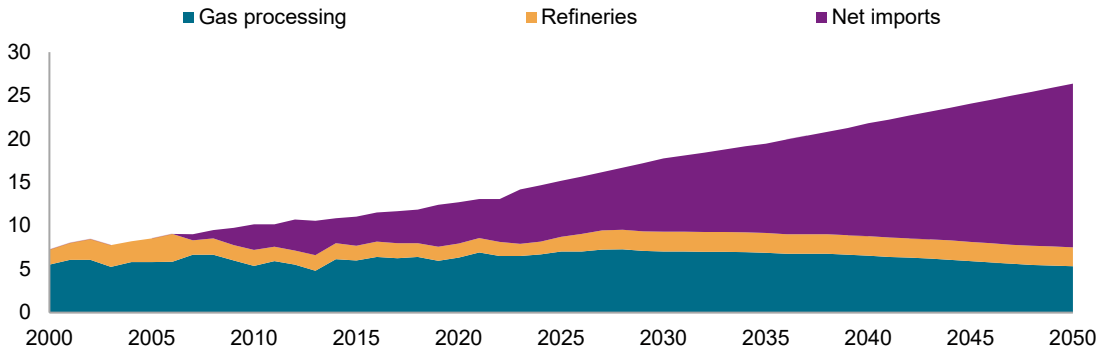


- Nearly all propane recovered in Africa is from gas processing since Algeria, Angola, and Nigeria are large natural gas producers.
- Very little propane is recovered from refineries since most propane produced in refineries is used for fuel.
- Over 70% of the propane recovered from gas processing is exported since domestic LPG demand is very small.
- Africa exports propane mainly to Europe and Asia.
- Since most of the growth in African LPG demand will be in butane, the continent will remain a net exporter of propane through the forecast period. This assumes no major changes to the mix sold in cylinders.

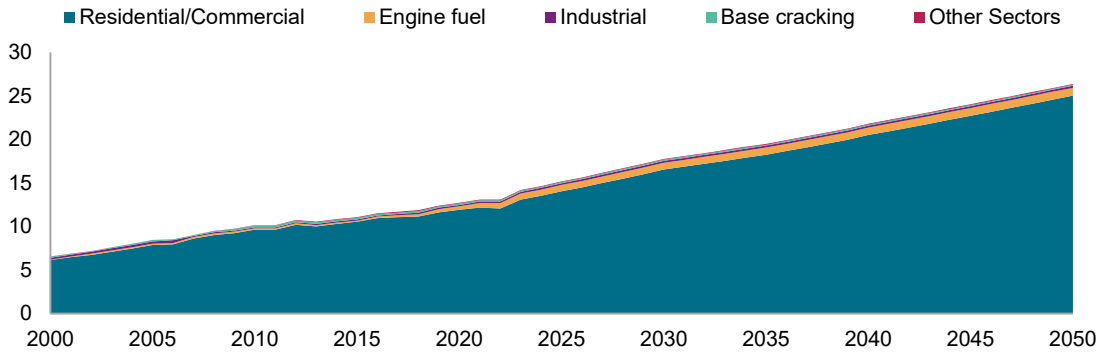
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

Africa: Butane supply and demand

Africa butane supply by source (million metric tons)



Africa butane demand by sector (million metric tons)

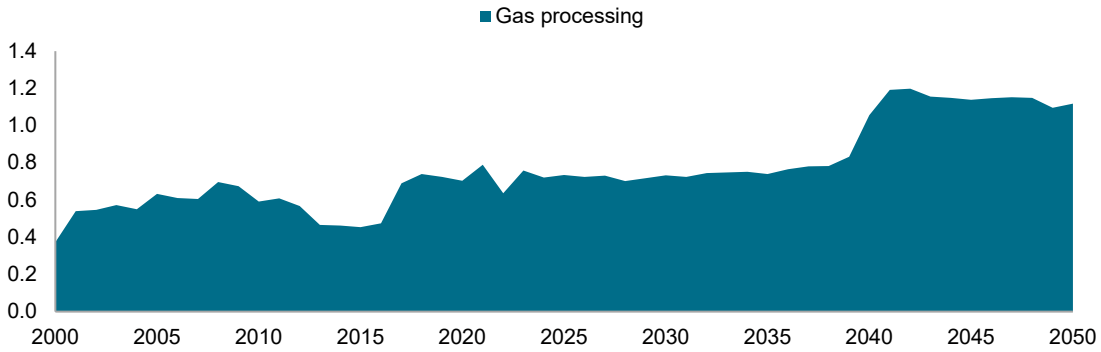


- The residential and commercial sector accounts for most of the consumption of butane in Africa (outside of refinery use), and continued growth is forecast.
- With continued growth in demand and little incremental production, Africa has become a very large importer of butane.
- This will remain the case even with the new supply expected throughout the continent.

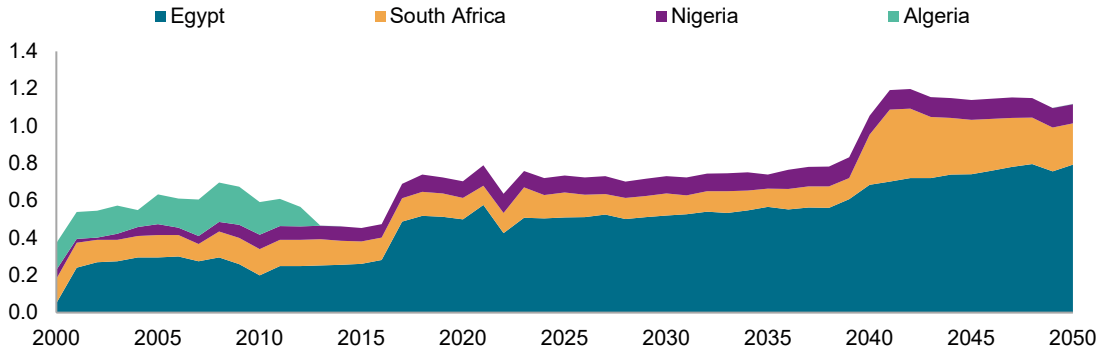
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

Africa: Ethane supply and demand

Africa ethane supply by source (million metric tons)



Africa ethane demand by country (million metric tons)

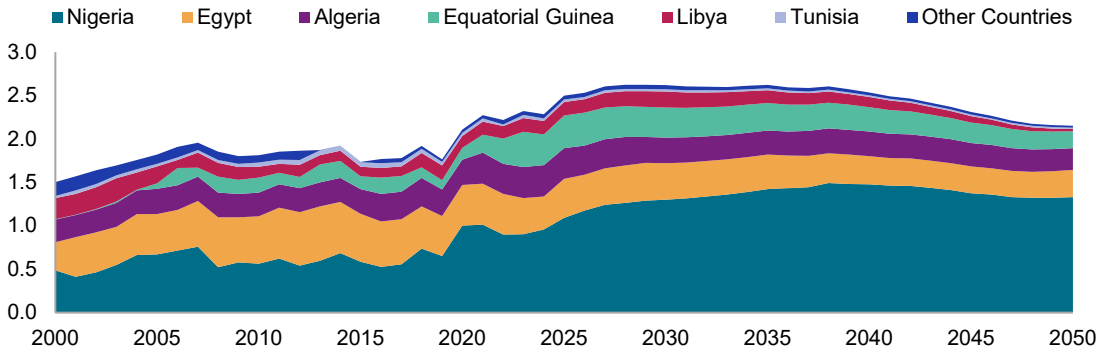


- Three crackers in Africa use ethane as their primary feedstock. These plants are in Egypt, Nigeria, and South Africa.
- We expect higher demand for ethane feedstock in these three African countries, particularly after 2040. This is the case both relative to current levels and relative to last year's outlook.

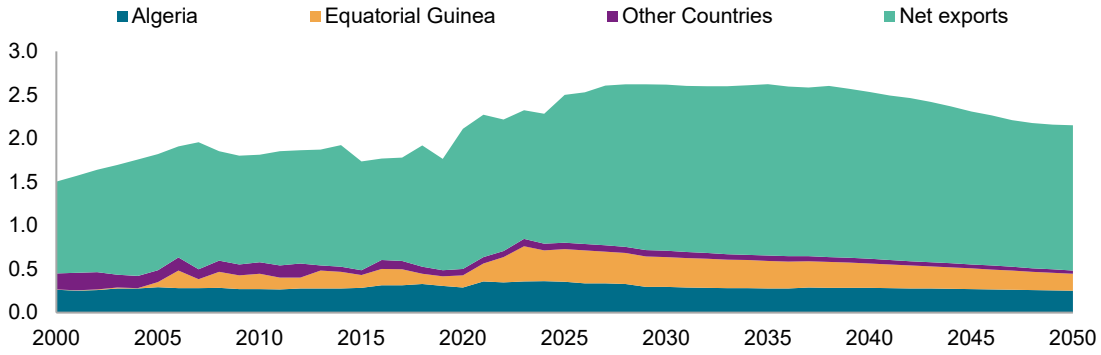
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

Africa: Natural gasoline supply and demand

Africa natural gasoline supply by country (million metric tons)



Africa natural gasoline demand by country (million metric tons)



- Natural gasoline is produced in several countries in Africa. The largest producer in the region is Nigeria.
- Most countries consume their natural gasoline domestically. However, both Egypt and Libya export natural gasoline.

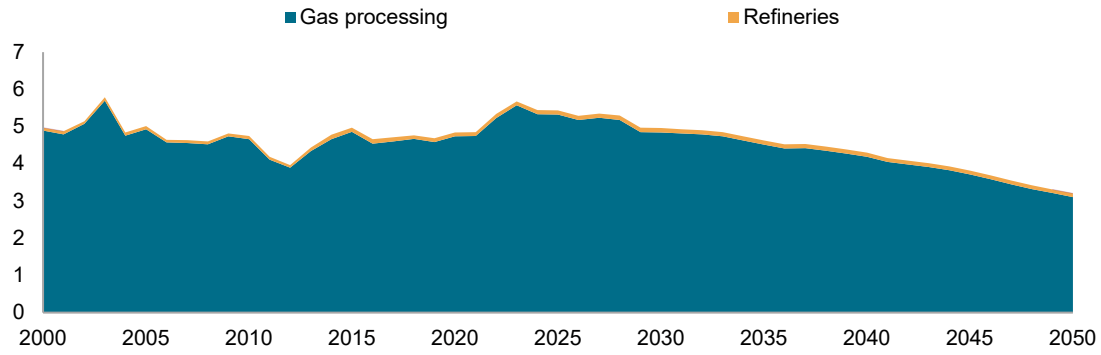
Data compiled September 2025.
Source: S&P Global Commodity Insights.

Africa
Country Profiles

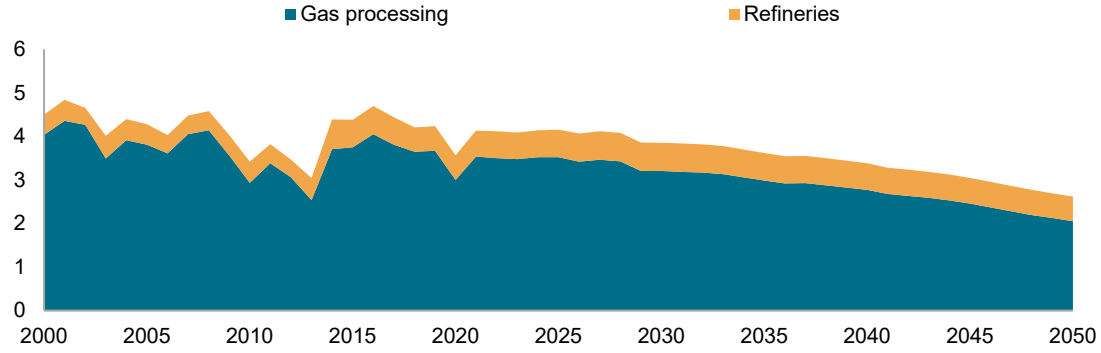
- Algeria
- Angola
- Egypt
- Nigeria
- Morocco
- South Africa

Algeria: LPG supply

Algeria propane supply by source (million metric tons)



Algeria butane supply by source (million metric tons)

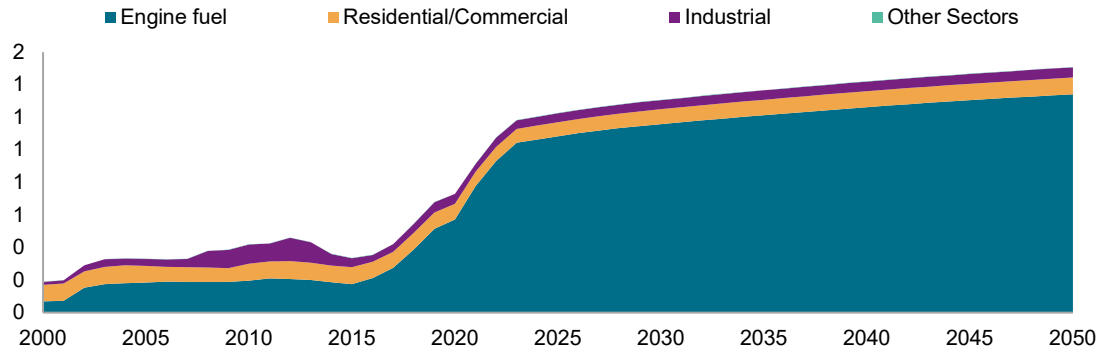


- LPG is recovered in Algeria from gas processing plants, LNG production facilities, and refineries. Gas processing is the predominant source of LPG supplies in the country. Most of the natural gas that is processed in Algeria comes from the very large Hassi R'Mel field.
- As Hassi R'Mel and other mature fields decline, Algeria seeks to develop its large resource base located in the more remote southwest. We expect these efforts to be successful in driving the recovery of LPG from gas processing through the forecast period.
- A smaller amount of LPG is recovered at several (but not all) LNG plants. This production is included in the gas processing category.
- LPG is also produced at several refineries in Algeria. This production is generally consumed within the local domestic market.
- LPG production by gas plants declined over the 2009-2013 period due to operational problems at the gas fields, but it has rebounded.
- Beginning in 2012, LPG began to increase as two LNG projects came onstream and ramped up to full production. The rebuilt train at Skikda, and the Arzew GL3Z train (formerly known as Gassi Touil), which is further boosting gas production (and thus LPG recovery).
- All production of LPG is controlled by Algeria's national oil company, Sonatrach.

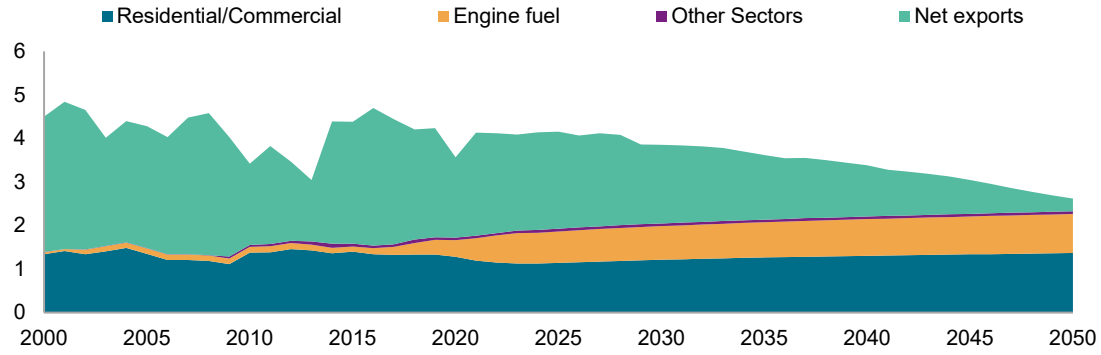
Data compiled September 2025.
Source: S&P Global Commodity Insights, Algeria Ministry of Energy and Mining, IEA.

Algeria: LPG demand

Algeria propane demand by sector (million metric tons)



Algeria butane demand by sector (million metric tons)

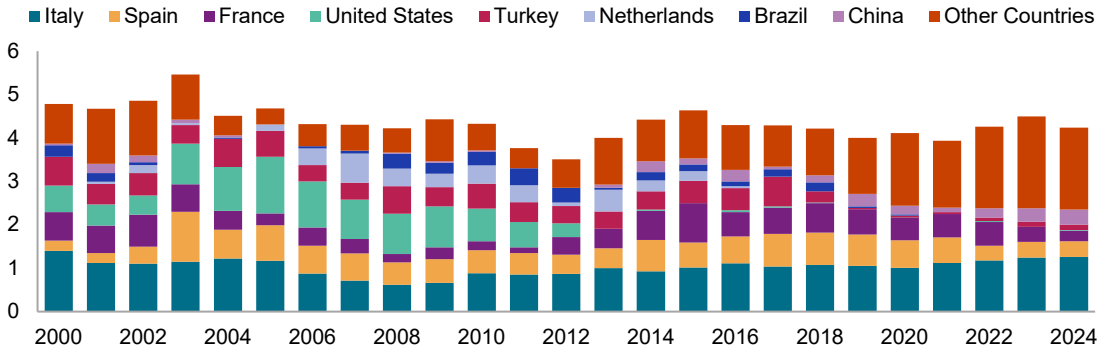


Data compiled September 2025.
Source: S&P Global Commodity Insights, Algeria Ministry of Energy and Mining, IEA.

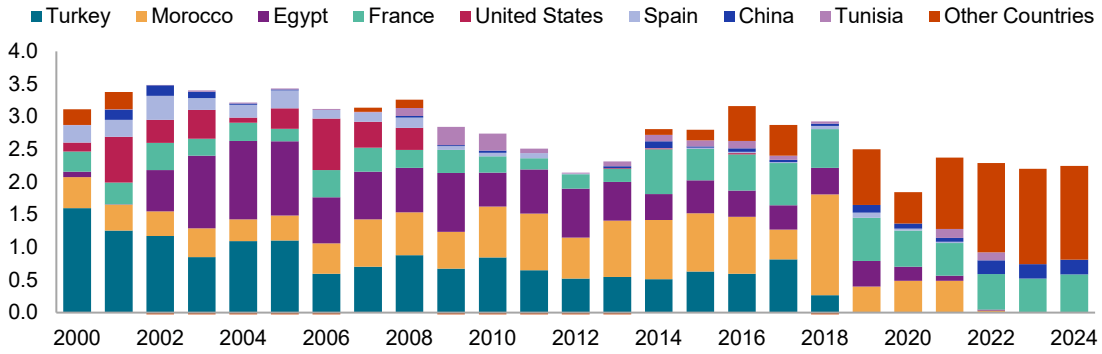
- An extensive natural gas delivery grid in major cities in Algeria limits the use of LPG by the residential/commercial sector.
- Significant growth has been experienced (and will continue, albeit at a reduced pace) in the Algerian Autogas sector.
- Algeria's Naftal (Sonatrach's downstream arm) announced in 2022 that it would build a 424 km pipeline to transport 1.2 million tons of LPG to the West and Center of the country. The Arzew–Chlef–Algiers LPG project is expected to be operational by 2026.
- Within the residential/commercial sector, the bottled gas cylinders and bulk storage facilities are designed for butane use. The residential/commercial market is comprised of over 90% butane.
- Most of the propane that is produced in Algeria is exported.
- Algeria is the fourth-largest LPG exporter in the world, and Sonatrach mainly seeks to defend its dominant market position in the Mediterranean.
  - In recent years, less Russian LPG has been exported via the Black Sea. This has, in part, been offset by increased imports from the United States.
  - While Sonatrach's position in the region is not at risk, it is looking for options for increased marketing outside the region (e.g., in the Chinese petrochemical sector) to complement with reduced demand in Europe.
- Most cargoes sent outside of the Mediterranean have gone to the Far East and Northwest Europe.
  - In the case of the Far East, imports of Algerian LPG have increased significantly, partly driven by the LPG supply contract signed in 2023 with the Wanhua petrochemical complex in China (mainland).
  - Northwest Europe has increasingly sourced Algerian LPG as it moves away from Russia.
  - Occasional Algerian cargoes reach the Red Sea, West Africa, and East Africa.

Algeria: LPG exports

Algeria propane exports by country of destination (million metric tons)



Algeria butane exports by country of destination (million metric tons)

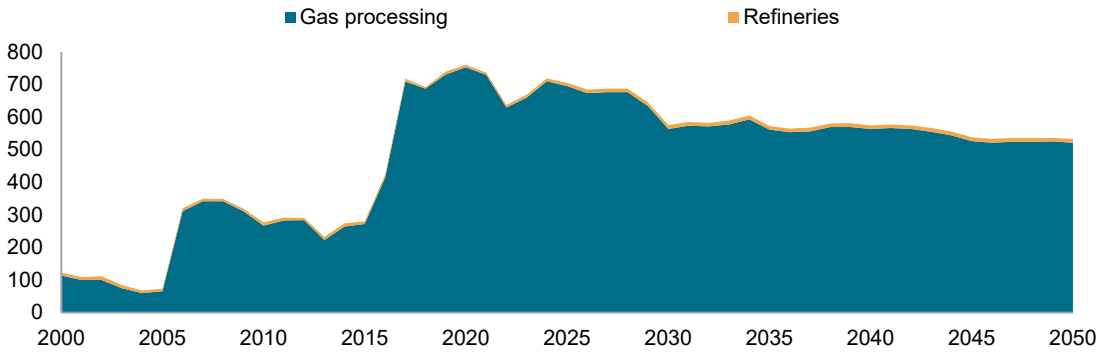


- Algerian exports have been somewhat stable in recent years, as lagging upstream investment by Sonatrach has constrained production growth.
- Most exports remain within the Mediterranean. However, Sonatrach does increasingly send VLGC cargoes further afield, mainly to the Far East.
- Algeria also supplies West Africa on smaller ships, including trips to Senegal, Togo, Benin, Ghana, and others.
- Occasionally, an Algerian cargo will still go farther, such as to Thailand, the Maldives, and Malaysia.
- Westward cargoes are few and far between. Some cargoes have historically gone to Brazil, the Bahamas, and Cuba. However, with the dominance of the US in Latin America & the Caribbean, this is rare.
- Sonatrach has done well defending its Mediterranean market share, even as US VLGC cargoes have become a regular fixture in the Eastern Med (as far as Turkey).
- While Russia had been trying to take a share from Algeria's historical markets, these plans are now highly unlikely (excluding Turkey), because of the EU's 19th package of sanctions on Russian LPG.

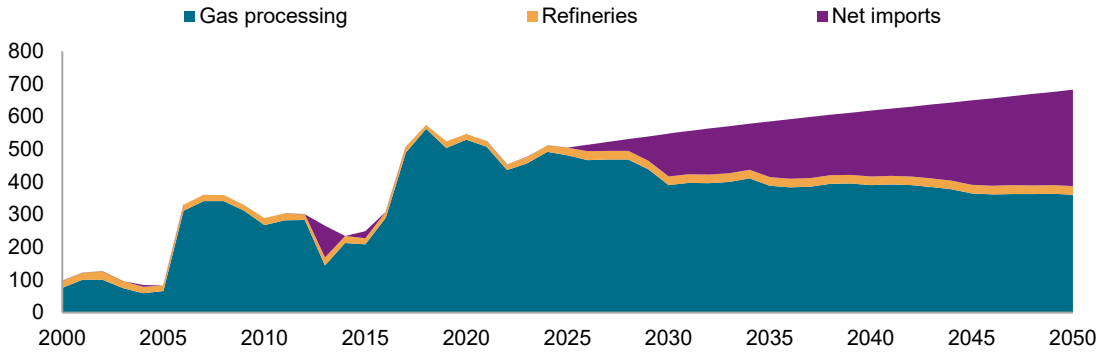
Data compiled September 2025.
Source: S&P Global Commodity Insights.

Angola: LPG supply

Angola propane supply by source (thousand metric tons)



Angola butane supply by source (thousand metric tons)

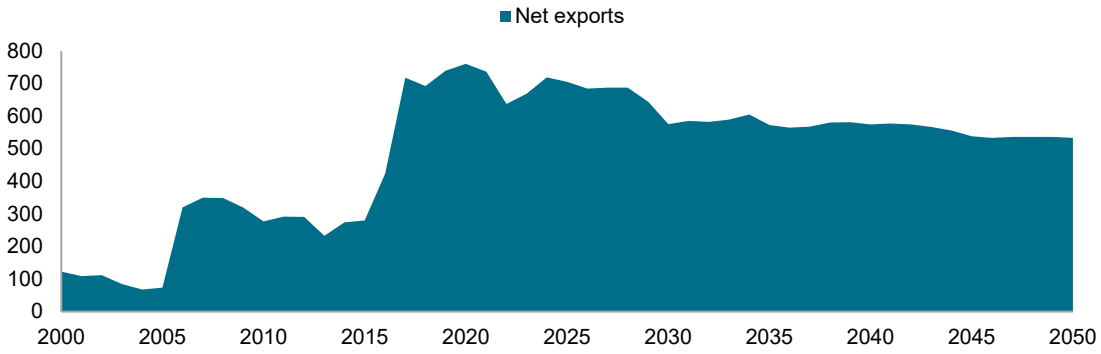


- Historically, LPG in Angola was only produced from the Cabinda field by Chevron. In 2005, production in Angola jumped when LPG started to be recovered from the Sanha condensate project.
- Another similar jump in production was expected in 2014 when the Angola LNG project came onstream. However, operational problems kept the LNG plant offline for most of 2014-2016, which also limited LPG exports.
- The LNG project tendered its first new LNG cargoes in June 2016, and consequently, LPG recovery and exports for the year were somewhat higher than in 2015. Between 2017 and 2019, exports rose sharply based on the LPG extracted from the gas sent to the LNG project.
- We expect slight declines in gas-based LPG recovery through the forecast.
  - Propane exports will also decrease, along with a decline in Angolan LPG supply.
  - Refinery production of LPG will increase slightly, but it will not be enough to offset the decline in LPG supply from natural gas processing.
  - Towards the end of the forecast period, we see the potential for Angola to become a net butane importer based on growth in the domestic res/com market.

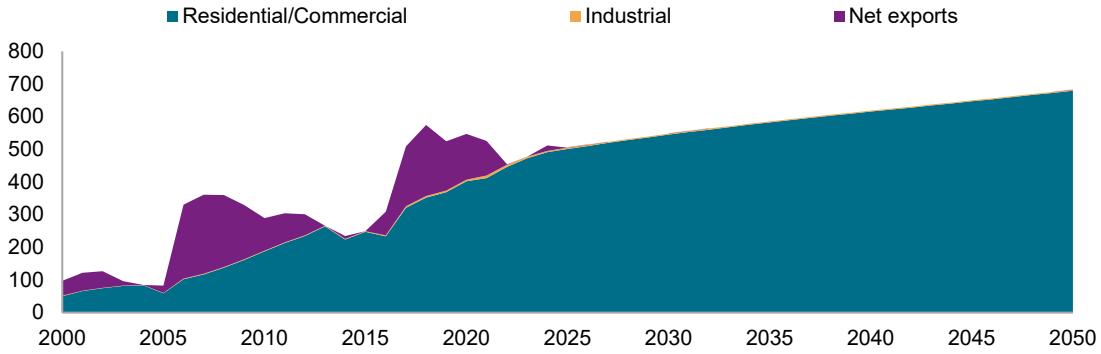
Data compiled September 2025.
Source: S&P Global Commodity Insights, Angola Ministry of Petroleum, IEA.

Angola: LPG demand

Angola propane demand by sector (thousand metric tons)



Angola butane demand by sector (thousand metric tons)

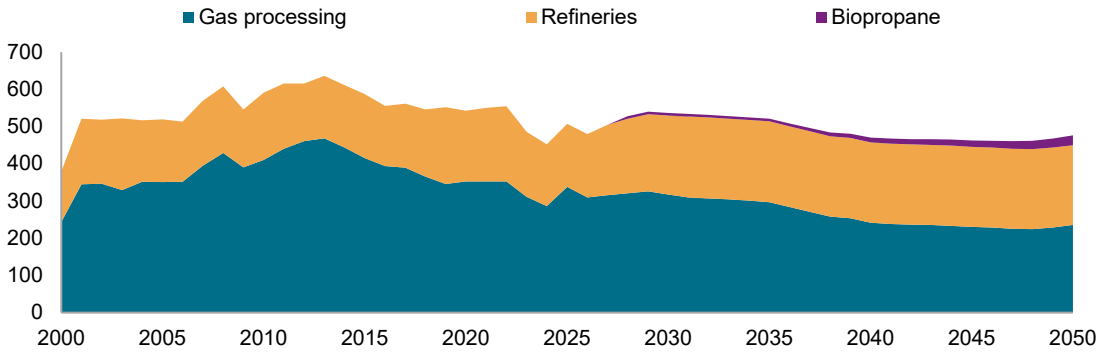


- Only butane is used in Angola's residential and commercial sector, and consumption is nearly all for cooking.
- Our current outlook for Angolan butane demand is slightly higher than in 2024 due to improved consumption data in recent years.
- Butane demand has the potential to increase further, but infrastructure investments are required to achieve this potential.
- Virtually all propane that is produced in Angola is exported, but Angola only has a small surplus of butane.
- Angola's domestic LPG sector is controlled by Sonangol, Angola's national company.
- LPG prices are heavily subsidized in Angola.

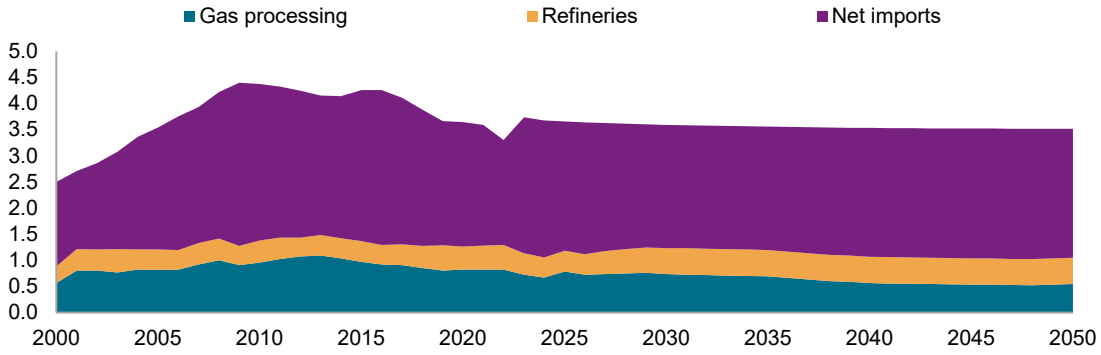
Data compiled September 2025.
Source: S&P Global Commodity Insights, Sonagas, IEA.

Egypt: LPG supply

Egypt propane supply by source (thousand metric tons)



Egypt butane supply by source (million metric tons)

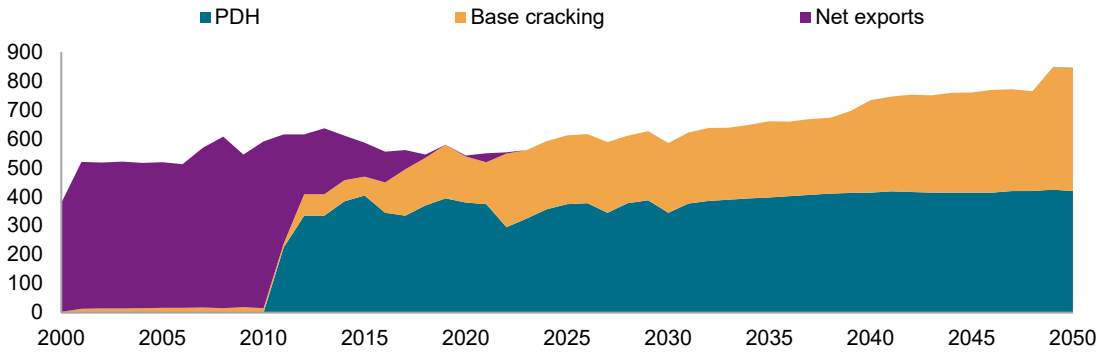


- LPG production is small, but it will grow modestly as natural gas production increases.
- Gas processing currently accounts for about 75% of domestic production.
- The massive Zohr gas field discovered in 2015 contains mostly dry gas, but several other new discoveries could yield more LPG.
- LPG is produced in eight refineries in Egypt, but LPG recovery is quite small.
- Egypt will remain a net exporter of propane in the long term, while it remains a net importer of butane.
- We expect that Egypt will begin producing bio-LPG around the end of the decade.

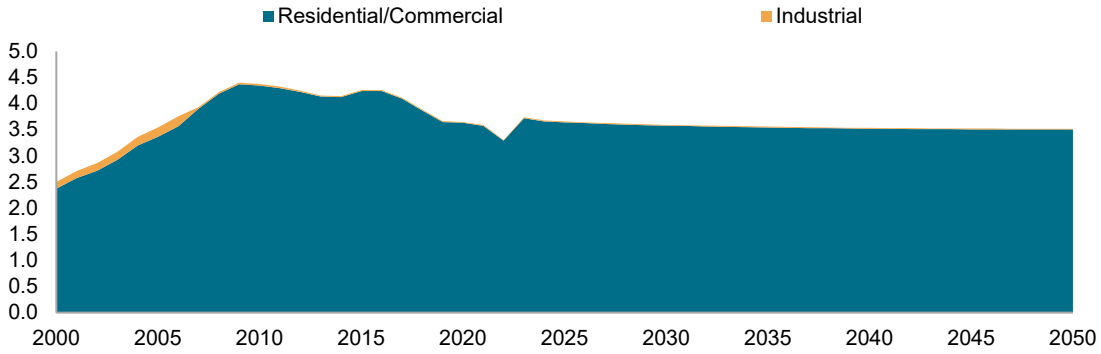
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

Egypt: LPG demand

Egypt propane demand by sector (thousand metric tons)



Egypt butane demand by sector (million metric tons)

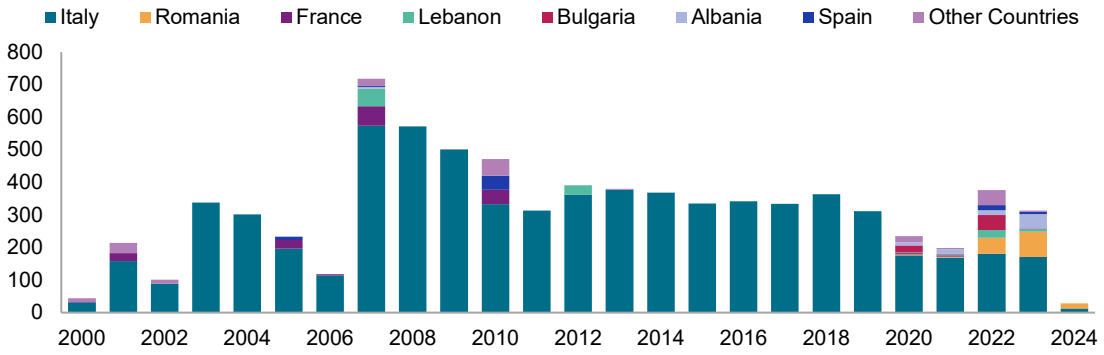


- Egypt is a large consumer of LPG for cooking and water heating, and it is all butane.
- Minor amounts of LPG are also used for industrial applications.
- Residential/commercial demand is not particularly affected by international LPG prices due to deep government subsidies. Consumption peaked in 2020 but declined in recent years as LPG is losing market to gas.
- Ethane and propane are used in Egypt as feedstock for plants in El Ameriya and Alexandria. There is also a propane dehydrogenation (PDH) unit operated by EPPC in Port Said.
- Egypt will remain a net importer of both propane and butane due to rising demand in petrochemicals and a lack of supply growth.

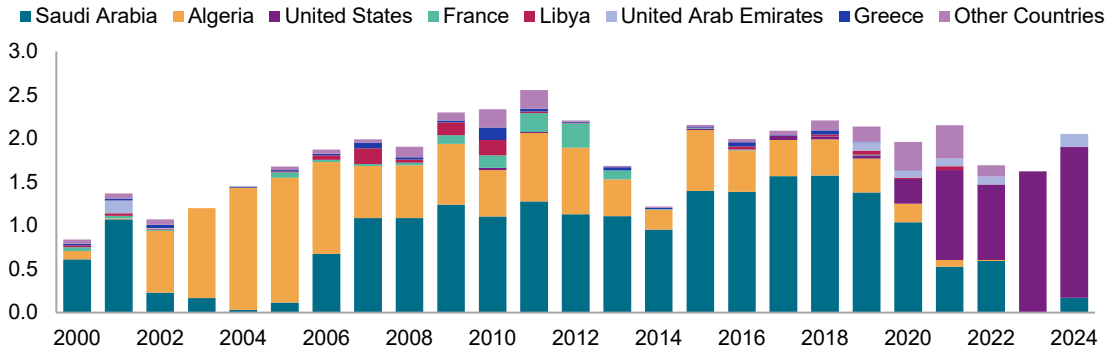
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

Egypt: LPG trade

Egypt propane exports by country of destination (thousand metric tons)



Egypt butane imports by country of origin (million metric tons)

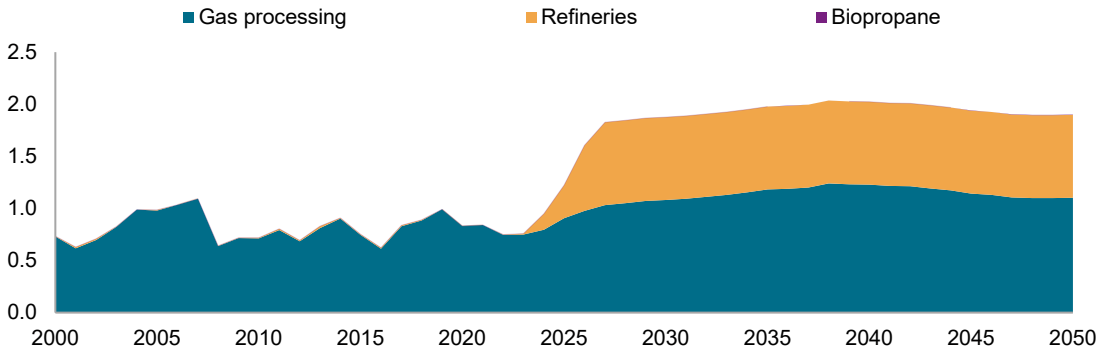


Data compiled September 2025.
Source: S&P Global Commodity Insights.

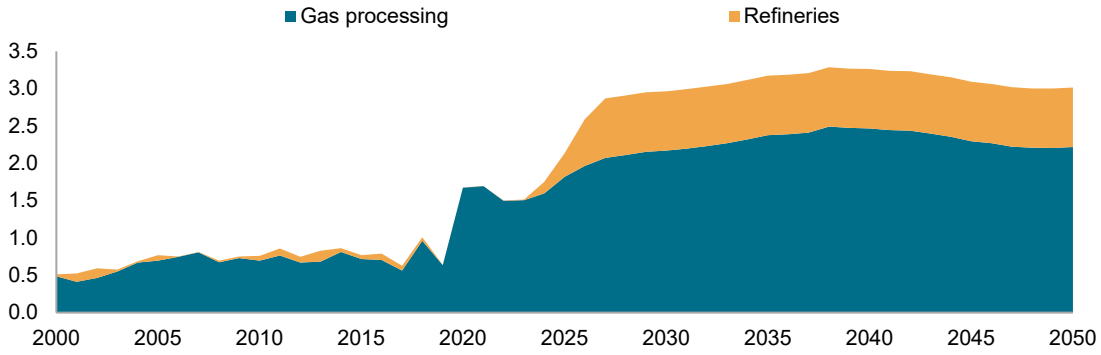
- Egypt is a net importer of propane and butane to supply its residential, commercial, and petrochemical markets.
- Propane exports went mostly to Italy since 2014.
  - Prior to that, small volumes occasionally went to other countries in the Mediterranean and interior Europe.
  - With the need for non-Russian origin LPG in EU member states on the Black Sea (i.e., Romania, Bulgaria), Egypt has stepped in and re-directed a significant volume to the region.
- Butane imports used to come mainly from Saudi Arabia and Algeria, but now the US is the main butane supplier to Egypt.
  - Egypt receives almost all Saudi Arabia's exports to the Mediterranean (primarily Ain Sokhna).
  - Morocco, Jordan, and Cyprus have occasionally lifted some small cargoes from Saudi Arabia.
- Algeria sets its prices to make Middle Eastern LPG uncompetitive even in the Eastern Med.

Nigeria: LPG supply

Nigeria propane supply by source (million metric tons)



Nigeria butane supply by source (million metric tons)

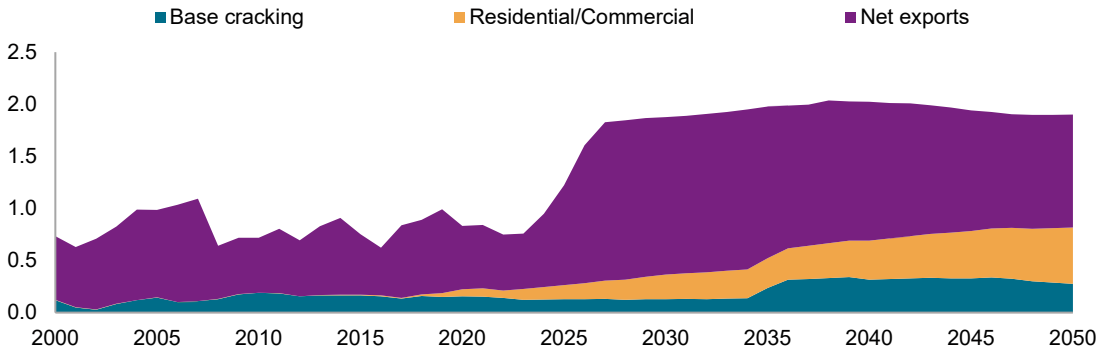


- Until recently, gas processing in Nigeria accounted for almost all domestic propane and butane production. The startup of the Dangote refinery has changed this market dynamic.
- The large Escravos and Oso offshore natural gas and associated LPG projects were designed for waterborne exports.
- The completion of the Dangote refinery will add significantly to domestic LPG production as operations ramp up through 2028-2030.
  - This supply will be absorbed in the domestic market, although mostly in the petrochemical industry.
  - Consequently, imports will be increasingly required in the long term due to faster demand growth in residential and commercial.
- Development of new storage and distribution infrastructure allowed for increased waterborne deliveries since 2017. Some cargoes into the domestic terminals are still sourced from abroad.

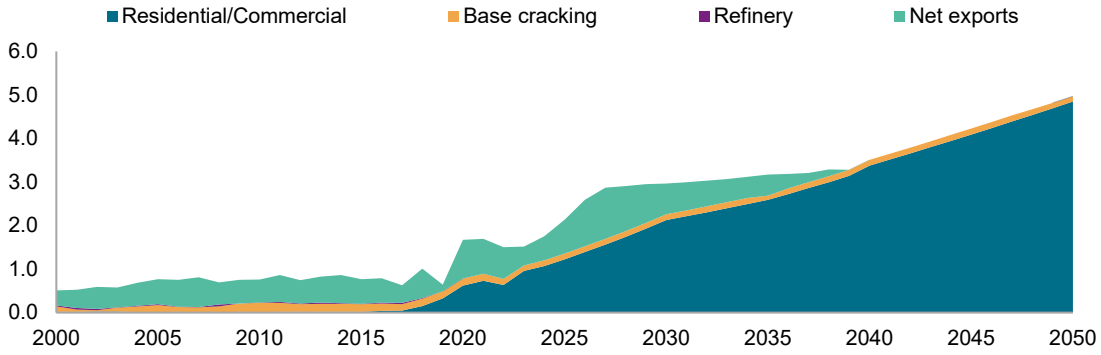
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

Nigeria: LPG demand

Nigeria propane demand by sector (million metric tons)



Nigeria butane demand by sector (million metric tons)

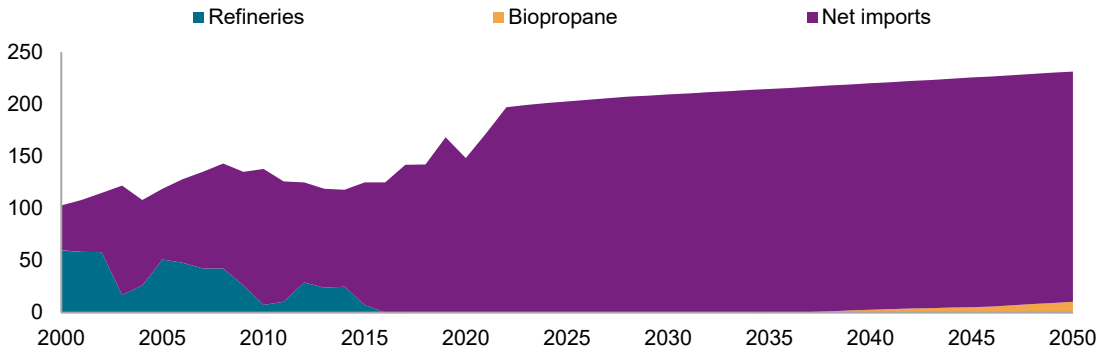


Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

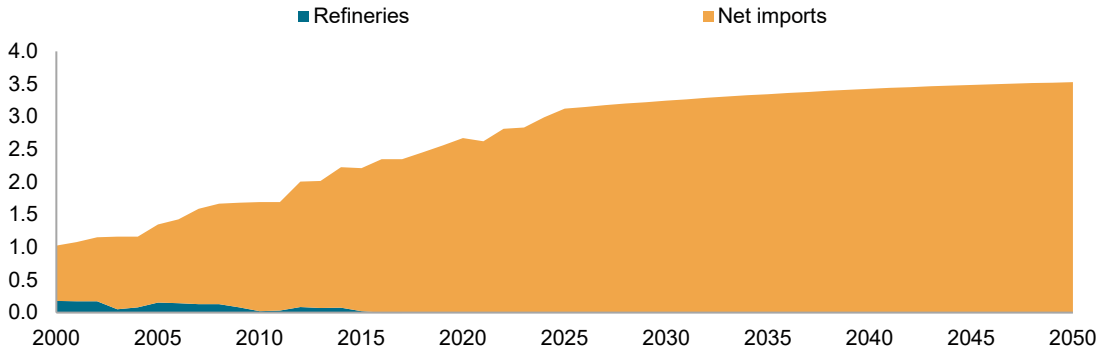
- Despite significant recent gains, domestic consumption of LPG in Nigeria remains quite small compared to its potential.
- Our current outlook for Nigerian LPG demand is higher than last year, due to the impact of policy and infrastructure investments.
  - A new foreign currency exchange system, the new floating storage and blending facility, and Presidential mandates on LPG have had a significant impact on Nigerian LPG demand.
  - Barriers are slowly being removed, and the country will continue to grow.
  - We therefore expect the market will continue to grow faster than economic growth and population growth, consistent with recent data.
  - Since prices will increase quite a bit between 2027 and 2030, we expect a slow down in per capita consumption in that period.
  - However, in 2029 the UTM FLNG Floating Facility is expected to start operating, and that should further stimulate the market.
    - We have not included this new supply, as the project does not yet have FID.
    - Even if this project gets delayed, we believe the forecast growth for Nigeria is justifiable given prior years' growth and an expected increase in GDP per capita.
- We expect residential/commercial demand to grow steadily (though actual progress could be more volatile than our forecast).
  - Development of a large residential/commercial LPG market will require continued investments in ports, storage tanks, cylinders, LPG bottling plants, delivery trucks and other infrastructure.
  - Government programs to improve the infrastructure system and/or subsidize LPG could stimulate higher growth.
- No demand is reported for the industrial or engine fuel markets.
- An ethane/propane/butane cracker is operated by ELEME PC in Port Harcourt, Nigeria.

Morocco: LPG supply

Morocco propane supply by source (thousand metric tons)



Morocco butane supply by source (million metric tons)

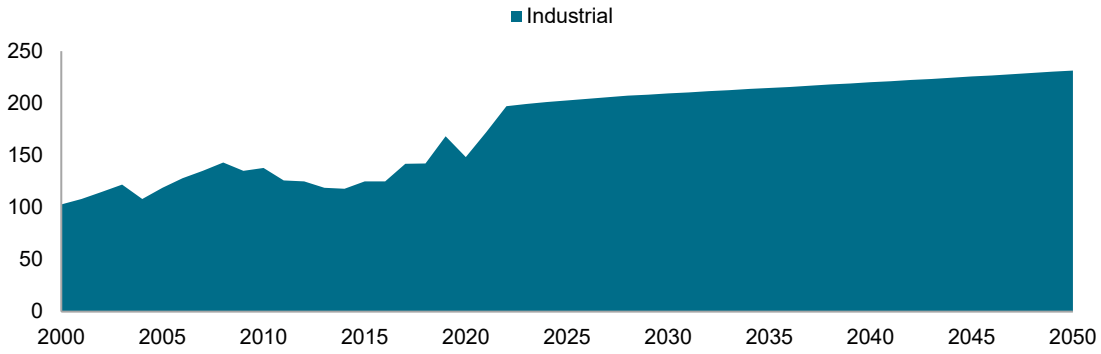


- Morocco has a population of more than 35 million but limited indigenous energy resources.
- The only domestically supplied LPG in Morocco was produced by two refineries at Sidi Kacem and Mohammedia. Sidi Kacem was shut down in 2010. And in August 2015 operations at Mohammedia were also stopped.
- Refrigerated cargoes in 30,000 to 45,000 metric ton lots are imported into the Mohammedia terminal. This terminal is connected to an underground storage facility at Somas.
- Imports also include 2,000 to 4,000 metric ton pressurized cargoes of butane that are received at several ports, primarily sourced from Spain.
- Almost all LPG is delivered to end-users by truck, with virtually no rail transportation.
- Morocco used to receive most of its LPG from Algeria, but in recent years started lifting more cargoes from the US. As diplomatic relations between the countries broke in August of 2021, Morocco has now switched to other suppliers, primarily the United States and Spain.

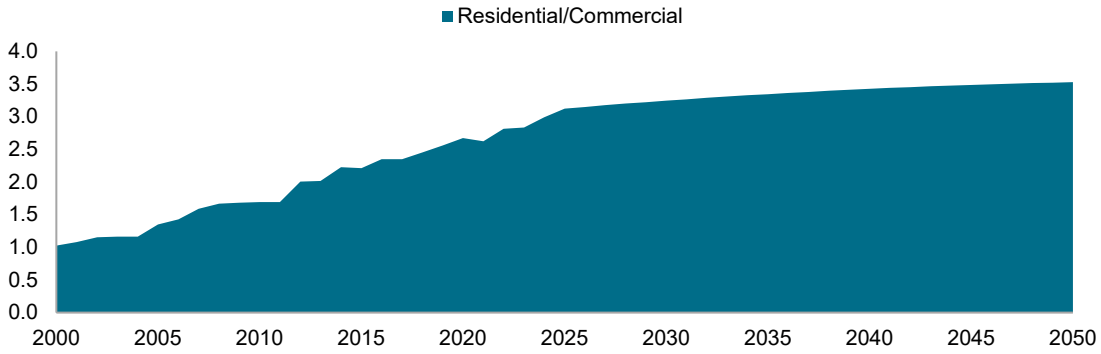
Data compiled September 2025.
Source: S&P Global Commodity Insights, Morocco Ministry of Energy and Mines, IEA.

Morocco: LPG demand

Morocco propane demand by sector (thousand metric tons)



Morocco butane demand by sector (million metric tons)

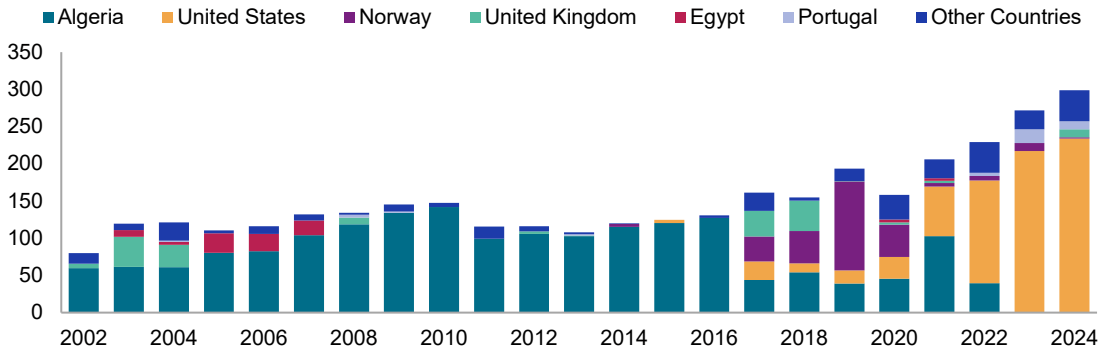


Data compiled September 2025.
Source: S&P Global Commodity Insights, Morocco Ministry of Energy and Mines, IEA.

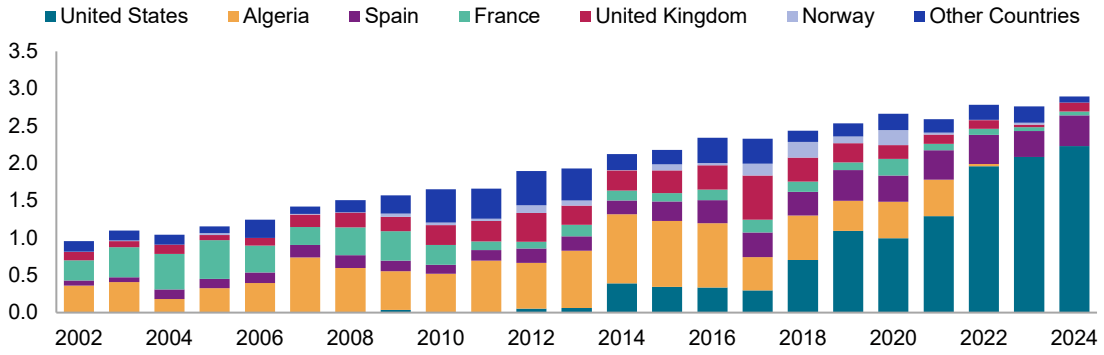
- A small amount of propane is used by the industrial sector in Morocco for fuel applications such as ceramics manufacturing, band this market is expected to grow very slowly.
- Butane is used in Morocco's residential/commercial market. Nearly all butane in Morocco is used for cooking. Demand from the residential/commercial markets has grown rapidly as the population transitioned away from traditional fuels such as firewood.
- Electricity is the primary energy source that is used for water heating in the cities.
- The Moroccan government has subsidized liquefied petroleum gas prices since the 1940s and has maintained retail prices since 1995.
- As global LPG prices have increased, so has the LPG subsidy share in the government expenditure. As a countermeasure, the Moroccan government announced a gradual reduction of the LPG subsidy, effective April 2024.
  - Morocco's budget deficit has grown tremendously in the past 15 years. Besides the LPG subsidy, revenue losses during the COVID-19 crisis also contributed to the rising budget deficit.
  - Artificially low prices triggered excess demand for LPG.
  - Increased retail prices were expected to reduce residential and commercial LPG demand, as has occurred in other countries with both a strong penetration of LPG in the residential energy mix, as well as historically strong subsidies.
  - However, notwithstanding the reduction of subsidies in Morocco, demand did not decline as expected due to the recent weakness in global LPG prices.
- Consequently, our current forecast is higher than in the 2024 ASW. That said, given the subsidy reduction and increasing global LPG prices in the long term, we believe growth will be slower in the long term than it has been up to 2025.

Morocco: LPG imports

Morocco propane imports by country of origin (thousand metric tons)



Morocco butane imports by country of origin (million metric tons)

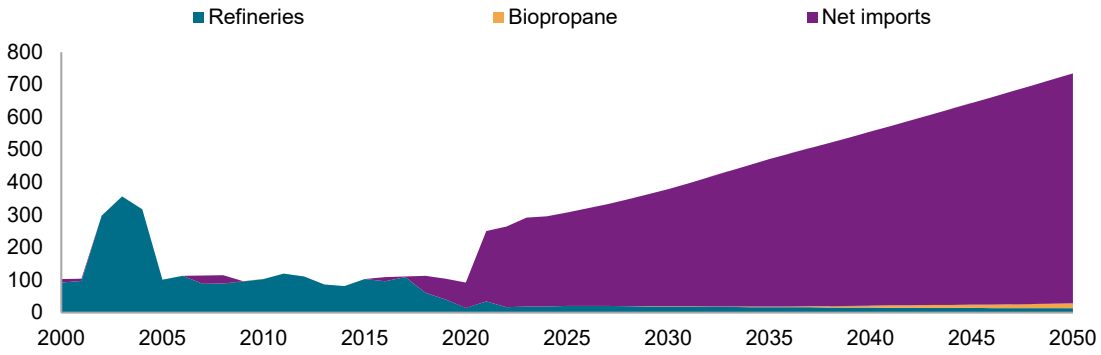


- Total butane imports rose in 2020 as demand remained strong even during the COVID-19 pandemic.
- Prior to 2017, nearly all propane imported into Morocco came from Algeria. Volumes are very small, as propane is primarily used in industrial applications, rather than in residential and commercial sectors.
- Algerian volumes have essentially disappeared since the countries broke diplomatic relations in August of 2021 and have been replaced by the United States and Spain.
- In 2021, butane imports from the United States reached 1.3 million tons, a sign of increased availability and competitive pricing for US LPG delivered via VLGC.
- Butane imports have grown steadily over the past decade as economic growth, population growth, and subsidized pricing have boosted demand.
- Total LPG imports reached a historic high in 2024, and we expect 2025 will finish even higher, given year-to-date waterborne lifting data.

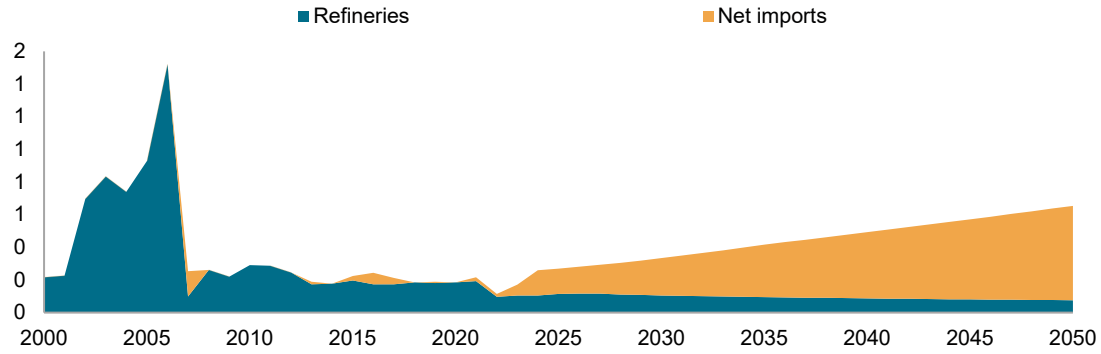
Data compiled September 2025.
Source: S&P Global Commodity Insights.

South Africa: LPG supply

South Africa propane supply by source (thousand metric tons)



South Africa butane supply by source (thousand metric tons)

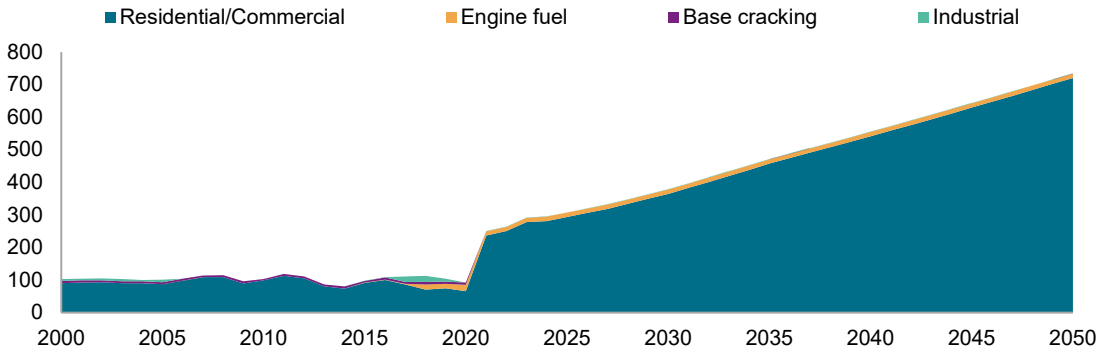


- LPG produced in South Africa was supplied from four refineries, and by the Sasol coal-to-liquids facility (included in refinery production). However, LPG recovery by both sources is very small.
- South Africa's refinery capacity was severely affected because of fires and other operating issues. We expect LPG production from refineries to recover only slightly in the forecast period, reaching just under 40% of the crude runs' peak from 2005.
- Although natural gas is produced in South Africa and used for electrical power generation, negligible amounts of LPG are produced by gas processing. There is little likelihood that gas processing will be developed.
- South Africa imported LPG through four marine terminals, but import capacity increased by about 200,000 tons per year with the completion of the Richards Bay terminal in 2020. The new terminal, combined with pricing reform, should allow for rapid increases in near-term imports.
- As refinery production declined to minimal levels by 2023, and butane supply was therefore all but eliminated, the country switched its consumption to propane. Given recent data, we believe South African LPG demand will remain weighted towards propane.

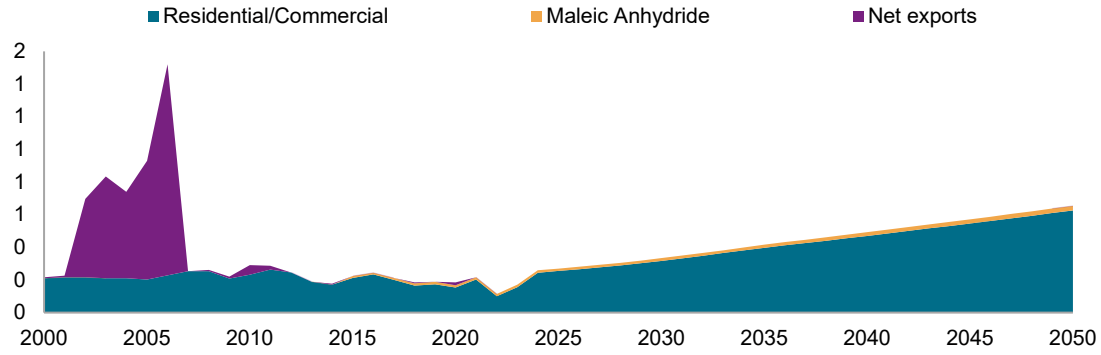
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

South Africa: LPG demand

South Africa propane demand by sector (thousand metric tons)



South Africa butane demand by sector (thousand metric tons)



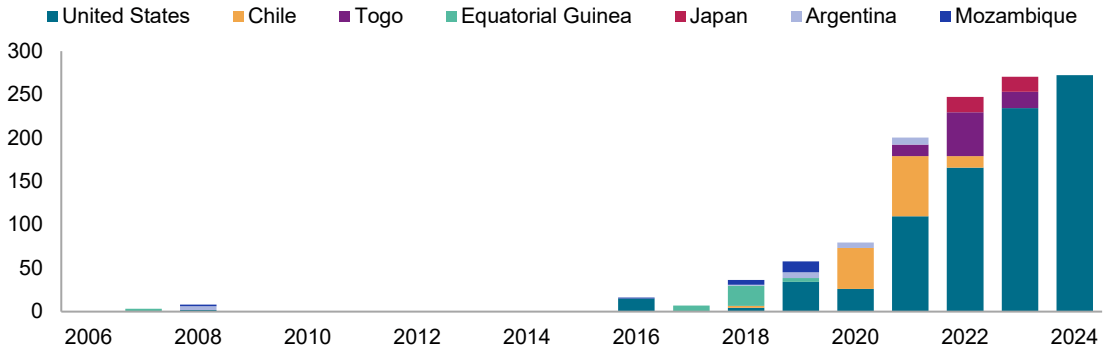
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

- South Africa is one of Africa's leading economies, but LPG consumption is small.
  - While LPG is a popular fuel for heating and cooking, it competes with firewood and kerosene/paraffin, even with the extensive electric distribution network in the country.
  - Given the challenges experienced by the electric grid in recent years, even ESKOM (the national power company) has promoted projects for switching households to LPG for clean cooking.
  - Moreover, the availability of natural gas for household use is limited.
- Virtually all LPG consumption in South Africa is in the residential/commercial sector. A 70/30 mix of butane/propane was used in the country, but as the refinery production declined to minimal levels, the country switched to a propane-heavy mix.
- New import terminal capacity allowed LPG to reach more of the relatively wealthy urban and suburban households that can afford better fuel but have not had access previously.
- Consumption has grown quite rapidly in the recent past, leading us to increase our demand outlook for South Africa relative to last year's forecast.
  - Global LPG prices will increase between 2027 and 2030, so we believe South African LPG demand growth will slow down.
  - Additionally, GDP per capita will also slow down. However, global price stabilization and government support (primarily as it concerns the retail price formula) will help grow the market, particularly into rural areas.
    - Rural consumption does not directly correlate to population and GDP per capita growth.
  - We expect slower growth after 2030 as further expansions to infrastructure will be needed.
  - Additionally, faster income growth among the poorest South Africans will be needed to continue a more rapid pace of expansion.
- Small amounts of LPG have historically been exported to neighboring countries, but the government monitors these exports to ensure that domestic demand is satisfied first.

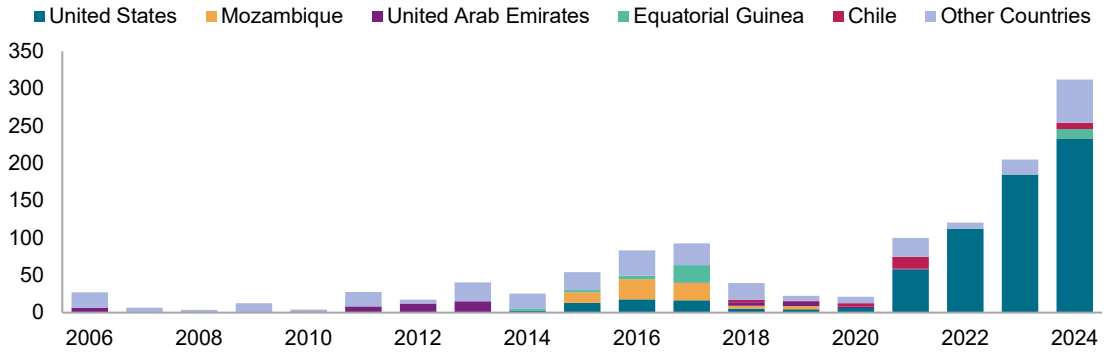
S&P Global
Commodity Insights

South Africa: LPG imports

South Africa propane imports by country of origin (thousand metric tons)



South Africa butane imports by country of origin (thousand metric tons)



- South Africa has been importing more propane and butane since 2015, though the main increase occurred with the opening of the new Richards Bay terminal, which receives VLGCs.
- Imports come from a variety of sources, including West Africa, the Middle East, and even Asia. However, in recent years, the United States has been the main supplier.
- South Africa is uniquely positioned between Eastern and Western hemisphere markets and can take advantage of trade flows in both.

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

CIS

- Key Insights
- Natural gas production and refinery runs
- LPG supply and demand
- Ethane supply and demand
- Natural gasoline supply and demand

CIS: Key insights

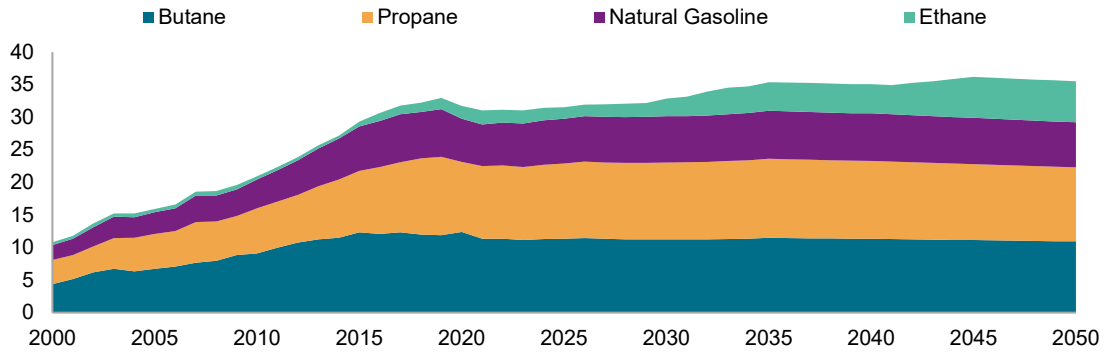
- Given the size of the Russian LPG industry within the CIS region, overall supply, demand, and trade patterns closely mirror Russia.
- A potential ceasefire in the Russia-Ukraine war is not a ticket for Russian products to the European market.
  - Following the outbreak of the war and the ensuing G7 sanctions, the Russian refined products trade has been reshuffled. We expect these shifts in trade patterns to be long-lasting.
  - In the medium term, Europe is unlikely to return to its previous dependence on Russian hydrocarbons, even if sanctions are formally removed.
  - In the long term, European demand is projected to decrease to the point where Europe becomes a net exporter of diesel by mid-2030s.
  - Export-oriented refineries will be particularly vulnerable as new capacity in Africa, the Middle East, and Asia heightens global competition and demand in export markets embarks on a downward trend.
  - However, refinery rationalization in Russia is likely to be slow and drawn out over decades. Refineries are more likely to operate at low-capacity utilization rates than shut down, particularly considering the current geopolitical context, concerns about security of supply, and refinery vulnerability to drone attacks.
- Russian production is not expected to grow significantly in the near to medium term. If anything, it will stay relatively stable.
  - Russian LNG is an important part of global balances in the late 2030s and 2040s as there's a growing need of LNG everywhere in the world.
  - Brownfield LNG projects will be facing declining production, and Russia will be part of the balance to fill in the gap, with development in the Arctic that's condensate-rich. This is what we expect will grow in the outer years, and lead to a slight increasing trend between 2040 and 2050.
  - That said, our view is that Russia won't come back to historical peak levels of production and exports.
- Outside of Russia, we see some growth, particularly in Kazakhstan and Turkmenistan. Azerbaijan should be declining in the 2040s because its fields are getting old and new production isn't enough to bring production levels up to flat.
- The European Union's 12th and 19th packages of sanctions have effectively banned imports of Russian LPG. Over the course of 2023 and 2024, exports to traditional markets, such as Poland, as well as to increasingly important destinations like Turkey, Afghanistan, and China (mainland), provided a lifeline to Russian producers.
  - We believe these last three will remain the most important markets for Russian LPG.
  - However, they will not absorb the total amount that used to be exported to Ukraine, Northwest Europe, and Eastern Europe prior to 2022.

CIS: Key insights (continued)

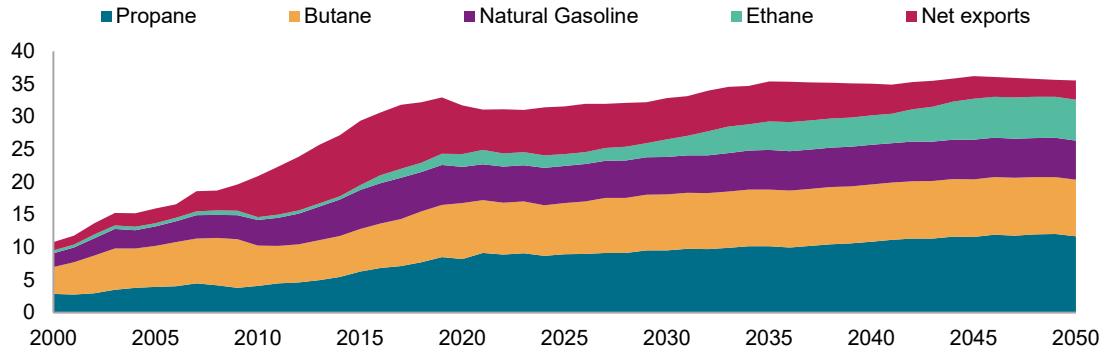
- Since Russian LPG will no longer be shipped to EU Member States such as Poland, Russian producers have been working on ways to pivot their export infrastructure to the East.
  - A new terminal with the capacity to export 1 million tons of LPG to China (mainland) will be opened by the end of 2025 in Sovetskaya Gavan.
  - However, while Russian LPG exports to China (mainland) have increased significantly in recent years, they remain small compared to mainland China's total imports (just under 40 million tons), reflecting a potential reluctance by Chinese buyers to expose themselves to Western sanctions.
- Demand is a different story: we expect continued growth, driven by a few key countries.
  - Russia will grow both in chemical and Autogas as its GDP grows slightly in the coming years.
  - We don't expect growth in the Russian residential and commercial sectors; in fact, we expect it will continue declining as it has been for some time.
- Ukraine will be the most important growth engine of the region, as we expect that its GDP will grow by around 6% per year between 2027 and 2033, leading to a growth in LPG demand.
  - This growth rate will reduce slightly in the 2040s, but remain relatively high, compared to other countries in the region.
  - Growth will be driven by the Autogas market, which is the main market for LPG in the country.

CIS: NGL supply and demand

CIS NGL supply by product (million metric tons)



CIS NGL demand by product (million metric tons)

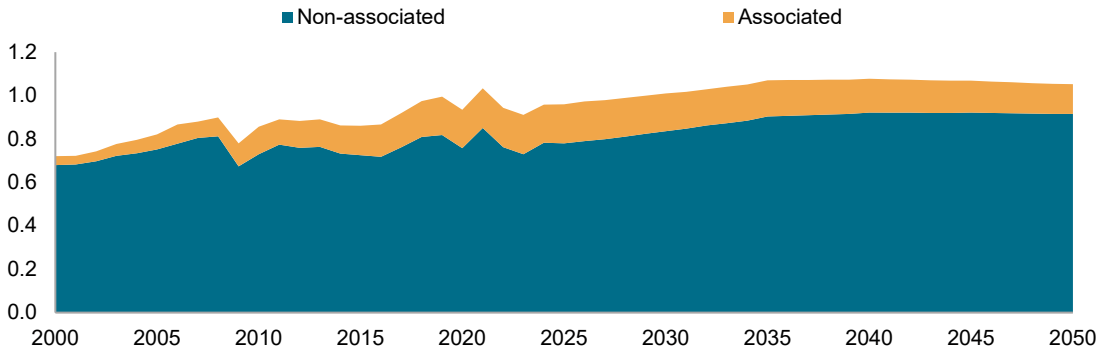


- Our current outlook does not expect significant growth in NGL production in the CIS region because of the challenges associated with Russian LPG exports and upstream production.
- It will grow starting around 2025, though it will not surpass the growth levels and volumes that were expected prior to the crisis.
- NGL consumption will see some long-term growth, particularly towards the late 2030s, because of feedstock demand for ethylene production.
- Russian exports – which represent most CIS exports – will move away from Europe and towards Asia. They are not expected to grow or to recover to pre-crisis levels, as lower production will limit the volumes available for export.

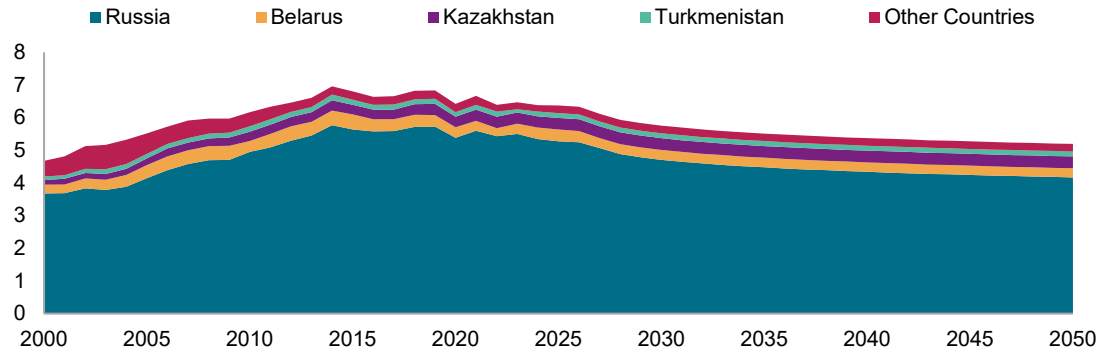
Data compiled September 2025.
Source: S&P Global Commodity Insights.

CIS: Natural gas production and refinery runs

CIS natural gas production by type (billion cubic meters)



CIS crude refinery runs by country (thousand barrels per day)

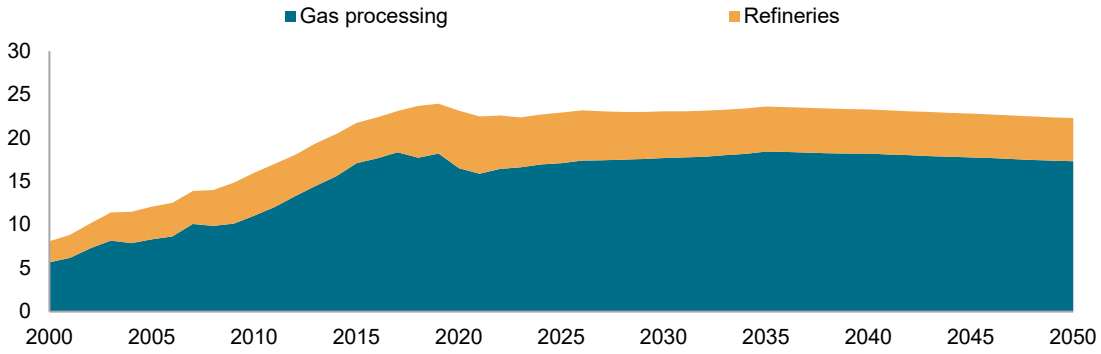


- CIS natural gas production was increasing through 2021 but dropped due to the war in Ukraine (with effects on both Russia and Ukraine).
  - We do not expect production to grow in the near term but do expect that after 2030. As delayed projects come online, there will be a slight increase in gas production.
- CIS crude production peaked in 2019 at about 13.6 million b/d but is currently down to around 12.3 million b/d. We expect crude production to decline to 9.4 million b/d by 2050.
- CIS refinery runs peaked in 2018 at 6.3 million b/d but declined to 5.8 million b/d in 2024.
  - Runs are expected to slowly decline through the long term, reaching 4.6 million b/d in 2050.
  - Kazakhstan crude runs, though, will remain relatively stable through the long term, as will Turkmenistan crude runs (though at a smaller scale).

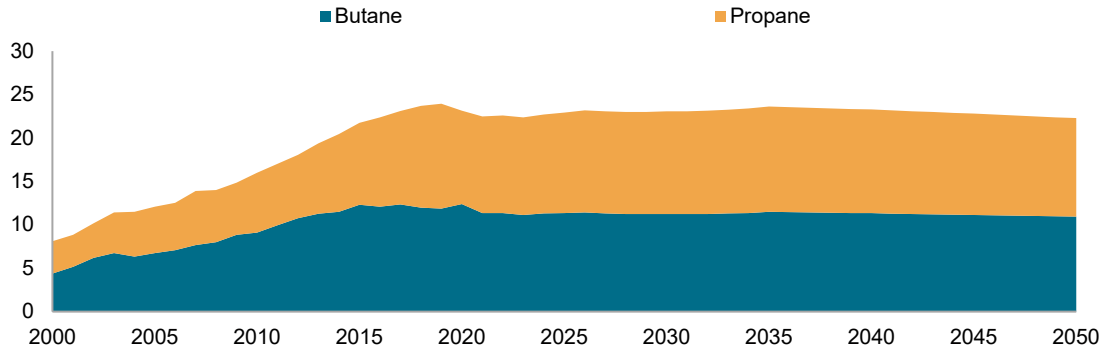
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

CIS: LPG supply

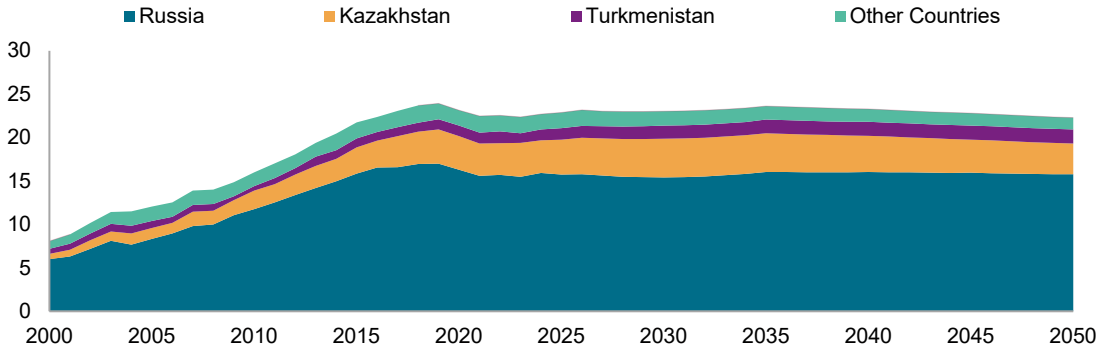
CIS LPG supply by source (million metric tons)



CIS LPG supply by product (million metric tons)



CIS LPG supply by country (million metric tons)

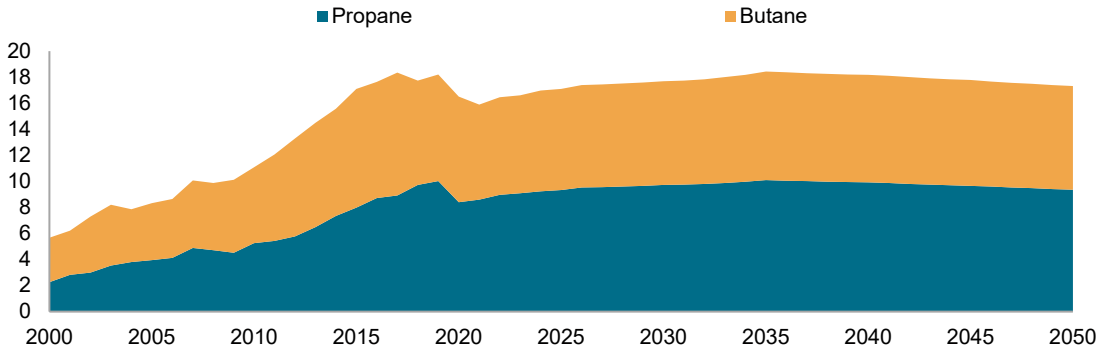


- The CIS region has very large resources of both oil and gas. The largest resources under development are in Western Siberia, Kazakhstan, and Azerbaijan. These areas are mostly remote from population centers but already have some infrastructure in place to get products to market, including LPG.
- Large potential resources can also be found in Far Eastern Siberia and the Russian Arctic. Gazprom had a major development underway at Amur, which was scheduled for completion by 2025 but is now delayed.
- Refineries in the region are mostly small, low-conversion units, so most of the LPG production is produced by gas processing facilities. Russia is by far the largest LPG producer in the CIS region, accounting for 80% of total supply.

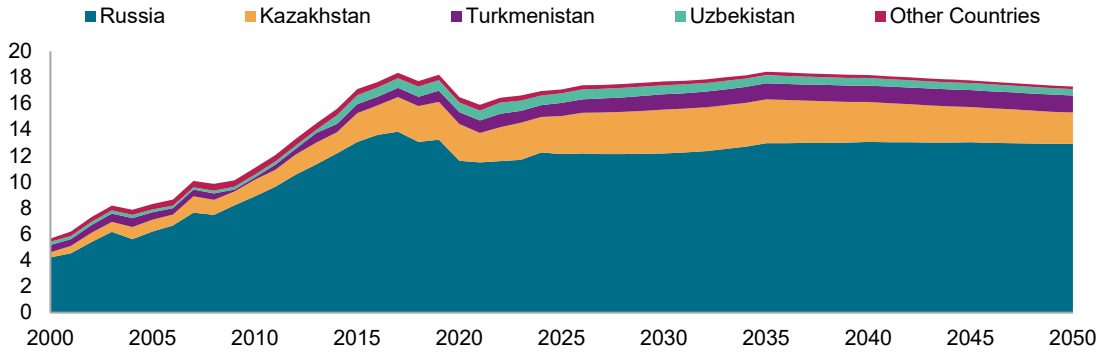
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

CIS: LPG production from gas processing

CIS LPG production from gas processing by product (million metric tons)



CIS LPG production from gas processing by country (million metric tons)

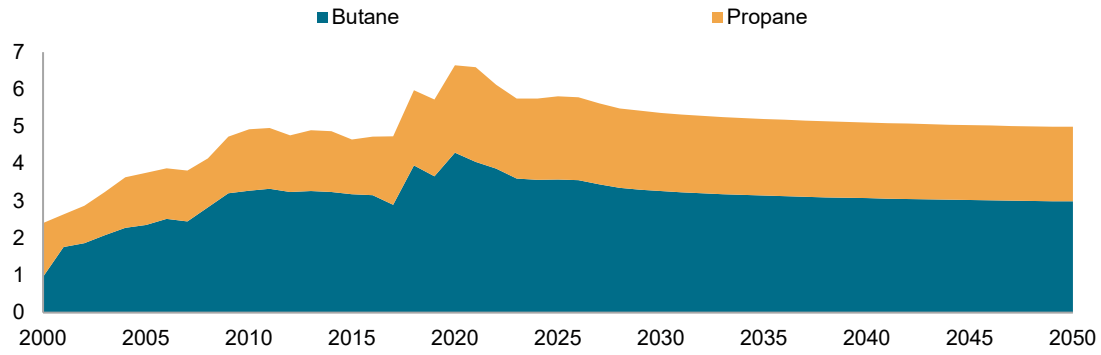


- LPG production from gas processing was expected to increase as gas reserves in the CIS were developed, but these projects are now uncertain.
- New production was to come especially in the 2023-2025 timeframe from Gazprom's Amur project, Rosneft's Rospan project, and Gazprom Neft's Yamal assets, which would have collectively added several million tons per year of new LPG production.
- Russian production is not expected to grow significantly in the near to medium term. If anything, it will stay relatively stable.
  - Russian LNG is an important part of global balances in the late 2030s and 2040s, as there's a growing need for LNG everywhere in the world.
  - Brownfield LNG projects will be facing declining production, and Russia will be part of the balance to fill in the gap, with development in the Arctic that's condensate-rich. This is what we expect will grow in the outer years, and lead to a slight increasing trend between 2040 and 2050.
  - That said, our view is that Russia won't come back to historical peak levels of production and exports.
- LPG produced from gas processing is split 55/45 between propane and butane.
- Most of the LPG produced in the CIS is from Russia due to its large oil and gas reserves.

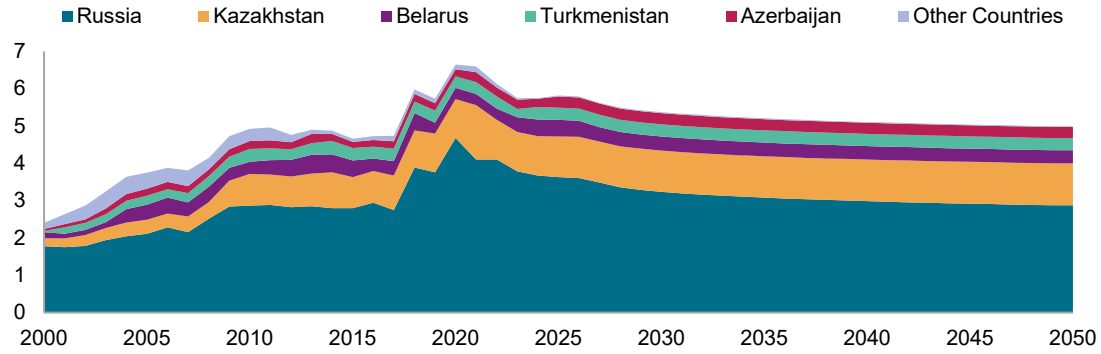
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

CIS: LPG production from refineries

CIS LPG production from refineries by product (million metric tons)



CIS LPG production from refineries by country (million metric tons)

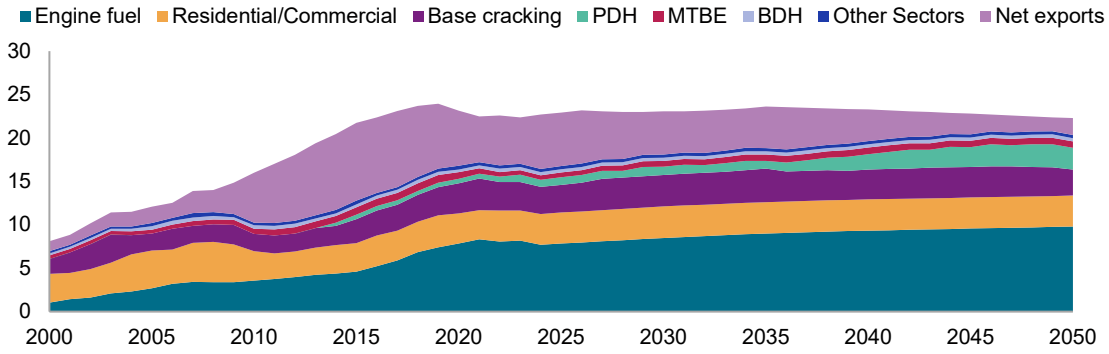


- LPG recovery from refineries accounts for less than 30% of total production as the refineries utilize most of their production internally: propane for fuel and butane to produce gasoline.
- Unlike the Atlantic basin, Eurasia has largely avoided significant refinery closures in recent years, thanks in part to government subsidies.
- However, Ukraine stands as a notable exception.
  - Ukraine used to have seven refineries with a total capacity of 860,000 b/d.
  - However, over the past two decades, they all have closed due to a confluence of different factors, including corruption, lack of investment, low margins, and feedstock availability.
  - The last operational refinery, the Kremenchug site, was severely damaged during the war.
- Refineries in the Caspian and Central Asia are protected by growing domestic oil product consumption and are likely to remain operational.
- In Russia, some of the export-oriented refineries remain vulnerable to closures due to their relatively simple configuration and weak margin environment.

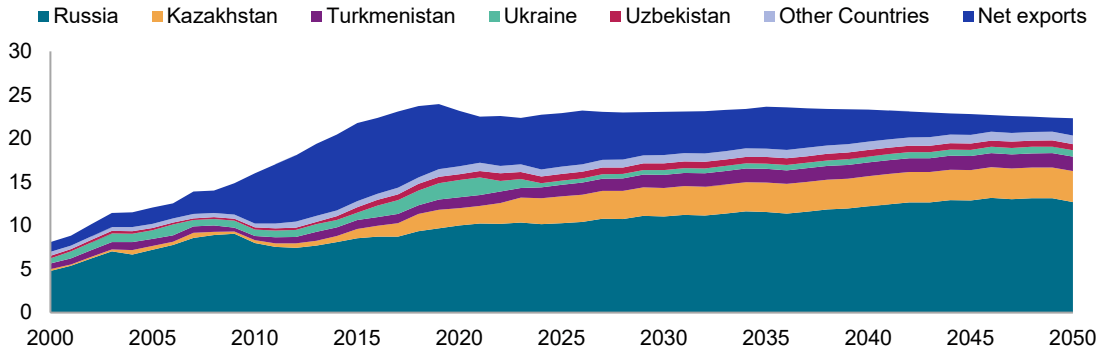
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

CIS: LPG demand

CIS LPG demand by sector (million metric tons)



CIS LPG demand by country (million metric tons)

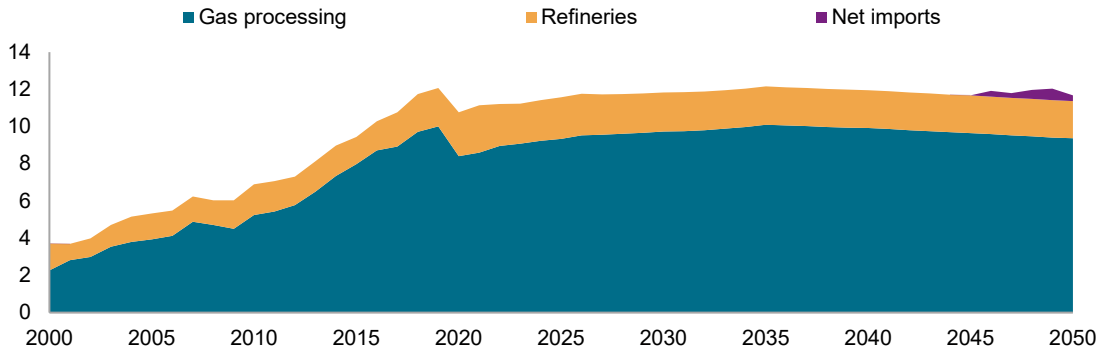


- The share of supply that was exported in the CIS region reached a peak of over 45% in 2013. Since then, it has decreased to approximately 29% of total supply by 2024. As production growth slows, the share of exports will be on a downward trajectory, reaching minimal levels (around 11%) by 2050.
- Engine fuel and chemical feedstock are the two largest demand sectors.
  - Chemical demand was growing rapidly, but stalled in recent years as new projects were delayed.
  - As global petrochemical derivative product demand grows in the long term, we expect demand for LPG for PDH and base cracking will also grow in the CIS region.
- The region is still a large LPG exporter, but exports are down as Russia finds it hard to replace the loss of European markets.
- As is the case for production, Russia is also the largest consumer of LPG in the CIS region and is expected to remain the dominant consumer.

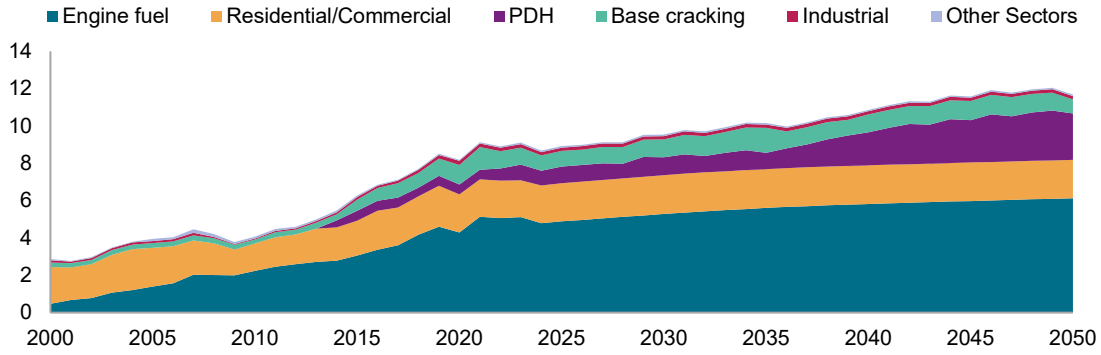
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

CIS: Propane supply and demand

CIS propane supply by source (million metric tons)



CIS propane demand by sector (million metric tons)

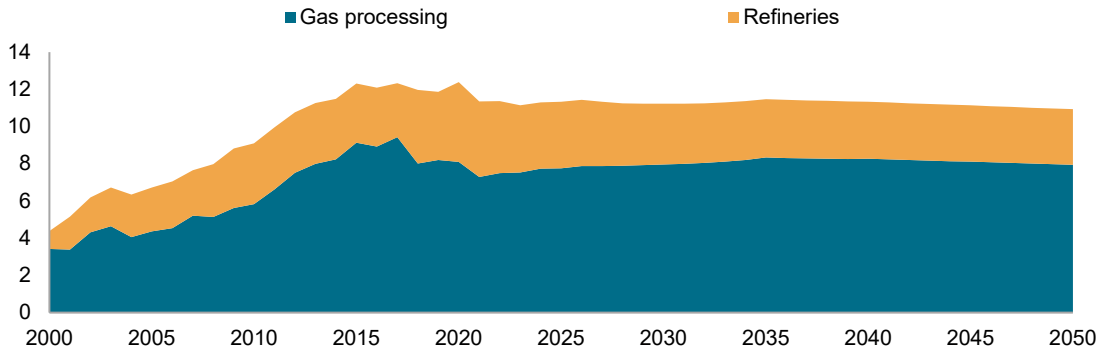


- Refineries in Russia recover relatively small amounts of propane, so most propane supply comes from gas processing.
- Exports account for about 25% of total demand; increased usage in the chemical sector leaves less available to export.
- PDH demand is expected to go up as delayed projects come to fruition. We have hypothetical demand growth in our chemical balances, starting in 2035, which continues through the forecast period.

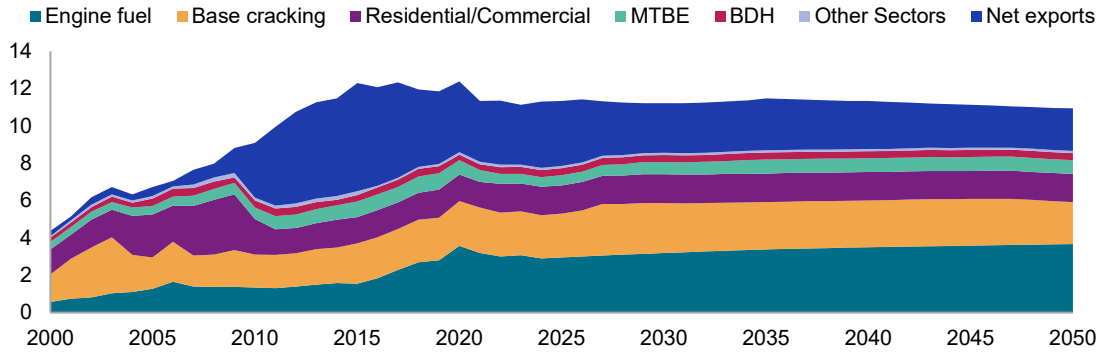
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

CIS: Butane supply and demand

CIS butane supply by source (million metric tons)



CIS butane demand by sector (million metric tons)

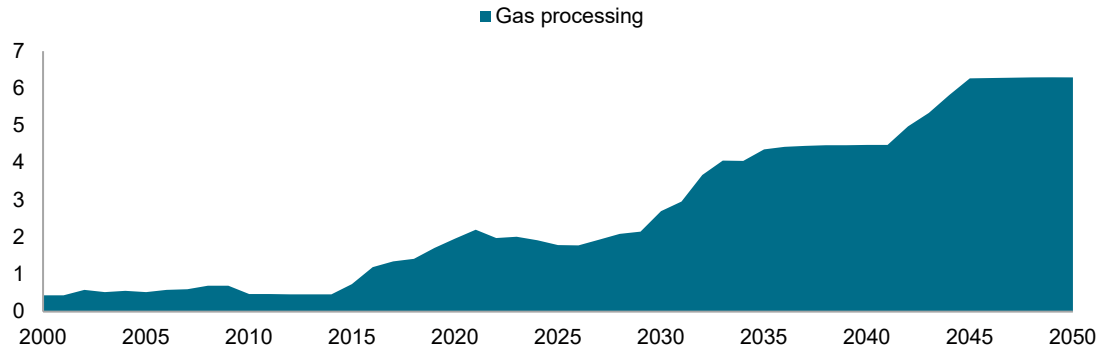


- Refineries provide about 35% of the butane produced in the CIS, but most of the butane produced in refineries is used in gasoline manufacturing.
- Butane consumption outside of refineries is primarily Autogas and chemicals.
- About a third of the butane produced by gas processing and recovered from refineries is exported, but these volumes will decline in the long term.

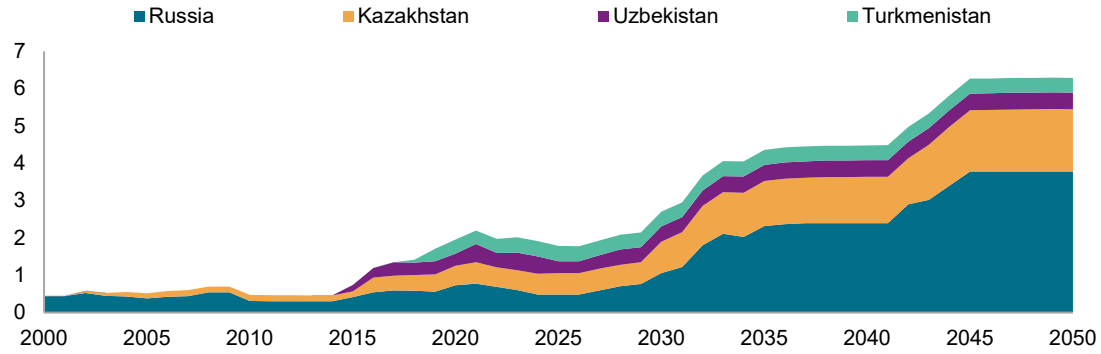
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

CIS: Ethane supply and demand

CIS ethane supply by source (million metric tons)



CIS ethane demand by country (million metric tons)

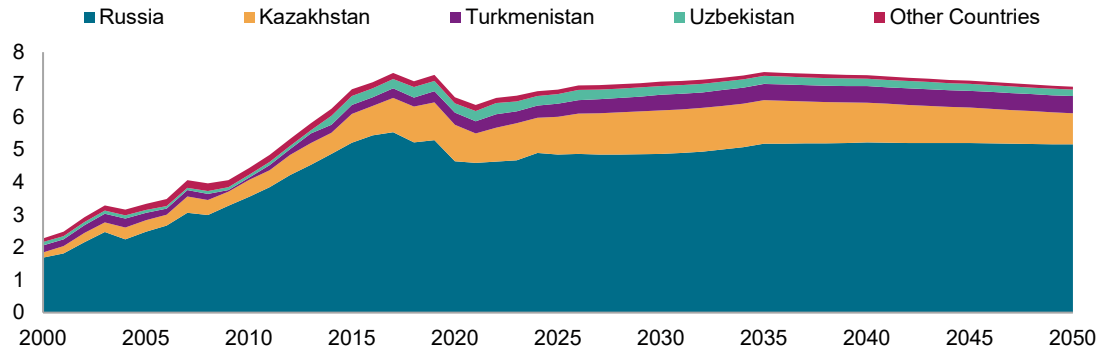


- Ethane consumption in the CIS is larger than indicated, since Russia feeds a mixed LPG feedstock (ShFLU) to its steam crackers, which contains ethane.
- Direct use of ShFLU is in decline, however, and in the future, more ethane will be recovered for use as a purity feedstock.
- Given global ethylene demand growth, we have hypothetical ethane-based cracker projects in Russia and Kazakhstan starting to ramp up in 2030 and again after 2040.

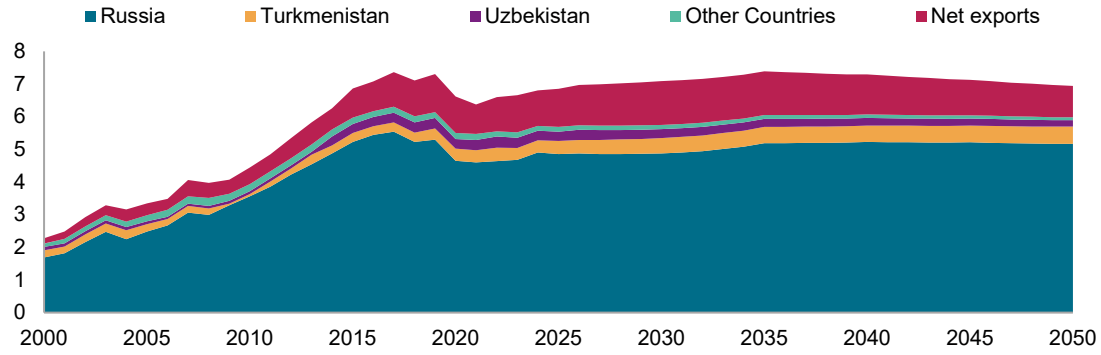
Data compiled September 2025.
Source: S&P Global Commodity Insights, IEA.

CIS: Natural gasoline supply and demand

CIS natural gasoline supply by country (million metric tons)



CIS natural gasoline demand by country (million metric tons)



- Natural gasoline production will follow natural gas production in the region, with growth in Russia and Central Asia (especially Turkmenistan) driving natural gasoline production.
- All the natural gasoline production is consumed in the producing countries.

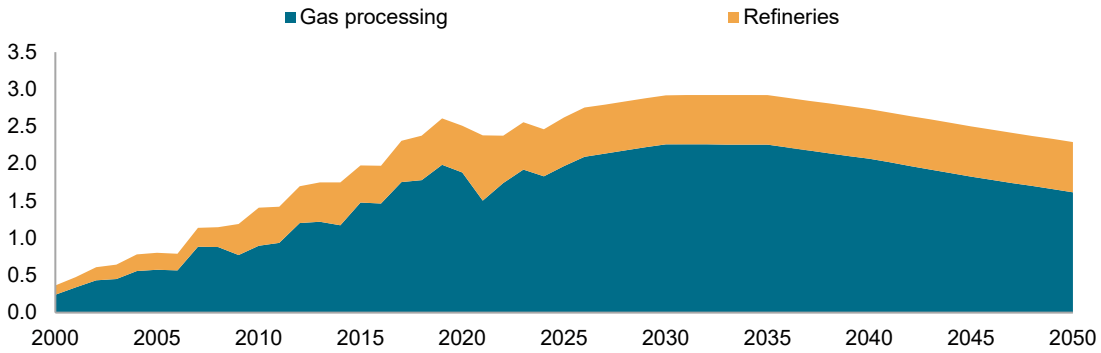
Data compiled September 2025.
Source: S&P Global Commodity Insights.

CIS
Country Profiles

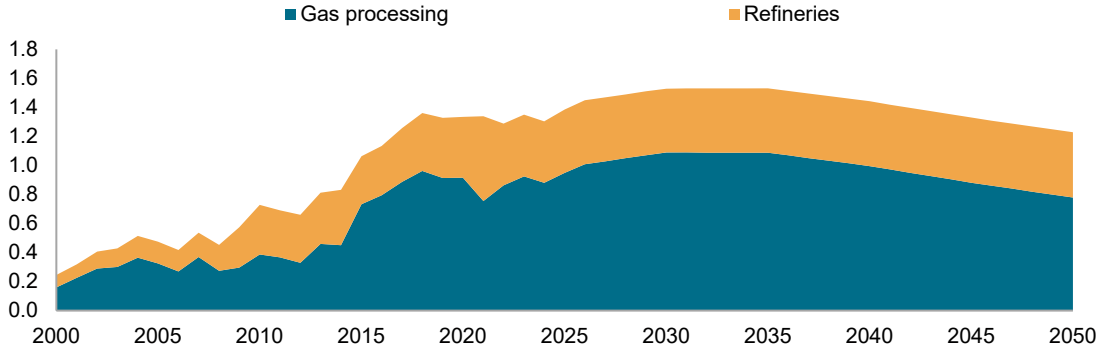
- Kazakhstan
- Russia
- Ukraine

Kazakhstan: LPG supply

Kazakhstan propane supply by source (million metric tons)



Kazakhstan butane supply by source (million metric tons)

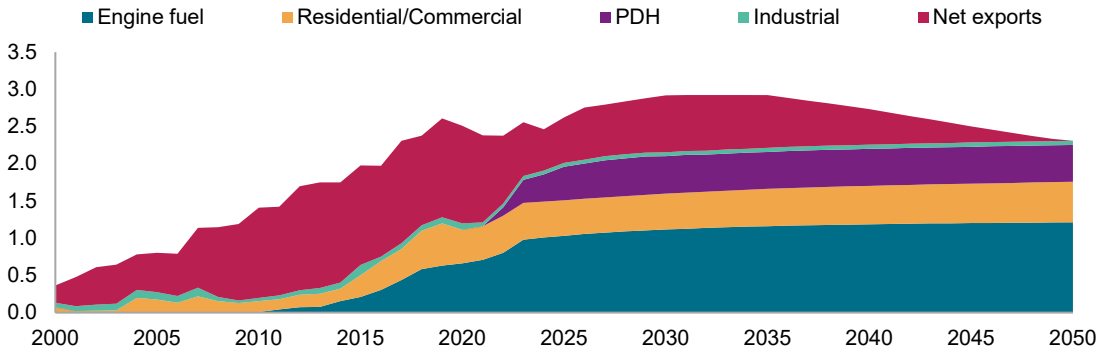


- Kazakhstan is the second-largest producer of LPG in the CIS, behind Russia.
- Most (70%) of the LPG produced in Kazakhstan comes from gas processing.
- Production is expected to increase through the medium term as the country continues to exploit its large natural gas resources.
- Refinery production of LPG should remain stable at about 1.1 million metric tons annually as Kazakhstan crude runs are expected to remain relatively stable through the long term.

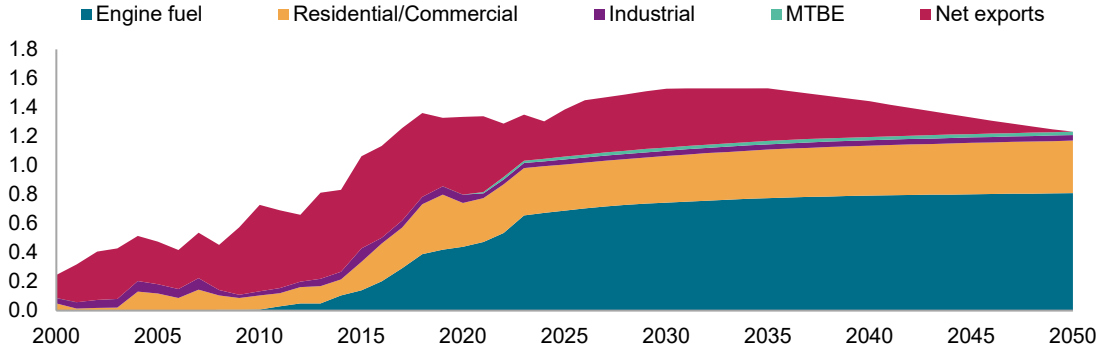
Data compiled September 2025.
Source: S&P Global Commodity Insights, Sibur, Infotek, IEA.

Kazakhstan: LPG demand

Kazakhstan propane demand by sector (million metric tons)



Kazakhstan butane demand by sector (million metric tons)

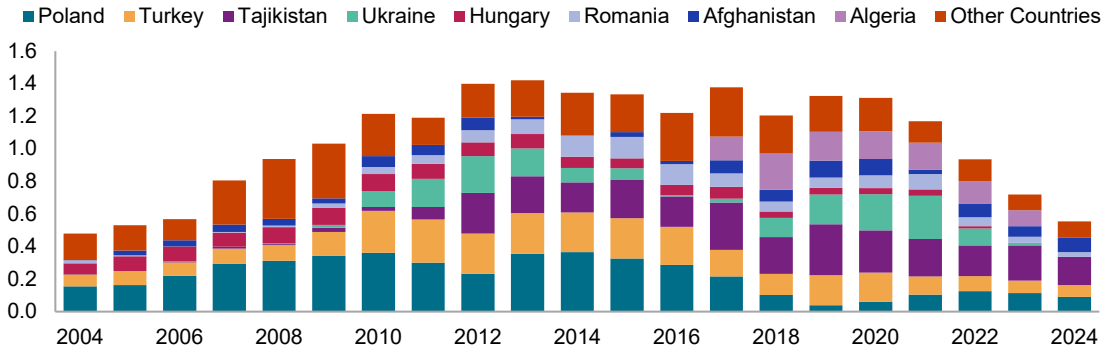


Data compiled September 2025.
Source: S&P Global Commodity Insights, Sibur, Infotek, IEA.

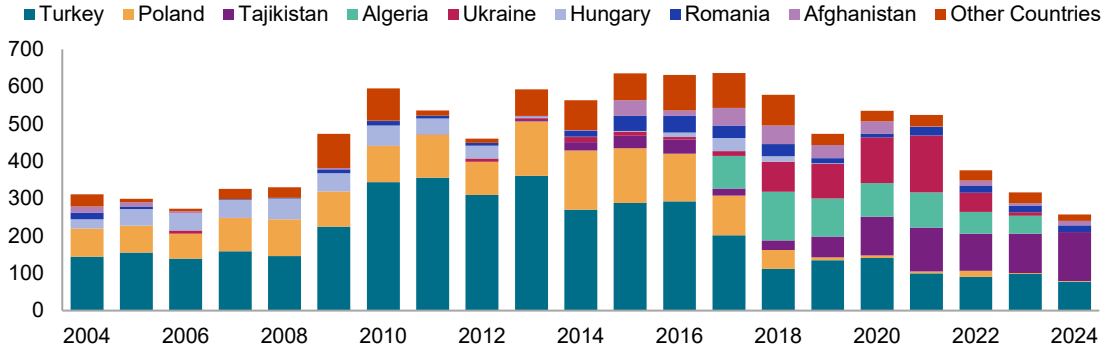
- In June 2021 SIBUR announced that it would join the proposed petrochemical complex in Kazakhstan being led by United Chemical Company (UCC). Borealis pulled out of the project in 2020, and it will likely be delayed as a result.
- Plans called for a 500,000-ton PDH plant to be completed in 2022, but it faced delays and only started commissioning in 2023–2024. We have included this plant in our balances.
- Additionally, there was a 1.25-million-ton ethane-based ethylene cracker planned, which is still at the feasibility study stage. We have not included this in our balances.
- Kazakhstan Petrochemical Industries (KPI) previously announced a new PDH plant using CB&I's Catofin technology. FID for this second PDH plant has not yet been reached.
- There are plans to continue growing petrochemical demand in Kazakhstan, potentially adding 1.2 million tons of demand across three new plants by the late 2020s. However, given uncertainty around their competitiveness, as well as around the future of downstream polymers, we have assumed stable demand for the time being.
- Since 2010, Kazakhstan has developed an Autogas market like Russia and Ukraine. Autogas demand is growing in Kazakhstan.
- Unlike the rest of the CIS region, exports from Kazakhstan are not expected to drop as dramatically. In fact, exports are expected to remain relatively steady through the mid-2030s before starting a slow long-term decline.
- Kazakhstan is landlocked, so the exports are mostly shipped by rail through Russia, and then either loaded onto ships in the Black Sea ports or sent further via rail into Europe.
- While LPG exports were officially banned in Kazakhstan in 2023, we continue to see some cargoes leave the country, albeit at a lower level than in the past.

Kazakhstan: LPG exports

Kazakhstan propane exports by country of destination (million metric tons)



Kazakhstan butane exports by country of destination (thousand metric tons)

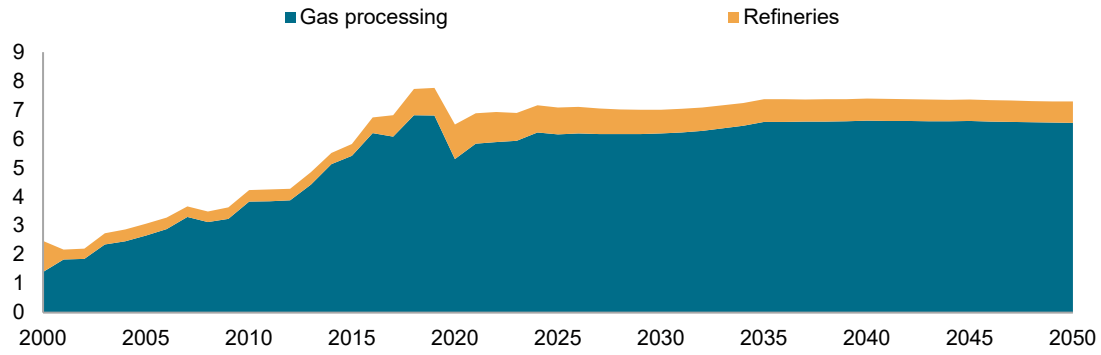


- Kazakhstan's LPG exports have fluctuated between 1.2 and 1.4 million tons of propane, and 0.5 and 0.6 million tons of butane annually since 2012. However, exports have come down in recent years, reaching a low of 0.3 million tons of butane and 0.7 million tons of propane in 2023.
- Exports go to the Mediterranean and Romania via the Black Sea, and Europe (Poland, Hungary, etc.) via rail. Some volumes are also absorbed by neighboring countries including Tajikistan and Afghanistan.
- With the increase in demand in Ukraine in the Autogas sector since 2017, more volumes from Kazakhstan were going there. These volumes are not flowing anymore, since they used to transit through Russia.

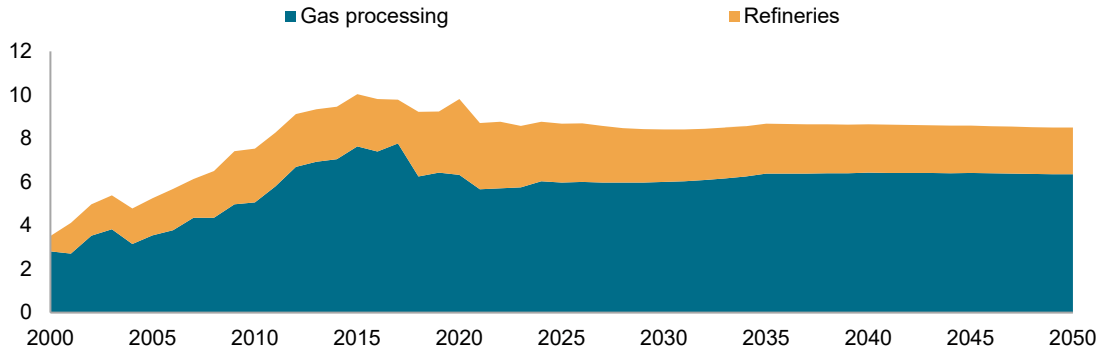
Data compiled September 2025.
Source: S&P Global Commodity Insights.

Russia: LPG supply

Russia propane supply by source (million metric tons)



Russia butane supply by source (million metric tons)

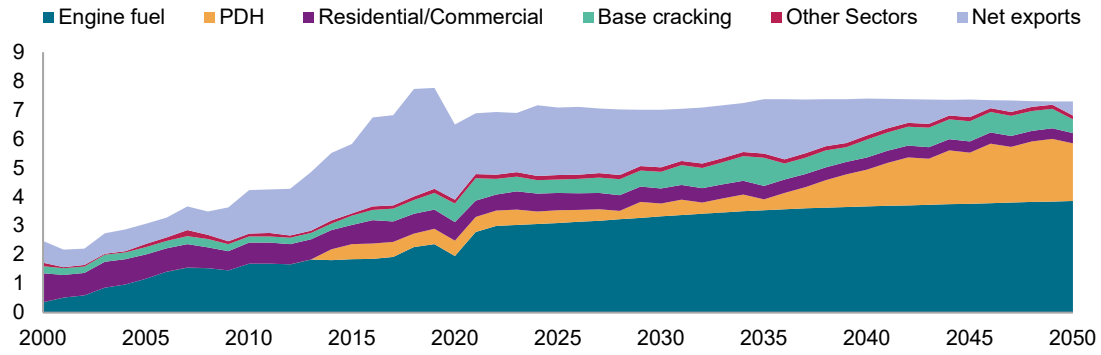


Data compiled September 2025.
Source: S&P Global Commodity Insights, TsDU TEK, Infotek, Sibur, IEA.

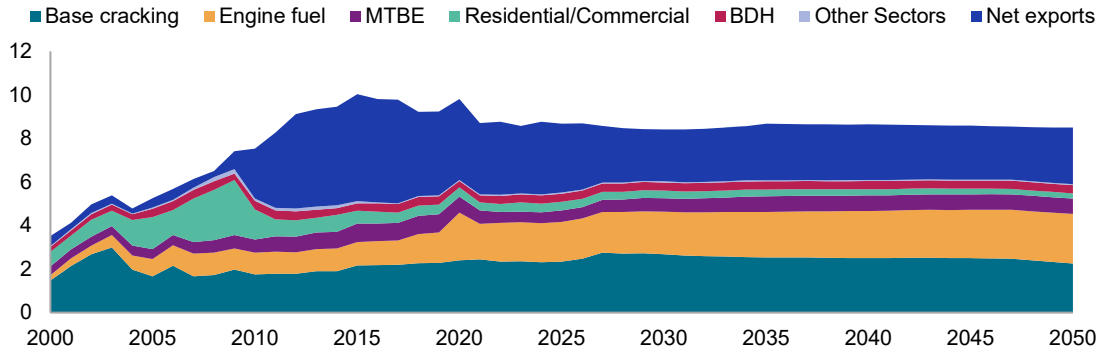
- Russia is the largest producer of LPG in the CIS, and most LPG that is produced in Russia is recovered from associated natural gas.
  - LPG doesn't come from all gas, just from a wet gas component, which is not expected to grow. These are the most expensive fields that were needed in the balance to compensate for the decline of the legacy fields.
  - Given the dry gas production expected, there is no need to launch wetter gas (condensate-rich) production until the mid 2030s, early 2040s.
  - In our prior ASW studies we had this production at the end of the 2020s, including the Urengoy and Dianborg deeper layers of Gazprom. However, these aren’t needed for at least a decade.
- Our forecast calls for stable LPG production through the medium term, starting to grow (albeit slowly) beyond 2030.
- Though progress has been made, Russia has remaining potential for LPG production growth from reduction in gas flaring. Additionally, there is potential from the development of new resources in Western and Eastern Siberia, as well as the Arctic.
- We expect LPG production from refineries to decline gradually.
  - Refineries in Russia are unprofitable without differential export taxes and preferential railroad tariffs, which lead to low prices supported by subsidies.
  - As these damping mechanisms and export duty differentials are fading, along with sanctions on refined products, it is becoming unprofitable for Russia to pursue these exports, causing a reduction in production.
- The largest producer of LPG in Russia is Sibur, followed by the state-owned natural gas company Gazprom (on its own and via its subsidiaries, including Gazprom Neft) and Rosneft. Several other independent oil and gas companies also produce LPG, including Novatek and Irkutsk Oil.

Russia: LPG demand

Russia propane demand by sector (million metric tons)



Russia butane demand by sector (million metric tons)

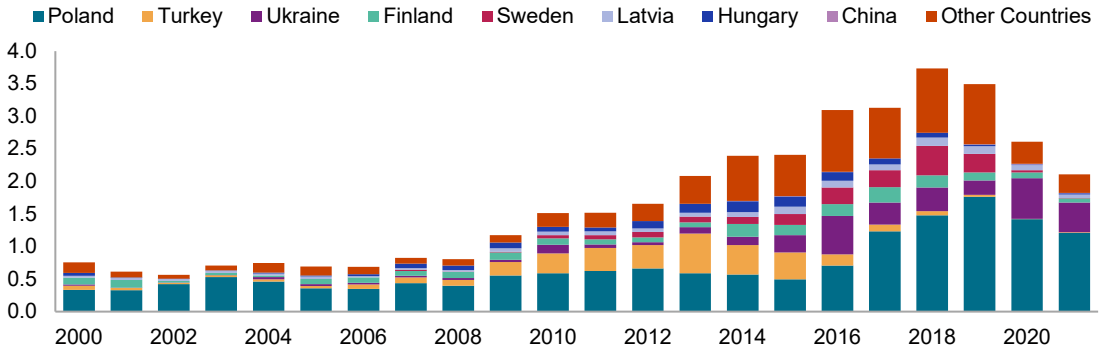


- Autogas demand rose rapidly until 2019, fell in 2020, but rebounded in 2021 and 2022. Growth is expected to continue as more LPG becomes available due to reduced exports to Europe.
- LPG distribution within Russia is generally as a propane/butane mix for residential/commercial and industrial uses (with roughly a 60/40 C3/C4 split) and "ShFLU," a raw NGL mix (60% to 85% LPG) for fractionation into a C3/C4 mix or for direct use by petrochemical plants. The direct use of raw NGL mix is in decline, as new projects incorporate fractionation facilities to utilize purity feedstocks in a more efficient manner.
- LPG is also used in Russia as olefin feedstock in steam crackers, as feed for both PDH and BDH plants, and for aromatics production.
- New upstream developments, including Rospan, Gazprom Neft's Yamal assets, and the Ust-Luga Gas Chemical Complex being developed by RusGazDobycha, were to add to LPG availability and maintain exports through the long term. We now expect the market to remain flat and not increase significantly in the long term.
- A large amount of new ethylene and PDH capacity was planned to be added in Russia in the early 2020s and through the 2030s; however, many of these projects are now delayed.
  - Given the expected increase in global polymer demand, we have added hypothetical projects previously associated with delayed PDH and cracker projects, which are expected to start in 2030.

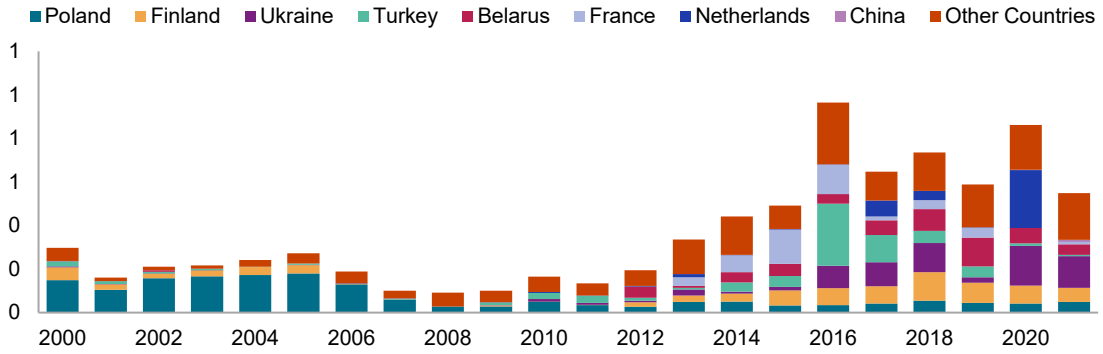
Data compiled September 2025.
Source: S&P Global Commodity Insights, TsDU TEK, Infotek, Sibur, IEA.

Russia: LPG exports

Russia propane exports by country of destination (million metric tons)



Russia butane exports by country of destination (thousand metric tons)

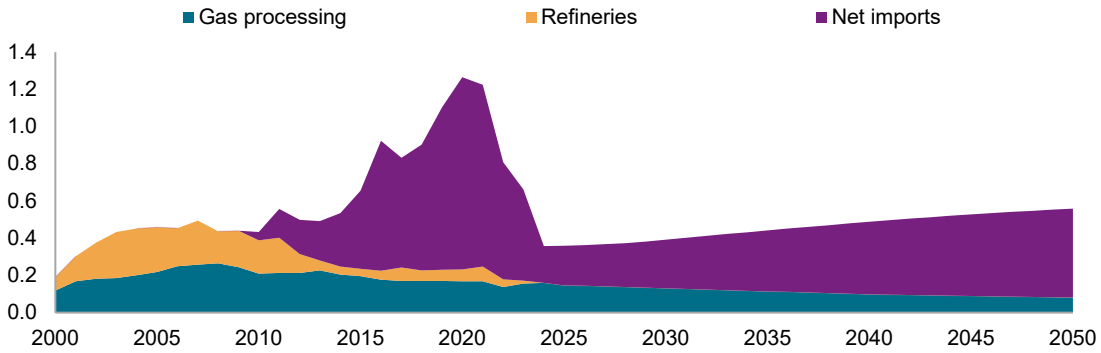


- While Europe's supplier realignment impacted Russian LPG export volumes right after the invasion, these have now mostly recovered to pre-invasion levels, although with a clear pivot to Asia.
  - All Russian LPG used to be consumed in Europe and the Mediterranean. Sibur used only Handy-size vessels at Ust-Luga, effectively limiting the range at which Russian LPG was price-competitive on a netback basis with other global suppliers.
  - Exports are now focused on Poland and Turkey, as well as Afghanistan and other CIS countries. Some of these have gone from lifting almost no Russian LPG, to lifting 20-30,000 tons per month.
  - Directly or indirectly, Russian LPG is finding its way to new and traditional markets that were dominated by other suppliers (e.g., Sonatrach) and were either uncompetitive prior to the invasion of Ukraine, or inaccessible due to sanctions after the invasion.
- Russian LPG may eventually reach the Far East in higher volumes, but not until the development of production and exports in East Siberia and the Russian Far East.
  - As Europe turns its back on Russian LPG, some of these projects will eventually be prioritized, which is why we do not expect all exports to cease.
  - Moreover, Turkey, China (mainland), Afghanistan, and some CIS countries like Belarus, are expected to continue buying some Russian LPG.
- That said, the regional balance is shrinking and there will be less exports available from Russia over the long term.
- Russia will have less of a surplus, as will key exporters like Kazakhstan.

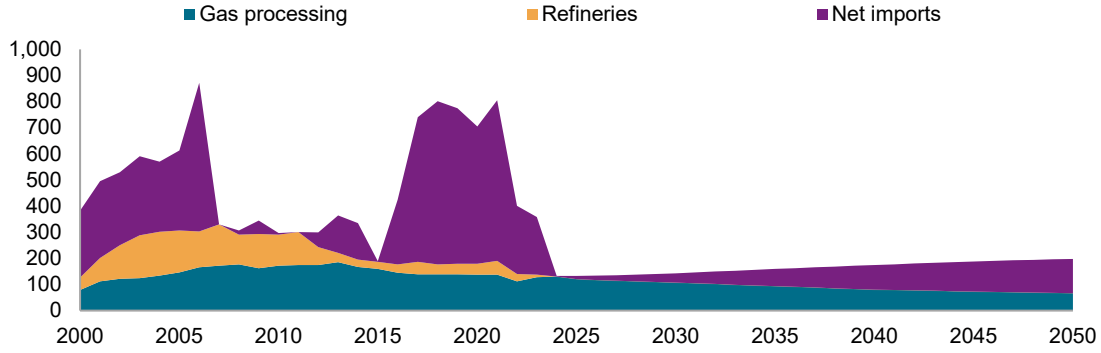
Data compiled September 2025.
Source: S&P Global Commodity Insights.

Ukraine: LPG supply

Ukraine propane supply by source (million metric tons)



Ukraine butane supply by source (thousand metric tons)

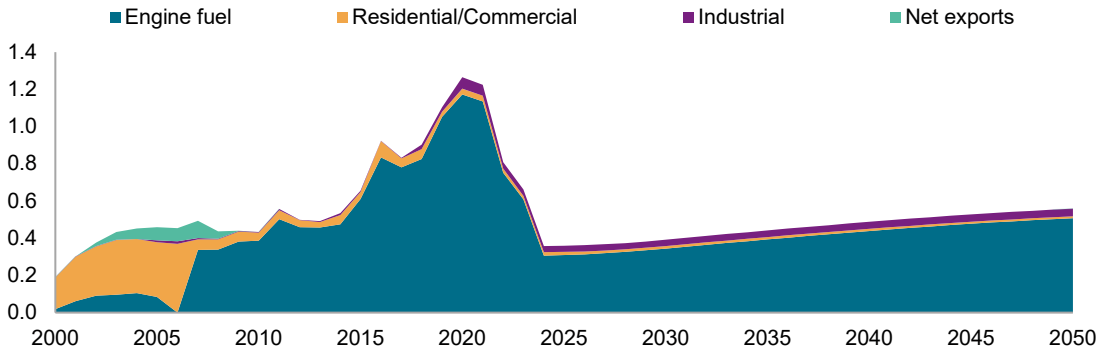


- All LPG production in Ukraine is recovered from processing gas. Gas production is steady, so we expect essentially flat LPG production in the long term.
- Recovery of LPG from refineries has ceased.
- All incremental demand must be met with imports, particularly as the country's economy recovers after a possible ceasefire.
- Most of the imports come from Kazakhstan, Poland, and other countries that were previously buyers of Ukrainian exports.

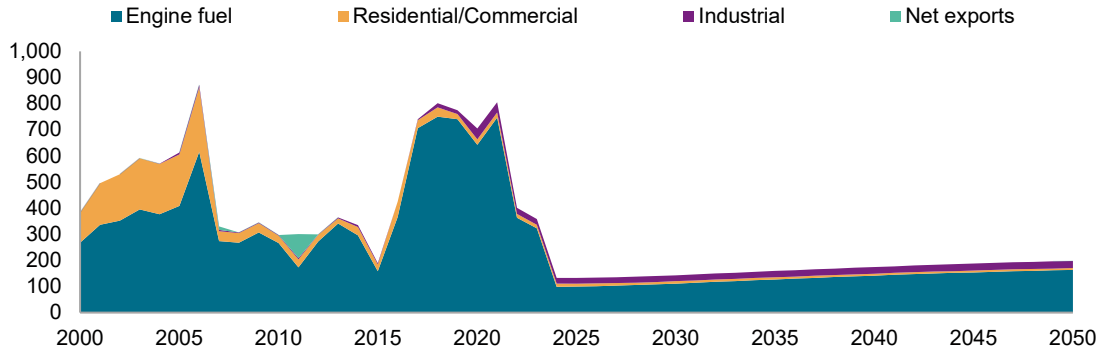
Data compiled September 2025.
Source: S&P Global Commodity Insights, Sibur, IEA.

Ukraine: LPG demand

Ukraine propane demand by sector (million metric tons)



Ukraine butane demand by sector (thousand metric tons)

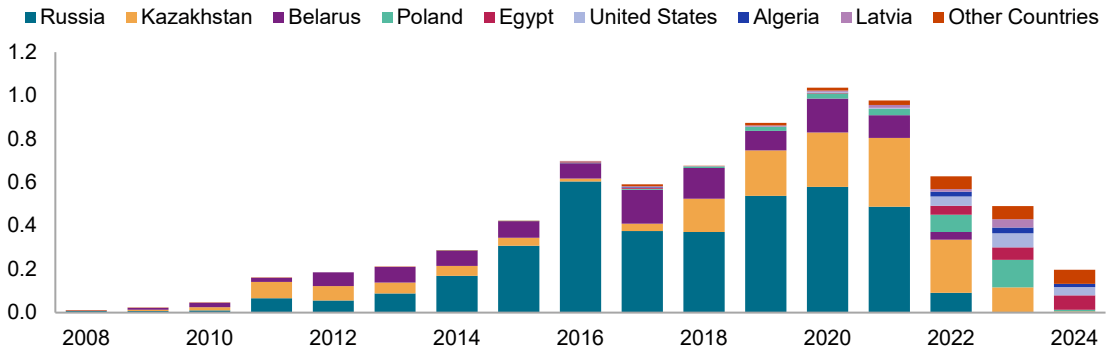


Data compiled September 2025.
Source: S&P Global Commodity Insights, Sibur, IEA.

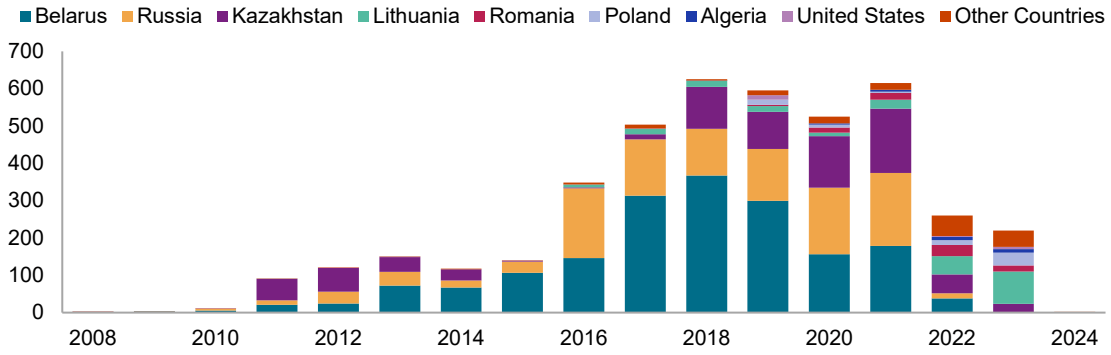
- Ukraine has diversified its LPG supply away from Russia. Although there were supply interruptions shortly after the war began, imports and availability have largely returned to normal.
- Autogas is the largest end-use in Ukraine, and demand increased sharply in the 2016-2020 period following a spike in gasoline and diesel prices.
  - Autogas demand in 2020 and by 2022 dropped to less than half as many the vehicles were moved to other countries like Poland as people fled the war.
  - Autogas will remain an important road fuel in Ukraine, as product availability and relatively inexpensive vehicle conversions have established consumer confidence.
  - Unlike in markets to the west, the transition to electric vehicles is expected to be less of a concern in Ukraine.
- While there were reports that residential and commercial consumers relied more on LPG during electricity shortages at the beginning of the war, this seems to have been only temporary, and barely had an impact on the country's demand levels and the share by sector.

Ukraine: LPG imports

Ukraine propane imports by country of origin (million metric tons)



Ukraine butane imports by country of origin (thousand metric tons)



- Prior to 2011 Ukraine imported very little LPG, but it was used mainly as a transit country for Russian Black Sea exports.
- Following the rise of the Autogas market, imports grew steadily.
- Most propane and butane imported into Ukraine used to come from Russia, followed by Kazakhstan.
- Imports are now primarily coming from Algeria, Egypt, Romania, and Lithuania. Poland and the United States are also important suppliers.

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

Appendix

- Publication notes

Publication notes

- S&P Global Commodity Insights analyzes data from various sources and occasionally history could change based on sourcing more reliable data and modifications to assumptions.
- Data on propane and butane used for heating and cooking within the residential and commercial markets is not explicitly available. S&P Global Commodity Insights analyzes data from various sources and evaluates the propane and butane split based on its industry knowledge and expertise. Some historical data could change based on changes in data sources, methodologies and assumptions.
- In addition to gathering data from various sources for each country, S&P Global Commodity Insights also analyzes trade data for each country to develop a view on domestic consumption of propane and butane, where demand categories from other sources are not explicitly broken out.

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