GECF

MONTHLY GAS MARKET REPORT

April 2024

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About GECF

The Gas Exporting Countries Forum (GECF) is an intergovernmental organisation gathering the world's leading gas producers and exporters, whose objective is to provide a framework for the exchange of views, experiences, information and data, as well as the cooperation and collaboration amongst its members in gas-related matters. The GECF gathers 20 countries, including 12 full members and 8 observer members (GECF Member Countries) from four continents. Algeria, Bolivia, Egypt, Equatorial Guinea, Iran, Libya, Nigeria, Qatar, Russia, Trinidad and Tobago, United Arab Emirates and Venezuela have the status of full members, while Angola, Azerbaijan, Iraq, Malaysia, Mauritania, Mozambique, Peru and Senegal have the status of observer members.

The GECF Monthly Gas Market Report (MGMR) is a monthly publication of the GECF focusing on short-term developments in the global gas market related to the global economy, gas consumption, gas production, gas trade (pipeline gas and LNG), gas storage and energy prices.

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Acknowledgements

We would like to highlight the important role of HE Secretary General Eng. Mohamed Hamel in developing this report and thank GaffneyCline for their editorial contributions.

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Highlights

Global economy: Global GDP growth for 2024 is projected to be 2.9% by Oxford Economics, based on purchasing power parity. In the US, GDP growth is expected to be 2.7%, while in the Euro area, it is projected at 0.6%. Looking forward to 2025, the global economy is expected to gain momentum, with a projected global GDP growth of 3.2%. Global inflation is anticipated to continue its downward trend in 2024, reaching an annual average of 4.5%, down from 6.1% in 2023.

Gas consumption: In March 2024, gas consumption in the EU exhibited a notable decrease of 9% y-o-y to 32 bcm, largely due to an unusually warm winter that lessened the heating demand. Europe experienced exceptionally warm days, breaking numerous records for high temperatures, and in some places, even surpassing records for May. The US witnessed a 4.5% y-o-y decrease in gas consumption to reach 80 bcm, driven also by the mild winter weather conditions. China's apparent gas demand, which encompasses domestic production, pipeline gas and LNG imports, rose by 10% y-o-y to reach 34 bcm in February 2024.

Gas production: In March 2024, the total dry gas production in the US rose by 0.3% y-o-y to reach 88.5 bcm, with some producers announcing gas production cuts amid low Henry Hub gas prices. The European gas production witnessed a 2.9% y-o-y uptick to reach 16.7 bcm in February 2024, mainly driven by a 2.5% y-o-y increase in Norway's output. In Asia, China continued leading gas production growth, with a 5% y-o-y rise. Additionally, in March 2024, the global number of gas drilling rigs declined by 12 units m-o-m to stand at 385 rigs.

Gas trade: In March 2024, pipeline gas imports to the EU surged by 12% m-o-m to reach 14.0 bcm. In the meantime, global LNG imports increased by 2.6% y-o-y, reaching 35.3 Mt, primarily driven by the Asia Pacific region, with minor upticks from the LAC and MENA regions, collectively compensating for a notable drop in European LNG imports. The stronger LNG imports in Asia Pacific were propelled by higher gas consumption alongside competitive spot LNG prices, which stimulated spot LNG in price sensitive markets. On the supply side, global LNG exports grew by 2.3% y-o-y to 36.3 Mt. The club of LNG exporters continues to expand with the Republic of the Congo exporting its first LNG cargo in March.

Gas storage: As the northern hemisphere winter season drew to a close, gas stocks in Europe remained high. In March 2024, the average volume of gas in storage in the EU decreased to 62.5 bcm, or 60% capacity, the highest level recorded for this time of year. In the US, the average gas storage level declined to 65.7 bcm, or 49% of the country's capacity, similarly the highest level for the month of March since 2016. In Asia, the estimated combined volume of LNG in storage in Japan and South Korea fell to 9.9 bcm.

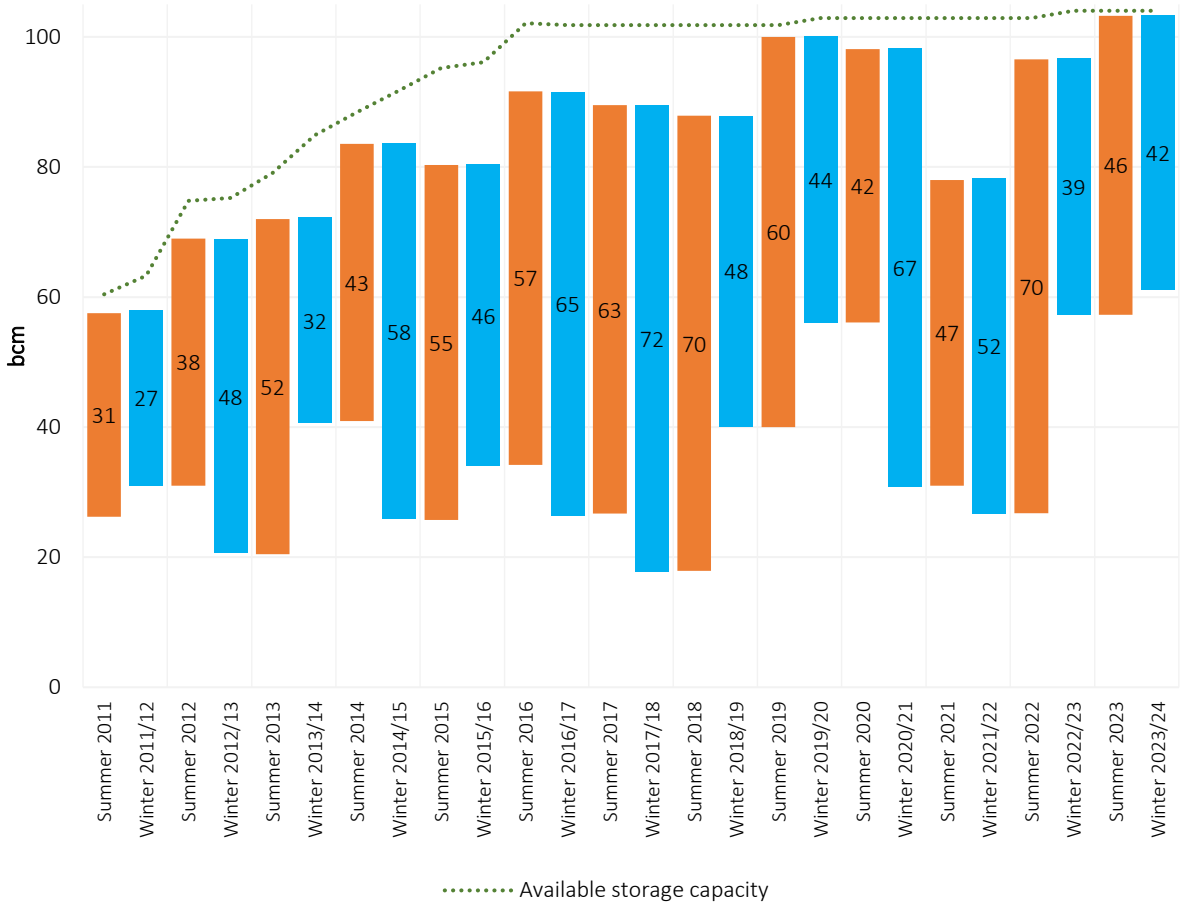
Energy prices: Gas and LNG spot prices in Europe and Asia experienced an uptick, following a three-month period of decline. The average TTF spot price stood at $8.5/MMBtu, reflecting an increase of 5% m-o-m. In addition, the average NEA spot LNG price experienced a 2% m-o-m increase, reaching $9/MMBtu. In the meantime, in the US, Henry Hub prices continued to decline, reaching a multi-year daily low of $1.25/MMBtu during the month. Looking ahead, it is anticipated that increased demand from price-sensitive countries in South and Southeast Asia will support prices in the forthcoming months.

Feature Article: High level of gas in storage in the EU at the end of the 2023/2024 winter season is expected to exert downward pressure on the TTF price

Gas storage is an integral facet of the supply-demand balance of gas markets, underpinning supply during peak consumption periods and providing flexibility. This is particularly significant for the gas markets of the European Union (EU), which have long relied on underground gas storage as an extra source of supply during the winter season to meet the higher heating demand. As such, the EU has an established cycle of restocking of gas storage sites during summer months (characterized by lower gas demand), in anticipation of net gas withdrawals in winter months when gas demand almost doubles.

Over the years, there has been an increase in the total working capacity of underground gas storage in the EU, reaching 104 bcm by 2022, which has facilitated ever increasing swings in storage levels over the seasons. The chart below shows the range of net gas injections in the summer season and withdrawals in the winter season, as well as the level of gas in storage at the start and the end of each summer and winter season, displayed in orange and blue, respectively (Figure 1). The summer season covers the period from April to October, while the winter season encompasses the period from November to the succeeding March.

Figure 1: Summer and winter storage swings in the EU

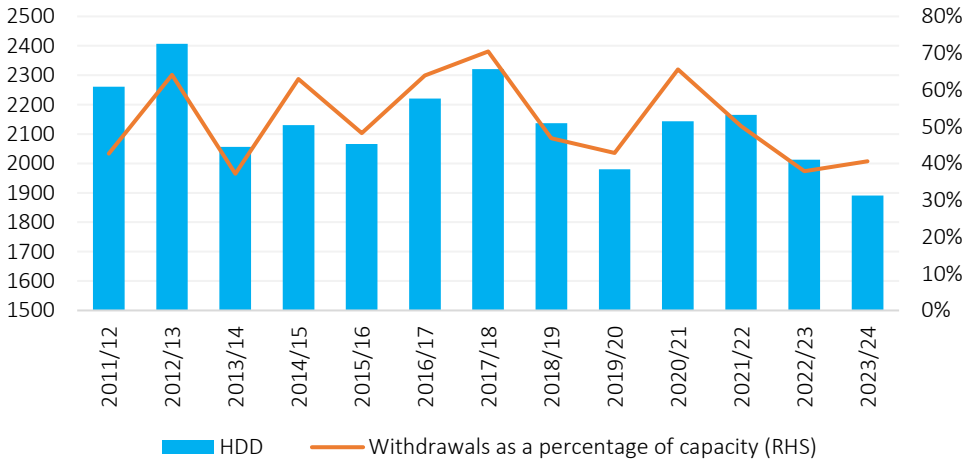


Source: GECF Secretariat based on data from AGSI+

Until the start of the 2019/20 winter season, the level of gas in storage rarely approached the maximum available, with the EU countries filling storage sites to an average of around 90% of the capacity up to this period. However, during four out of five latest winter seasons, gas storage sites have been filled much higher than the average level, closer to the maximum available, with the exception of 2021/22 winter season.

Examining the data more closely reveals the trend between the winter gas withdrawal volumes and temperature in the EU (Figure 2). Heating degree days (HDDs) are a measure of the relative difference between the mean daily temperature and a reference temperature, and therefore have an impact on the heating demand of the region. There is a general correlation between the two variables, as illustrated by the level of gas withdrawals as a percentage of the total gas storage capacity for each particular season. The higher HDD number in a specific winter season usually corresponds to higher gas withdrawals. In addition, there are also other factors which influence the quantity of winter gas withdrawals, such as the availability of ample gas supply, from either domestic production or imports whether that be pipeline gas or LNG.

Figure 2: Correlation between gas withdrawals and heating demand in the EU



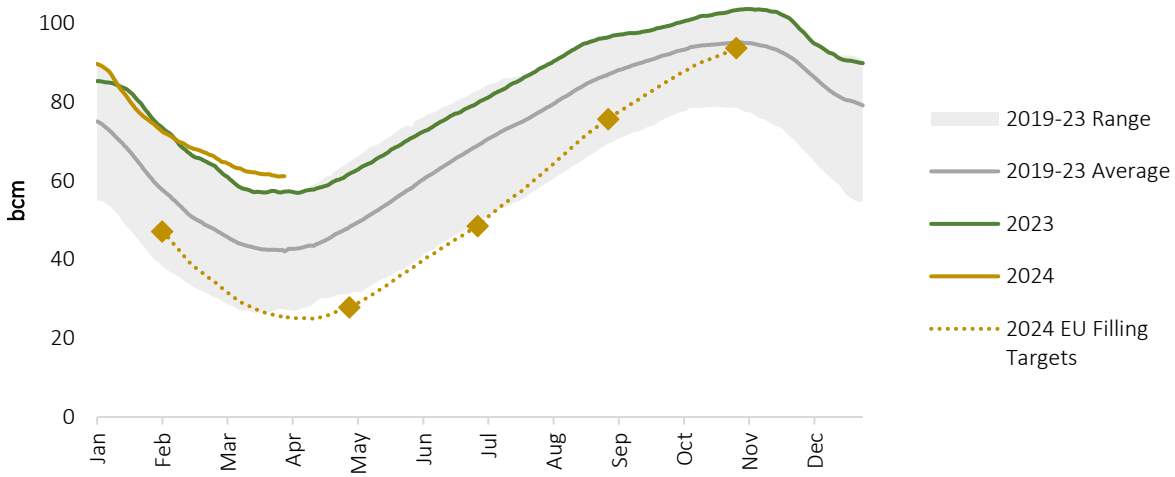
Source: GECF Secretariat based on data from AGSI+, Eurostat and LSEG

The winter seasons of 2012/13 and 2017/18 were notable for a relatively large percentage of gas withdrawal from storage, driven by a high HDD number for those periods. Also, the winter seasons 2014/15 and 2020/21 demonstrated higher-than-average withdrawals compared with relatively low HDD numbers, mainly due to economic rationale. For instance, in the winter season 2020/21, the European market operators prioritized an extensive withdrawal of gas, which had previously been injected into the storage facilities at the record low prices in the summer of 2020, amidst the Covid-19 pandemic. In addition, at that time, the market witnessed a fast recovery in LNG demand in Asia, with LNG suppliers preferring Asia as a destination for LNG cargoes. As a result, the withdrawn gas was extensively used for consumption at that time, while spot and long-term contract LNG purchases dropped. Where there were milder-than-average winter seasons, such as the 2019/20 and 2022/23, there was a much lower quantity of gas required to be taken from storage.

Gas storage developments contributed significantly to the European energy crisis in 2022. The region entered the 2021/2022 winter season with only 76% of gas storage capacity filled and ended that season with only 26% capacity filled, both figures being historical lows from the last decade. With low storage levels and a sharp decline in pipeline gas imports to the region amidst the geopolitical developments, the EU found itself in a significant deficit of gas supply. To avoid the escalation of the crisis during the subsequent winter season, the EU authorities introduced new legislation to keep gas in storage at sustainable levels.

In June 2022, the European Commission presented a regulation on targets for gas storage to be reached in anticipation of the forthcoming winter season. Those filling regulations mandate that EU countries should fill gas storage sites to a minimum of 90% capacity by November 1 each year, regardless of the price of gas, to guarantee security of gas supply in winter seasons. In addition, in November 2023, the European Commission introduced a regulation, which set the filling trajectory with intermediary targets for 2024 for each member state (Figure 3). Together with successive warm winters, the legislation implemented by the European Commission has been influential in mitigating the risk of gas shortfall during the recent previous two winters.

Figure 3: Gas storage filling trajectory in the EU



Source: GECF Secretariat based on data from AGSI+ and the European Commission

The winter season of 2023/24 started with 99% of capacity filled. According to the legislation, the first checkpoint for 2024 was February 1, at which point the EU collectively had 25 bcm more gas in storage than the Commission's target. During the full winter season, only 42 bcm were withdrawn, which was the second lowest indicator over the last decade. That happened amidst the lower heating demand caused by the warmest winter for over the last 12 years.

The low withdrawals resulted in gas storage reaching 61 bcm at the end of the winter season, which is the highest ever level for winter season end. This creates favourable conditions for the European market in preparation for the 2024/25 winter season, since the gas storage will be close to the maximum capacity with only 40 bcm of net gas injection required in the upcoming summer season. Such low injection requirements are expected to contribute to enhancing stability on the regional and global gas markets, while exerting downward pressure on spot prices.

1 Global Perspectives

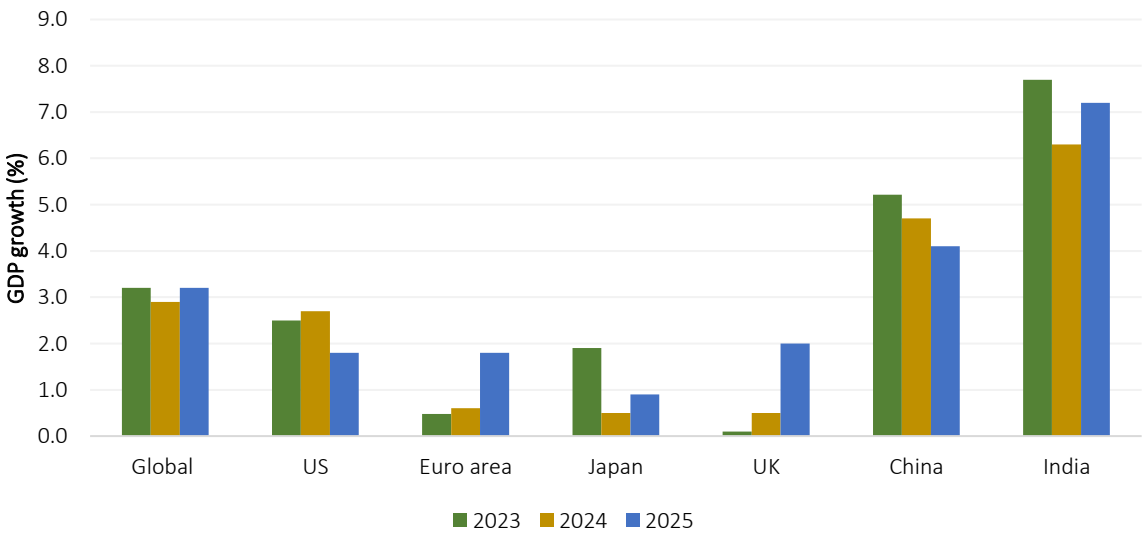
1.1 Global economy

As of April 2024, Oxford Economics has maintained its forecast for global GDP growth for 2024 at 2.9%, based on the purchasing power parity method. In the US, GDP growth forecast has been revised upward by 0.3 percentage points to 2.7%, primarily due to revised data on consumer spending and investment during the first quarter of the year. In the Euro area, the GDP growth forecast has been slightly revised upward by 0.1 percentage points to 0.6%. Economic activity in the Euro area is expected to gradually improve in the second half of the year as inflation subsides, consumer spending increases and industrial activity rebounds. Meanwhile, GDP growth forecasts for China and India remain unchanged from the previous month, at 4.7% and 6.3% respectively. China's economy will continue to be driven by strong industrial activity and fiscal stimulus.

Furthermore, the Organization of Petroleum Exporting Countries (OPEC) maintained its forecast for global GDP growth for 2024 at 2.8%. This forecast is based on expectations for robust growth in the global economy, facilitated by easing inflation and accommodative monetary policies. Additionally, ongoing geopolitical developments are not expected to significantly impact global economic growth.

Looking ahead to 2025, the global economy is expected to gain momentum, with global GDP growth estimated at 3.2% by Oxford Economics. In the US, economic growth is expected to slow down; however, the GDP growth forecast has been revised upward by 0.1 percentage points to 1.8%. In the Euro area, economic growth is expected to accelerate with the GDP growth forecast set at 1.8%. Additionally, China's economic growth is projected to decelerate, as indicated by a GDP growth forecast of 4.1%. Meanwhile, in India, economic growth is expected to accelerate in 2025, with a GDP growth forecast of 7.2% (Figure 4).

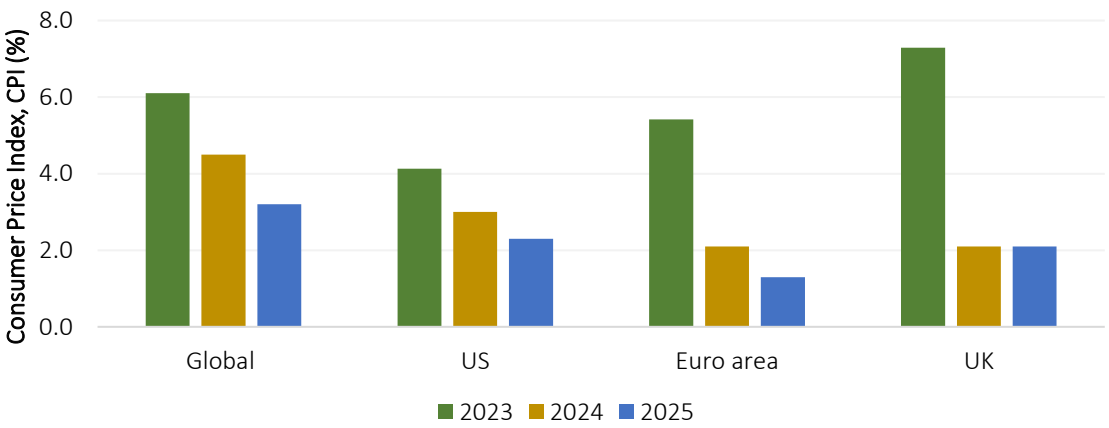
Figure 4: GDP growth



Source: GECF Secretariat based on data from Oxford Economics
Note: Global GDP growth calculated based on purchasing power parity.

Global inflation is expected to average 4.5% in 2024, declining from 6.1% in 2023. Furthermore, in 2025, global inflation is projected to fall to 3.2%. In the Euro area, inflation is projected to fall to 2.1% in 2024 and 1.3% in 2025. In the UK, inflation is expected to be 2.1% in 2024 and 2025. In the US, inflation is expected to decline to 3% in 2024 and 2.3% in 2025 (Figure 5).

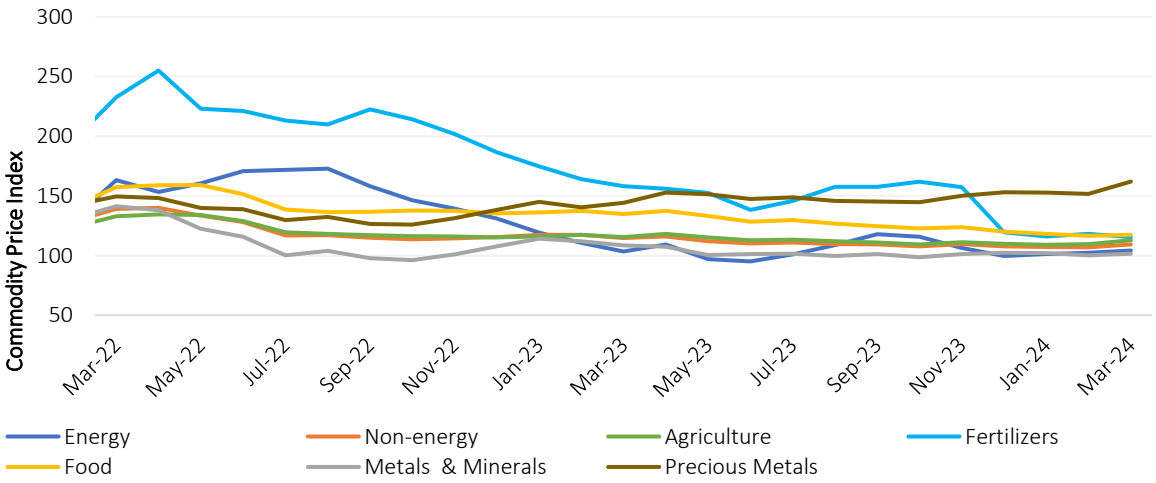
Figure 5: Inflation rates



Source: GECF Secretariat based on data from Oxford Economics

In March 2024, commodity prices in the energy sector increased slightly for the third consecutive month. The energy price index experienced a 2% increase m-o-m. Moreover, the energy price index was 1% higher compared to the previous year, marking the first y-o-y increase since December 2022. This increase was driven by increases in oil, coal and gas prices during the month. The non-energy price index also experienced a 2% increase m-o-m, but reflected a 5% decrease y-o-y. Modest increases in agriculture, metals and minerals, and precious metals supported the non-energy price index, while the fertilizer price index reflected a 2% decline m-o-m, and was 27% lower y-o-y (Figure 6).

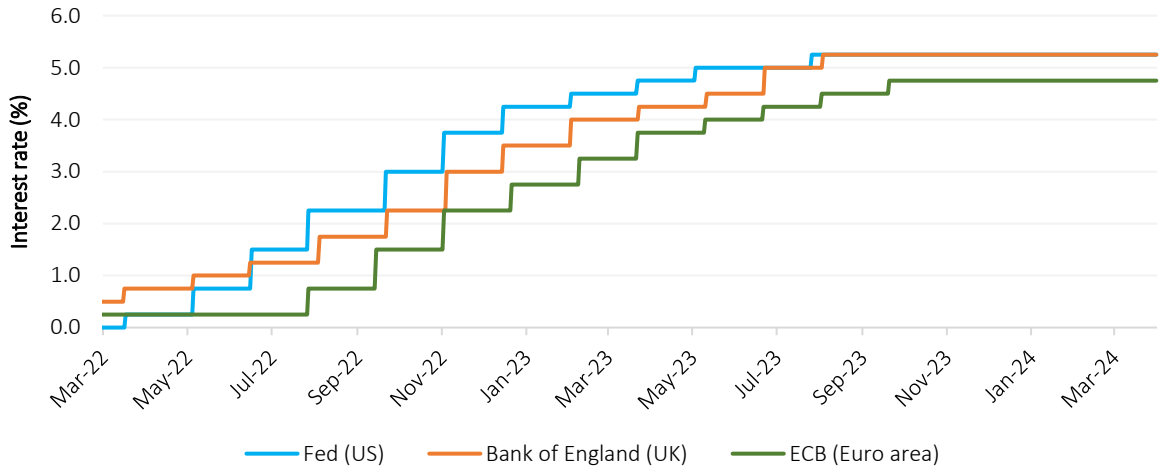
Figure 6: Monthly commodity price indices



Source: GECF Secretariat based on data from World Bank Commodity Price Data
Note: Monthly price indices based on nominal US dollars, 2010=100. The energy price index is calculated using a weighted average of global crude oil (84.6%), gas (10.8%) and coal (4.7%) prices. The non-energy price index is calculated using a weighted average of agriculture (64.9%), metals & minerals (31.6%) and fertilizers (3.6%).

In March 2024, the US Federal Reserve (Fed) maintained its benchmark interest rate within the range of 5.25% to 5.50%. The Fed's last rate hike occurred in July 2023 (Figure 7). Similarly, the Bank of England (BOE) kept its key interest rate at 5.25%, following its most recent increase in August 2023. The European Central Bank (ECB) also held its key interest rates, with the main refinancing operations, marginal lending facility and deposit facility rates at 4.5%, 4.75% and 4.0%, respectively, since their last hike in September 2023. Central banks will continue to take a cautious approach to reducing interest rates.

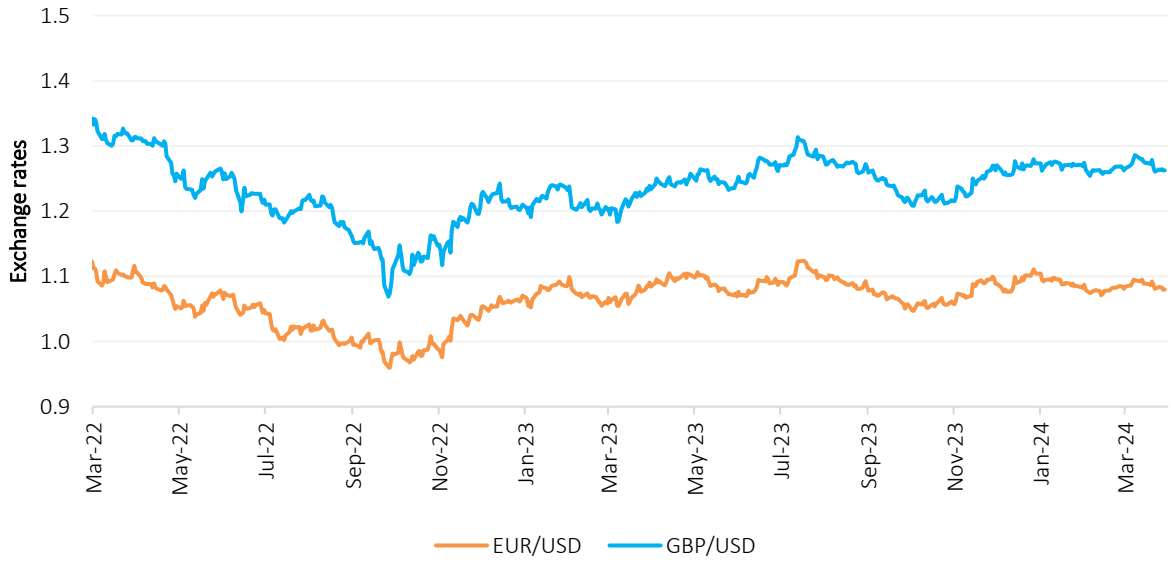
Figure 7: Interest rates in major central banks



Source: GECF Secretariat based on data from US Federal Reserve, European Central Bank and Bank of England

In March 2024, the euro appreciated slightly against the US dollar, resulting in an average exchange rate of $1.0874. This represented a 1% m-o-m increase and 1% y-o-y increase. Similarly, the British pound also appreciated against the US dollar, as the average exchange rate reached $1.2716 reflecting a 1% m-o-m increase and a 5% y-o-y increase (Figure 8).

Figure 8: Exchange rates



Source: GECF Secretariat based on data from Refinitiv Eikon

1.2 Other developments

G20: The G20 Global Mobilization Against Climate Change task force conducted its inaugural meeting on March 4-5, 2024, via videoconference. Established by the G20's Brazilian presidency, this task force aims to integrate the group's Sherpa (political) and Finance Tracks to tackle global climate challenges. The Brazilian government focuses on mobilizing the group of countries that are responsible for 80% of emissions and represent 85% of the global economy.

European Union: The European Parliament adopted the reform of the EU electricity market on April 11, 2024. The reform aims to enhance the stability, sustainability, and affordability of the EU electricity market. It seeks to shield consumers from volatile electricity prices by providing them access to information on fixed price and dynamic price contracts, and prohibiting suppliers from unilaterally changing the terms of a contract. Once adopted by both the European Parliament and the European Council, the reform will be published in the Official Journal of the European Union and will subsequently enter into force.

CERAWeek 2024: The CERAWeek energy conference was held on March 18-22, 2024, in Houston, Texas, under the theme *"Multidimensional Energy Transition: Markets, Climate, Technology, and Geopolitics."* It attracted over 8,000 delegates from 85 countries and featured more than 1,400 speakers from across the energy supply chain. The discussions primarily focused on identifying paths to meet the growing demand for power amid the shift to clean energy. Speakers from the oil and gas industry expressed optimism about the future global consumption of oil and gas. They highlighted the ongoing need for a diversified mix of energy sources, given the current global geopolitical and economic contexts, as well as the slow development of grid infrastructure and transmission. Moreover, speakers outside the oil and gas industry also supported an "everything approach" – including oil, gas, renewables, hydrogen, nuclear, storage, and transmission – all crucial for facilitating the energy transition. Additionally, the speakers acknowledged the increasing urgency to reduce emissions, yet pointed out that the expectations for a simple, linear global transition may be challenged by various geopolitical realities, national priorities, and technologies potentially conflicting. Climate goals now compete with the imperatives of delivering economic growth while ensuring energy security, access, and affordability. Amin Nasser, CEO of Aramco, stressed the need for substantial investment in the oil and gas industry to meet the rising demand. He also urged attendees to *"abandon the fantasy of phasing out oil and gas and to invest adequately in them, reflecting realistic demand assumptions."*

2 Gas Consumption

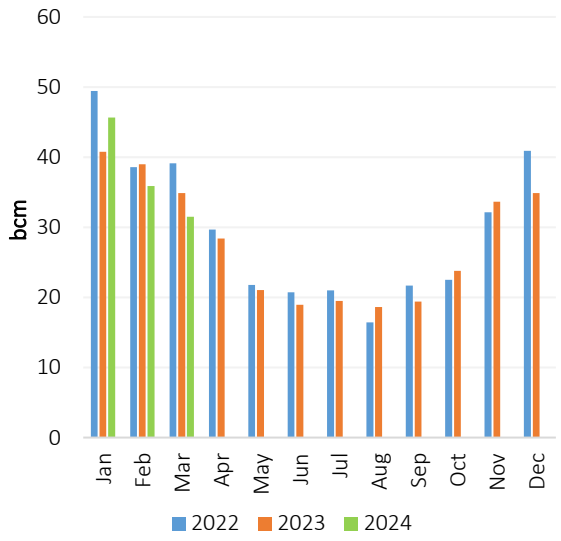
2.1 Europe

2.1.1 European Union

In March 2024, gas consumption in the EU witnessed a notable decrease of 9% y-o-y, largely due to an unusually warm winter that lessened the need for heating (Figure 9). Europe has been experiencing exceptionally warm weather, breaking numerous records for high temperatures and, in some places, surpassing records for May. This situation is forecasted to continue into April 2024, setting unprecedented temperature records across the continent. Furthermore, gas consumption in the industrial sector showed no growth, even against a backdrop of falling gas prices.

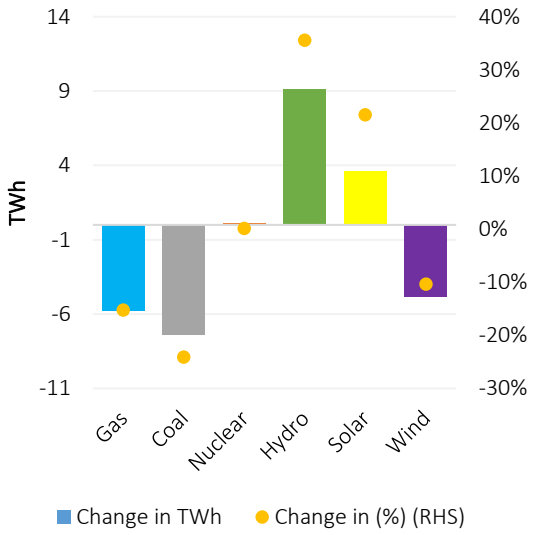
Gas-based power generation in the EU experienced a 15% y-o-y decline, while total electricity production modestly declined by 2.7% y-o-y, reaching 213 TWh. This significant decrease in gas consumption within the power sector can be attributed to increased outputs from hydro and solar (36% and 22% y-o-y growth, respectively). Conversely, electricity generated from coal and wind witnessed a substantial decline of 24% and 10% y-o-y, respectively (Figure 10). Within the current power mix, renewables held the largest share at 34%, followed by nuclear at 23%, gas at 15%, hydro at 16% and coal at 12%.

Figure 9: Gas consumption in the EU



Source: GECF Secretariat based on data from Entsog and Refinitiv

Figure 10: Trend in electricity production in the EU in March 2024 (y-o-y change)



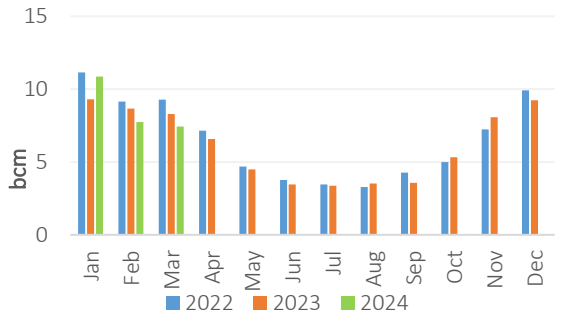
Source: GECF Secretariat based on data from Ember

For the period January to March 2024, EU's overall gas consumption declined by 1.7% y-o-y to reach 113 bcm.

2.1.1.1 Germany

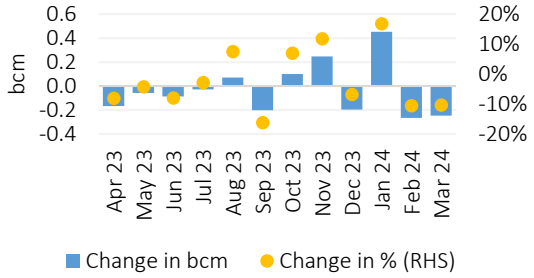
In March 2024, Germany experienced a significant 10% y-o-y reduction in gas consumption, with gas usage dropping to 7.4 bcm (Figure 11). This decline was contributed to from various sectors, including residential, power generation, and industrial, driven by various factors (Figure 12). Firstly, the warmest March on record with an average temperature of 7.4°C, or 2.8°C above the norm, following the warmest February ever documented, resulted in lower heating demand. Additionally, ongoing gas demand reduction measures and a boost in solar energy production in the power sector both contributed as well.

Figure 11: Gas consumption in Germany



Source: GECF Secretariat based on data from Refinitiv

Figure 12: Trend in gas consumption in the industrial sector in Germany (y-o-y change)



Source: GECF Secretariat based on data from Refinitiv

Gas-fired power generation experienced a 15% y-o-y decrease, while overall electricity production declined by 17% y-o-y, totalling 37 TWh. Similarly, electricity production from coal saw a decrease of 26% y-o-y. Germany shut down seven coal-fired power stations over Easter, including five in the Rheinisch mining district and two near Berlin, marking a significant step in the country's transition away from coal. These plants had been previously temporarily restarted to mitigate potential gas shortages triggered by the energy crisis of 2022. In contrast, hydro and solar energy generation witnessed significant increases of 2% and 32% y-o-y, respectively, driven by favourable weather conditions (Figure 13). In the energy mix, renewables continued to dominate with a 55% share, followed by coal at 24%, gas at 16% and hydro at 5% (Figure 14).

Figure 13: Trend in electricity production in Germany in March 2024 (y-o-y change)

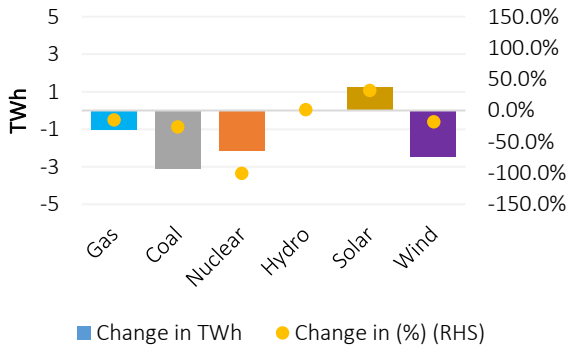
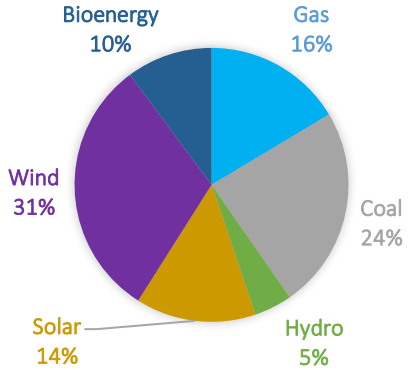


Figure 14: German electricity mix in March 2024



Source: GECF Secretariat based on data from Refinitiv and Ember

In the first three months of 2024, Germany's overall gas consumption increased by 0.8% y-o-y to reach 26 bcm.

2.1.1.2 Italy

In March 2024, Italy's gas consumption decreased by 6% y-o-y to total 5.7 bcm (Figure 15). This downturn was primarily led by reduced gas consumption in the power generation sector, largely due to increased hydroelectric output. Despite the mild weather conditions, gas usage in the residential sector recorded a slight increase of 0.6% y-o-y to reach 3 bcm. In addition, the industrial sector demonstrated a resurgence with a 2.5% y-o-y growth (Figure 16).

Figure 15: Gas consumption in Italy

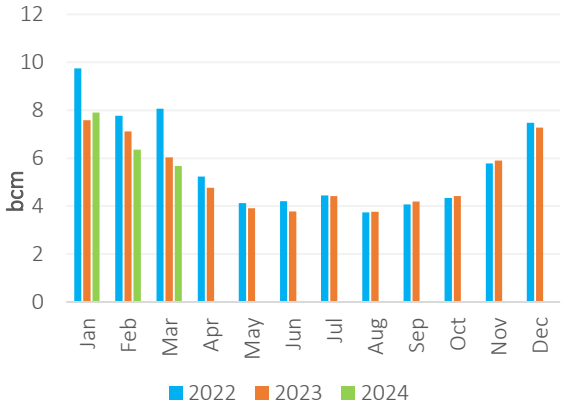
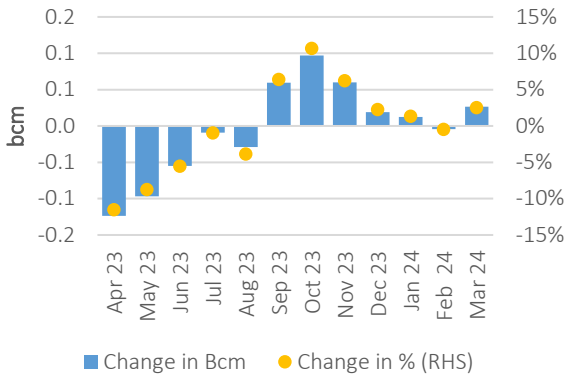


Figure 16: Trend in gas consumption in the industrial sector in Italy (y-o-y change)



Source: GECF Secretariat based on data from Snam

Gas-based electricity production declined by 18% y-o-y to 1.5 bcm, while the total electricity production declined by 1.5% y-o-y, reaching 18 TWh. In addition, there was a notable y-o-y increase in energy generation from hydro (123%) and a modest increase for solar (2%) (Figure 17). Meanwhile, gas continued to be the dominant fuel in the power mix, accounting for 43%, followed by renewables (36%), hydro (20%) and coal (1%) (Figure 18).

Figure 17: Trend in electricity production in Italy in March 2024 (y-o-y change)

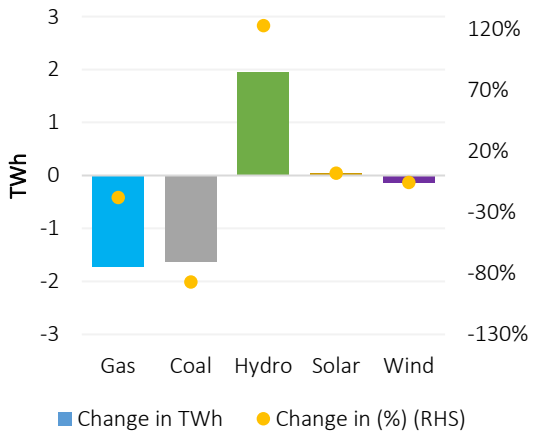
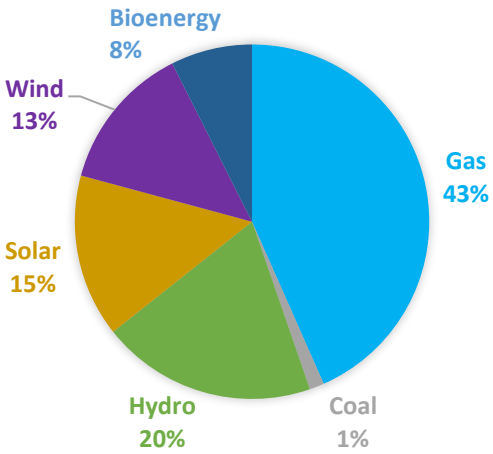


Figure 18: Italian electricity mix in March 2024



Source: GECF Secretariat based on data from Refinitiv and Ember

In the first 3 months of 2024, Italy's overall gas consumption decreased by 3.9% y-o-y to reach 20 bcm.

2.1.1.3 France

In March 2024, France experienced a second significant decline in gas consumption, dropping by 13% y-o-y to 3.3 bcm (Figure 19). The primary driver of this decline was the power generation sector, which recorded a high availability of nuclear and hydro production. France experienced widespread heavy rainfalls, 85% above the 1991-2020 average, making it the fifth wettest March since records began in 1958. Additionally, the warm temperatures across the country (the average temperature for the month reached 10.6°C, or 1.6°C above the 1991-2020 norm), contributed to an 11% y-o-y decrease in gas consumption in the residential sector. The industrial sector's gas consumption declined by 4% y-o-y to total 0.9 bcm (Figure 20).

Figure 19: Gas consumption in France

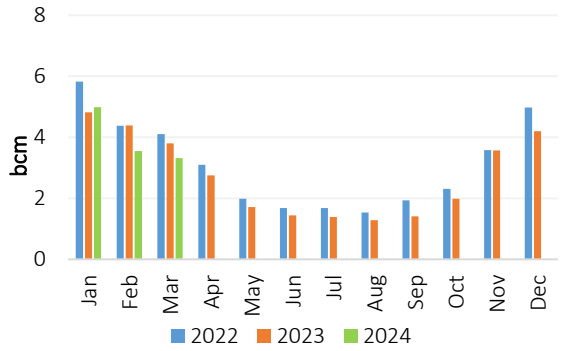
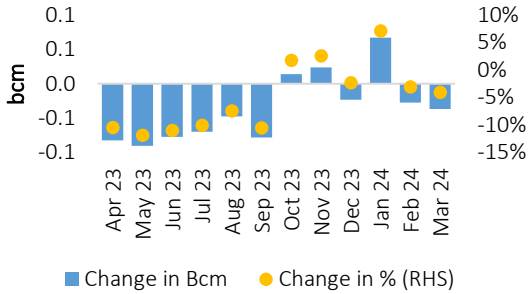


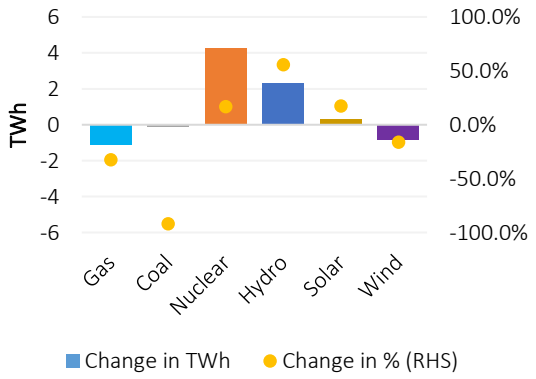
Figure 20: Trend in gas consumption in the industrial sector in France (y-o-y change)



Source: GECF Secretariat based on data from GRTgaz

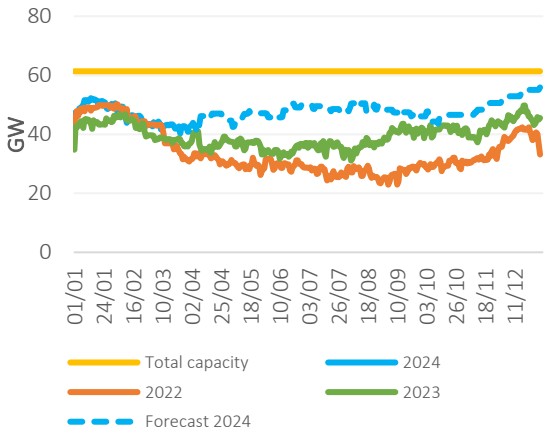
Electricity production from gas in France dropped by 32% y-o-y, while the country's total electricity production rose by 12% y-o-y to reach 45 TWh. Similarly, electricity production from coal and wind plummeted by 92% and 16% y-o-y, respectively. Conversely, electricity production from hydro and solar witnessed substantial increases of 56% and 17% y-o-y, respectively (Figure 21). In addition, a significant rebound in nuclear power generation occurred this month, rising by 17% y-o-y. The availability of nuclear capacity increased by 5% y-o-y (Figure 22). In France's energy mix, nuclear power continued to be the dominant source, accounting for a 66% share, followed by renewables (15%), hydro (14%) and gas (5%).

Figure 21: Trend in electricity production in France in March 2024 (y-o-y change)



Source: GECF Secretariat based on data from Ember

Figure 22: French nuclear capacity availability



Source: GECF Secretariat based on Refinitiv and RTE

In the first 3 months of 2024, France's gas consumption dropped by 9% y-o-y to reach 12 bcm.

2.1.1.4 Spain

In March 2024, Spain's gas consumption decreased by 7% y-o-y to reach 2.4 bcm (Figure 23). The decrease mainly stemmed from less gas use in both the power generation and residential sectors. A significant rise in hydroelectric production and the halt of electricity exports to France led to a continued decrease in the power sector's gas demand. Meanwhile, the residential sector's gas consumption dropped notably due to warmer weather. In addition, the industrial sector experienced its first decline after nine straight months of growth, registering a 1% decrease y-o-y, fuelled by lower gas usage in several industries (Figure 24).

Figure 23: Gas consumption in Spain

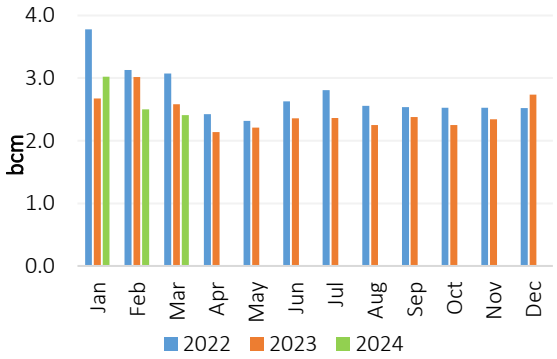
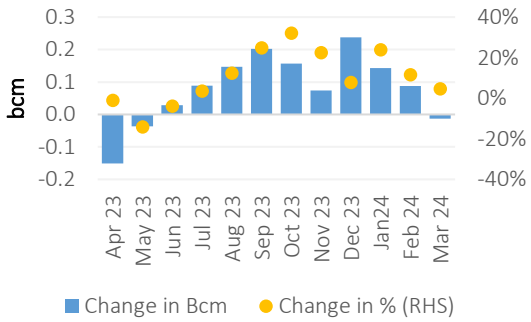


Figure 24: Trend in gas consumption in the industrial sector in Spain (y-o-y change)



Source: GECF Secretariat based on data from Enagas

Electricity generation from gas experienced a 35% y-o-y decrease, while the overall electricity production in the country declined by 2% y-o-y to total 20 TWh. Additionally, there were notable reductions in electricity production from coal, nuclear, solar and wind sources, with decreases of 50%, 31%, 8% and 10% y-o-y, respectively. In contrast, a significant increase in electricity generation from hydro was observed, with a 111% y-o-y growth (Figure 25). Renewables maintained the dominant position in the power mix, accounting for 45%, followed by hydro (22%), nuclear (18%), gas (13%), and coal (1%) (Figure 26).

Figure 25: Trend in electricity production in Spain in March 2024 (y-o-y change)

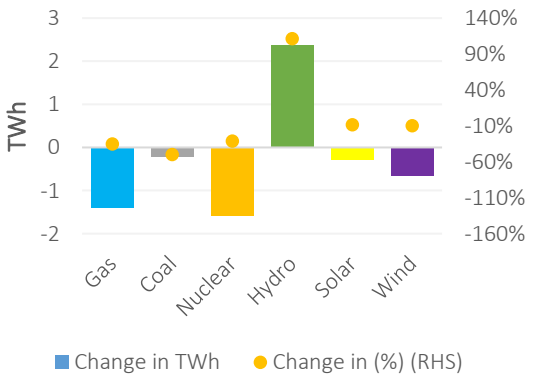
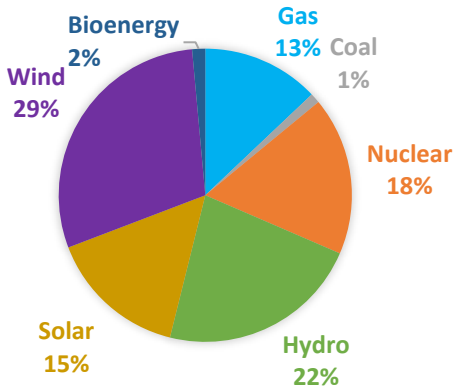


Figure 26: Spanish electricity mix in March 2024



Source: GECF Secretariat based on data from Ember and Ree

In the first 3 months of 2024, Spain's overall gas consumption decreased by 4% y-o-y to reach 8 bcm.

2.1.2 United Kingdom

In March 2024, the UK witnessed a continuation of the downward trend in gas consumption for the second consecutive month of the year, recording a 12% y-o-y decrease to a total of 5.9 bcm (Figure 27). This reduction was primarily attributed to reductions in the power generation sector. The residential sector also experienced a 6.4% y-o-y decline, influenced by warmer weather. March 2024 was the 15th consecutive month of above-average warmth, with December 2022 being the last month to record below-average temperatures and the only cooler-than-average month in the last 34 months starting from June 2021. The industrial sector showed a modest growth of 0.6% y-o-y (Figure 28).

Figure 27: Gas consumption in the UK

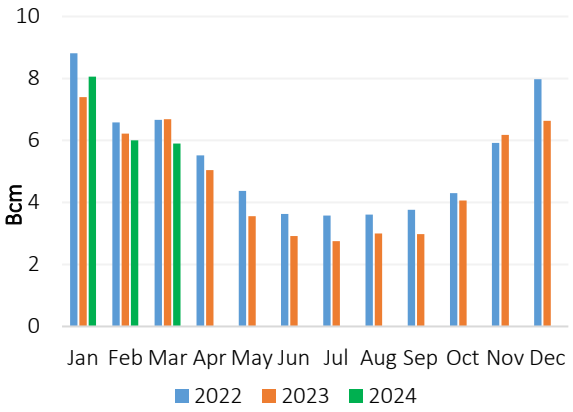
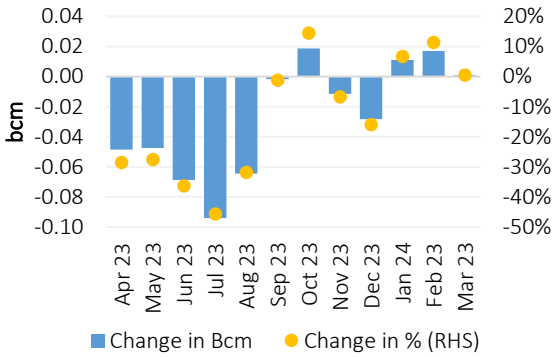


Figure 28: Trend in gas consumption in the industrial sector in the UK (y-o-y change)



Source: GECF Secretariat based on data from Refinitiv

In the UK, electricity production from gas witnessed a 30% y-o-y decrease, while total electricity production declined by 7.5% y-o-y to 20 TWh. Electricity generation from nuclear source fell by 8% y-o-y. In contrast, coal, hydro, solar and wind energy production experienced significant increases, by 162%, 54%, 30% and 7% y-o-y, respectively, albeit it from low production figures (Figure 29). In the power mix, renewables had taken the lead, comprising 52% of the total electricity production, followed by gas at 30%, nuclear at 14%, hydro at 2% and coal at 2% (Figure 30).

Figure 29: Trend in electricity production in UK in March 2024 (y-o-y change)

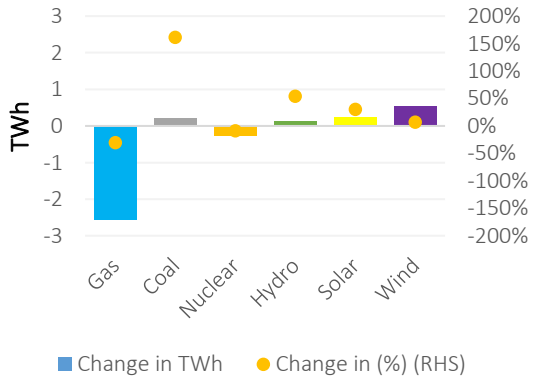
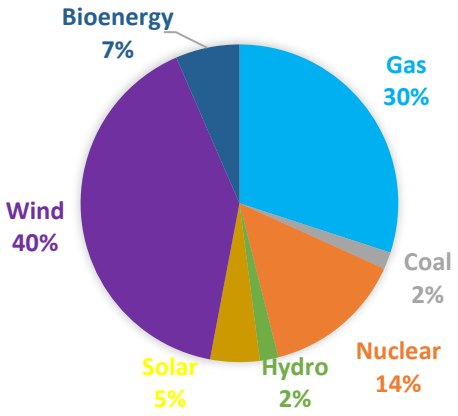


Figure 30: UK electricity mix in March 2024



Source: GECF Secretariat based on data from Refinitiv

In the first 3 months of 2024, the UK's overall gas consumption decreased by 2% y-o-y to reach 20 bcm.

2.2 Asia

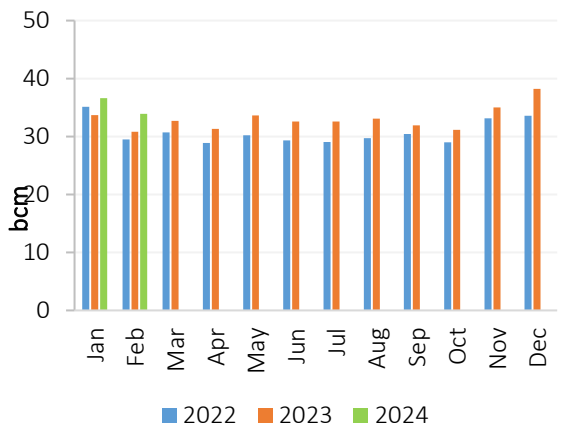
2.2.1 China

In February 2024, China's apparent gas demand, which encompasses domestic production, pipeline gas and LNG imports, rose by 10% y-o-y to reach 34 bcm (Figure 31). This increase in gas consumption is attributed to the cold spell and the revival of economic activities following the decline in natural gas prices.

The National Energy Administration (NEA) of China expects a significant increase in wind and solar output in 2024, with these sources representing 17% of the power mix, up from 10.5% in 2023. This anticipated growth is supported by aggressive capacity additions and enhanced utilization of existing installations, with the NEA projecting a reduction in the share from thermal generation from 47.6% to 45% of the power mix by the end of 2024. Furthermore, the NEA will make plans to boost renewable energy consumption across industries, mandated to lower their carbon emissions. The guidelines also highlight the importance of power transmission projects to facilitate the output and consumption of renewable energy.

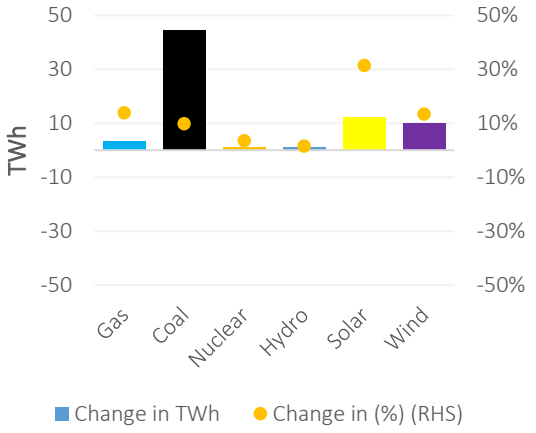
Electricity production from gas in China increased by 14% y-o-y, while the total electricity production rose by 11% to reach 781 TWh. The month witnessed increases in electricity generation from hydro (3%), solar (32%), wind (13%) and coal (10%) (Figure 32). Coal remained the dominant fuel in the power mix, accounting for 65%, followed by renewables (19%), hydro (9%), nuclear (4%) and gas (3%).

Figure 31: Gas consumption in China



Source: GECF Secretariat based on data from Refinitiv

Figure 32: Trend in electricity production in China in in February 2024 (y-o-y change)



Source: GECF Secretariat based on data from Ember

2.2.2 India

In February 2024, India's gas consumption marked its fourteenth consecutive month of y-o-y growth, with a 25% y-o-y increase, to reach 5.6 bcm (Figure 33). This increase was driven by the fertilizer, power generation, city gas, refinery and petrochemical sectors, which registered growth rates of 0.2%, 19%, 18%, 99% and 32% y-o-y, respectively, amidst declining gas prices. LNG imports accounted for 49% of the country's total gas consumption.

In the sectoral breakdown, the fertilizer sector accounted for 28% of gas demand, followed by city gas distribution (20%), power generation (12%), refining (10%) and the petrochemical sector (4%) (Figure 34).

Total power generation surged to 136 TWh, marking a 7.6% y-o-y increase. Indian gas-based power utilities have operated at their optimal capacity to address an expected increase in power demand, the power ministry prolonged the duration of its previous instructions for utilities to direct gas-based utilities to function at maximum capacity.

Figure 33: Gas consumption in India

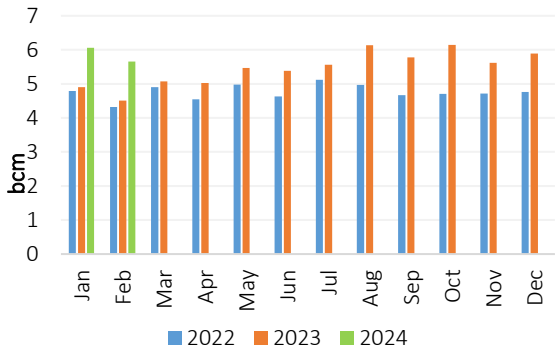
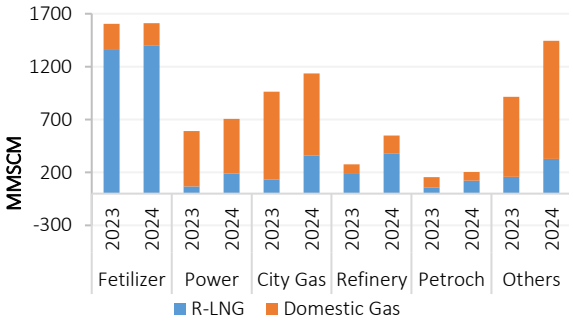


Figure 34: India's gas consumption by sector in February 2024



Source: GECF Secretariat based on data from PPAC

2.2.3 Japan

In March 2024, Japan experienced a 10% y-o-y increase in gas consumption, totalling 8.7 bcm (Figure 35). This rise was mainly driven by increased demand in the power generation sector due to the cold weather. Specifically, the power generation sector experienced a 12% y-o-y growth, reaching 4.6 bcm. Additionally, the availability of nuclear power was 15% lower than in the same month of the previous year, contributing to an increased reliance on gas for power generation (Figure 36). Similarly, the city gas sector witnessed an 8% y-o-y growth in consumption. Although Tokyo experienced unprecedented high temperatures on the final day of March, the month overall was among the coldest in recent history.

Figure 35: Gas consumption in Japan

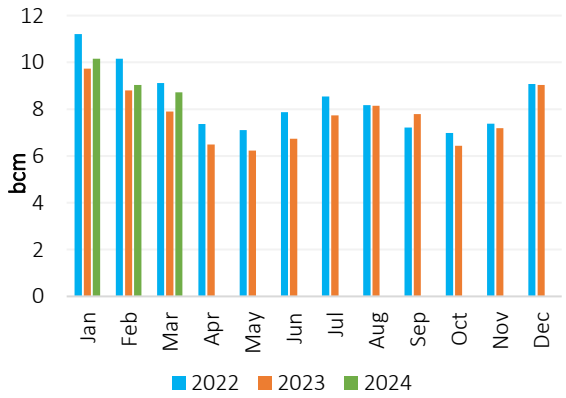
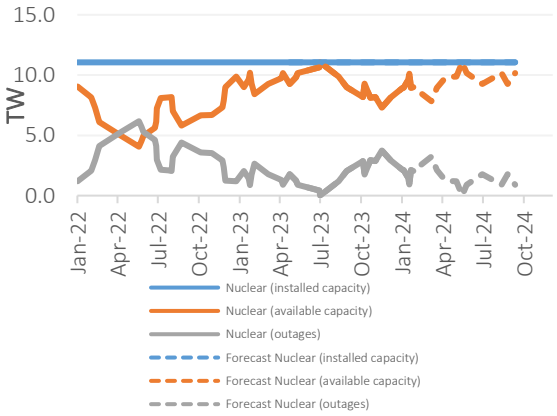


Figure 36: Nuclear availability in Japan



Source: GECF Secretariat based on data from Refinitiv

2.2.4 South Korea

In March 2024, gas consumption in South Korea experienced an 11% y-o-y increase to reach 5.5 bcm (Figure 37). This growth was attributed to the power generation and city gas sectors. The Heating Degree Days (HDD) for South Korea increased by 25% y-o-y. This indicated a higher demand for heating in March relative to the prior year (Figure 38).

Figure 37: Gas consumption in South Korea

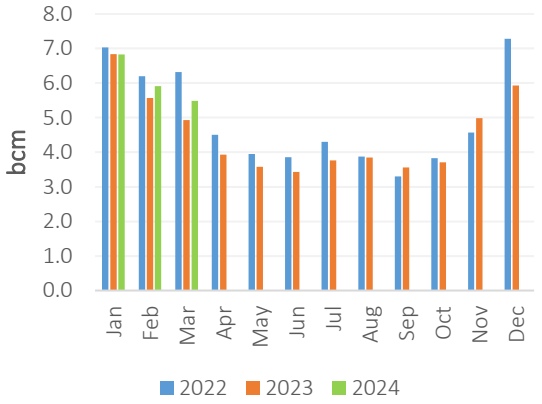
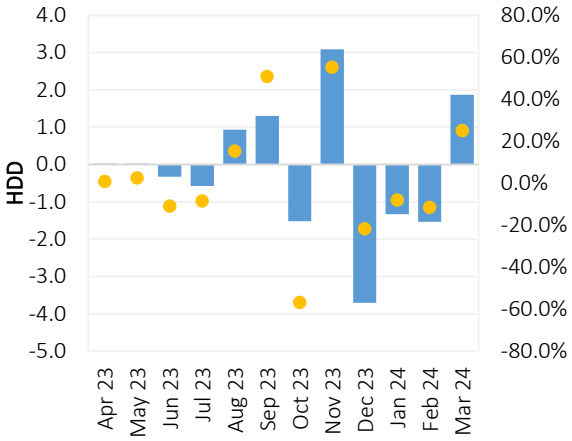


Figure 38: HDD in South Korea (y-o-y change)



Source: GECF Secretariat based on data from Refinitiv

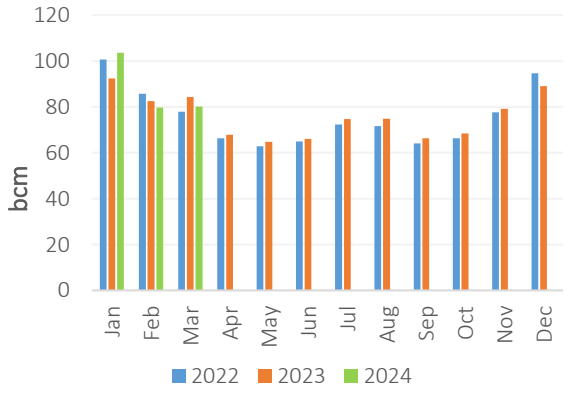
2.3 North America

2.3.1 US

In March 2024, the US gas consumption decreased by 4.5% y-o-y to total 80 bcm. The mild weather conditions led to a substantial reduction in heating demand within both residential and commercial sectors, which recorded a decline of 15% and 16% y-o-y, respectively. Similarly, the industrial sector experienced a slight decrease of 0.3% in gas consumption. In contrast, the power generation sector maintained its consumption levels of the previous year, encouraged by the shift from coal to gas as gas prices became more competitive.

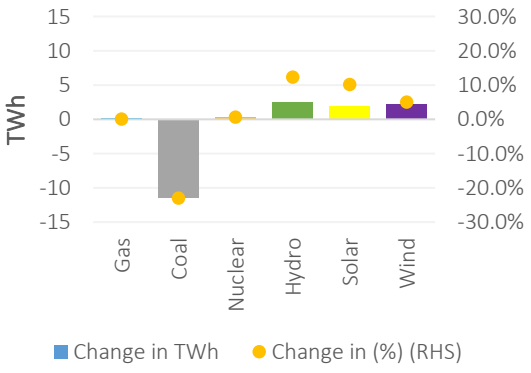
Electricity generation from gas recorded a 0.1% y-o-y increase, whereas the overall electricity production declined by 1.5%. The month was marked by a rise in generation from nuclear, hydro, solar and wind, with increases of 1%, 12%, 10% and 5%, respectively. In addition, coal experienced a decline of 23% y-o-y (Figure 40). In the power mix, gas continued to lead with a 40% share, followed by nuclear (19%), renewable (22%), coal (12%) and hydro (7%).

Figure 39: Gas consumption in the US



Source: GECF Secretariat based on data from EIA and Refinitiv

Figure 40: Electricity production in the US in March 2024 (y-o-y change)



Source: GECF Secretariat based on data from Ember and Refinitiv

2.3.2 Canada

In March 2024, Canada's gas consumption dropped by 3.7% y-o-y to reach 12 bcm (Figure 41). This drop was mainly due to warm weather, with the Heating Degree Days (HDD) averaging 1069, indicating an 11% y-o-y decrease (Figure 42). That led to a reduction in gas usage in the residential, commercial and combined industrial and power generation sectors by 12%, 11% and 9% y-o-y, respectively.

Figure 41: Gas consumption in Canada

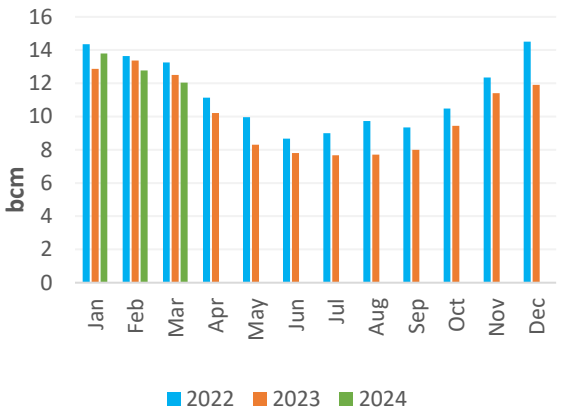
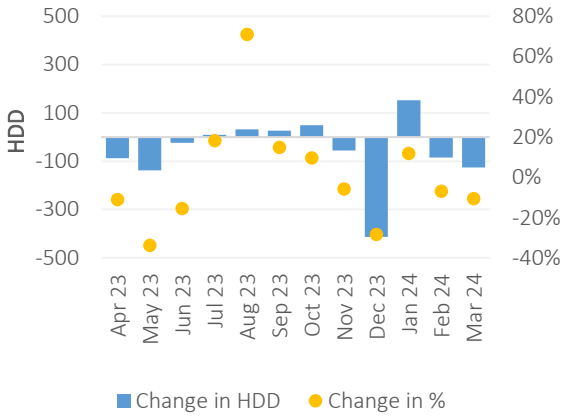


Figure 42: HDD in Canada (y-o-y change)



Source: GECF Secretariat based on data from Refinitiv

2.4 Weather forecast

The weather and precipitation conditions have a significant impact on gas consumption. Below normal temperatures in winter and above normal temperatures in summer boost heating and cooling demand, respectively. Additionally, below normal precipitation levels result in lower hydro output, which can increase gas demand in the power generation sector.

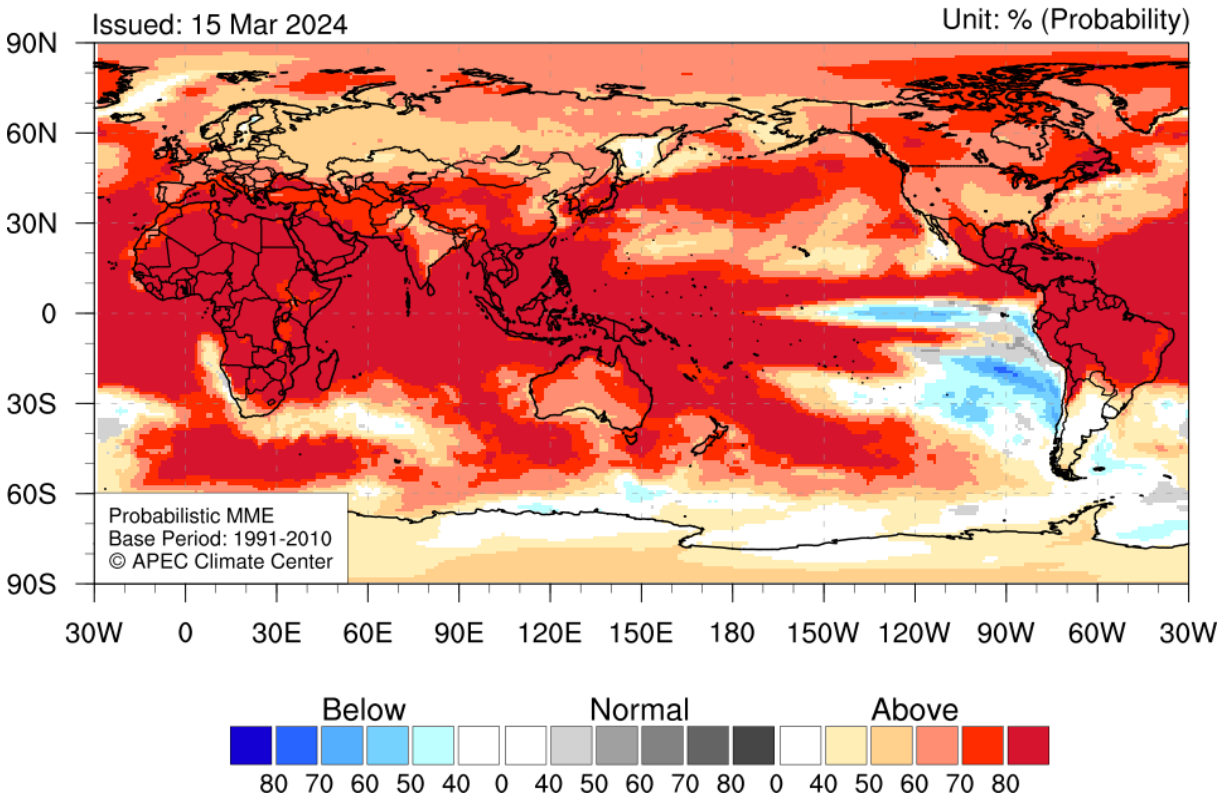
2.4.1 Temperature forecast

According to the Climate Outlook by the APEC Climate Center published on 15 March 2024, a pronounced likelihood of above normal temperatures is predicted for most of the globe (excluding eastern equatorial Pacific and the eastern subtropical South Pacific) for the period April to June 2024 (Figure 43).

2.4.2 Precipitation forecast

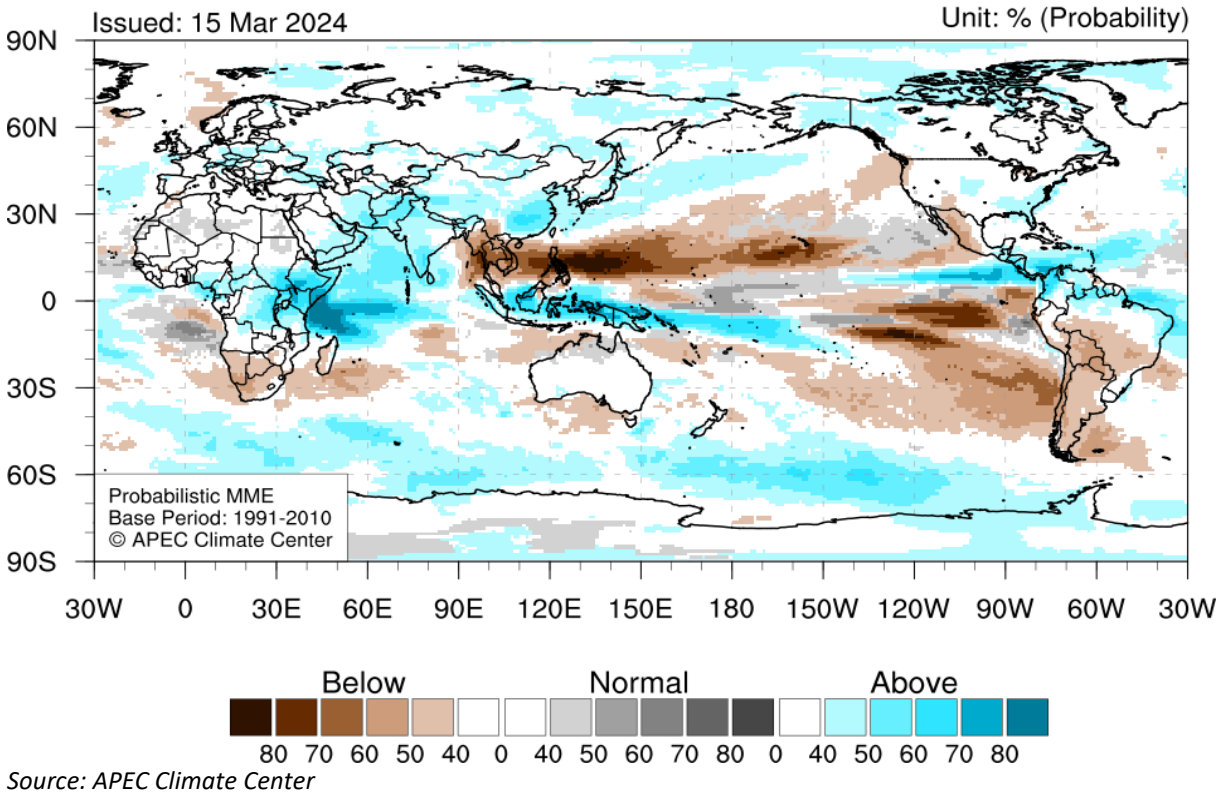
According to the same source, above normal precipitation is expected for eastern off-equatorial North Pacific, the western off-equatorial South Pacific, the region spanning eastern Africa to the western Indian Ocean, the Arabian Sea, East Asia, South Asia, the tropical South Atlantic and the Antarctic Ocean. While below normal precipitation is expected for the region spanning the Indochinese Peninsula to the central tropical North Pacific, the eastern tropical and subtropical South Pacific, central and southern South America, and southern Africa for the period April to June 2024 (Figure 44).

Figure 43: Temperature forecast April to June 2024



Source: APEC Climate Center

Figure 44: Precipitation forecast April to June 2024



Source: APEC Climate Center

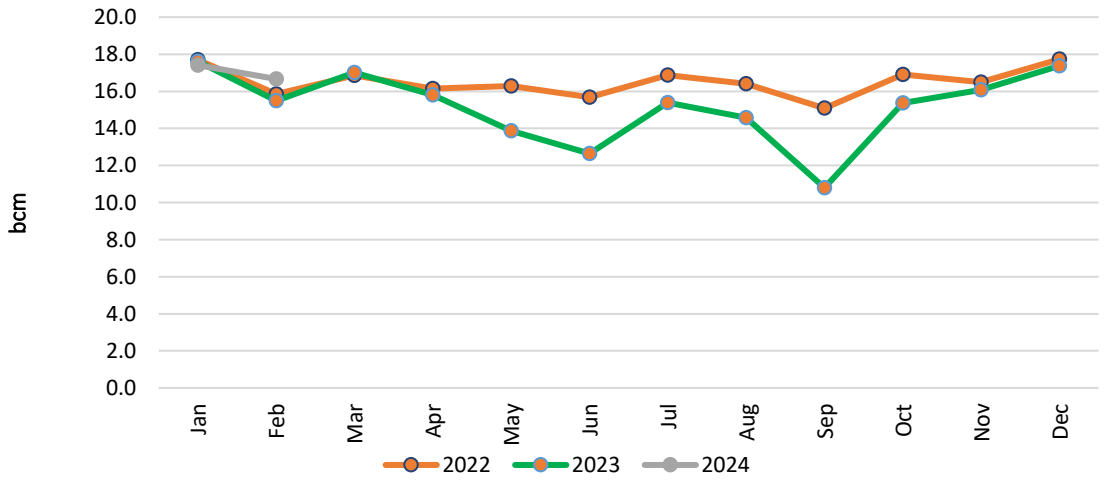
3 Gas Production

3.1 Europe

In February 2024, Europe experienced a 2.9% y-o-y rise in gas production, resulting in a total output of 16.7 bcm (Figure 45). This uptick primarily stemmed from the sustained increase in gas production in Norway, while the UK and the Netherlands, the other main contributors to the regional gas output, kept almost the same production level as 2023. For the period January-February 2024, the cumulative gas production in Europe reached 34 bcm, representing a 2.9% y-o-y rise.

In addition, TotalEnergies announced in March 2023 the restart of gas and condensate production from the Tyra hub in the Danish North Sea, after the completion of a major redevelopment project. The field is estimated to produce 2.1 bcma of gas and 8 million bbl/yr of condensate, which achieves Danish gas self-sufficiency and create room for exports. It is worth noting that Tyra hub is the largest gas field in Denmark and used to provide about 90% of its total gas output.

Figure 45: Europe's monthly gas production



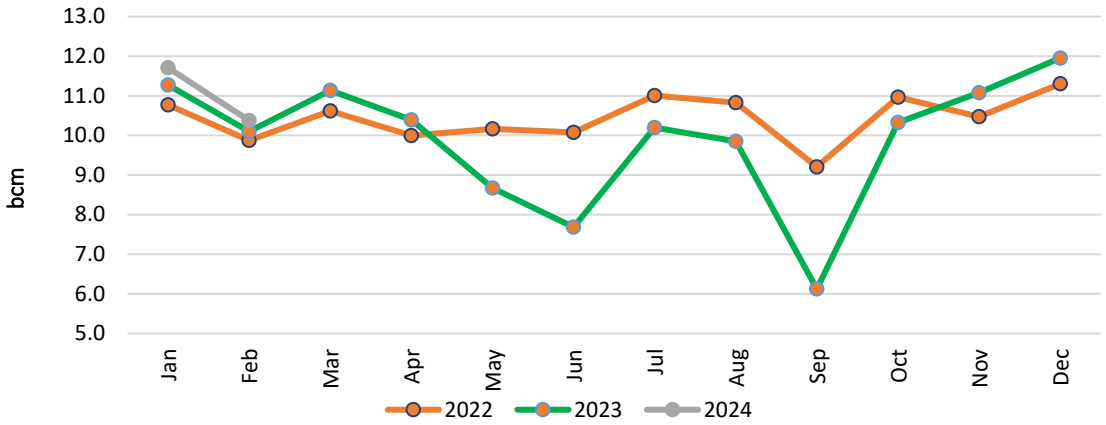
Source: GECF Secretariat based on data from Refinitiv, and Norwegian Petroleum Directorate
**Europe's production: UK, the Netherlands, Norway, Germany, Italy, Poland, Denmark, Austria and Romania*

3.1.1 Norway

Preliminary data from the Norwegian Petroleum Directorate showed that Norway's gas production in February 2024 increased by 2.5% compared to the previous year to achieve 10.4 bcm (Figure 46). In the first 2 months of 2024, cumulative gas production reached 22.1 bcm, representing a 3.3% uptick.

Regarding maintenance activities, the 25.4 mmcm/d Aasta Hansteen gas field underwent a planned maintenance outage which reduced its output capacity by 6.9 mcm/d for 6 days. In addition, the field is forecasted to undergo another planned maintenance in April 2024.

Figure 46: Trend in gas production in Norway



Source: GECF Secretariat based on data from Refinitiv and Norwegian Petroleum Directorate

3.1.2 UK

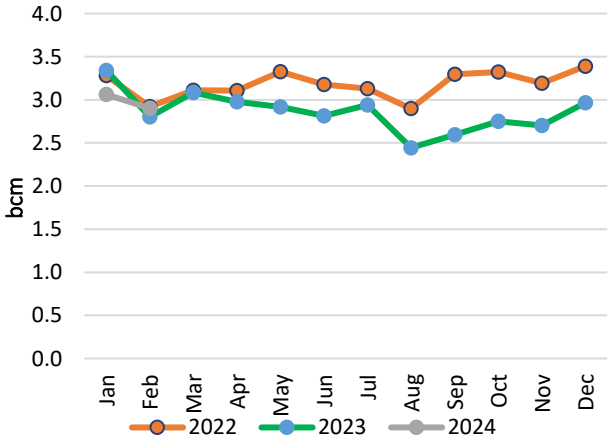
In February 2024, the UK recorded a 3.5% y-o-y rise in gas production to reach 2.9 bcm (Figure 47). However, this output level represented a 5.2% drop, compared to January 2024. For the period January-February 2024, the cumulative gas production in the UK reached 6 bcm, representing a 2.9% y-o-y decline.

Regarding maintenance activities, a short unplanned outage in the 11.2 mcm/d Bacton Perenco gas terminal reduced its output capacity to 8.2 mcm/d for a period of 3 days, according to data from GBREMIT.

3.1.3 Netherlands

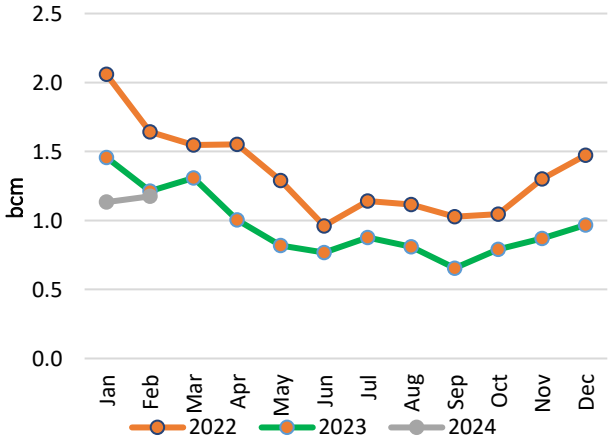
In February 2024, the Netherlands experienced a 2.4% y-o-y decline in gas production, with total output of 1.18 bcm (Figure 48). However, this represented a 4.4% increase compared to the January 2024 level. For the period January-February 2024, the cumulative gas production in the Netherlands reached 2.3 bcm, representing a 13% decline y-o-y. This decrease in gas production is mainly due to reduced output from ageing Dutch fields.

Figure 47: Trend in gas production in the UK



Source: GECF Secretariat based on data from Refinitiv

Figure 48: Trend in gas production in the Netherlands



Source: GECF Secretariat based on data from Refinitiv

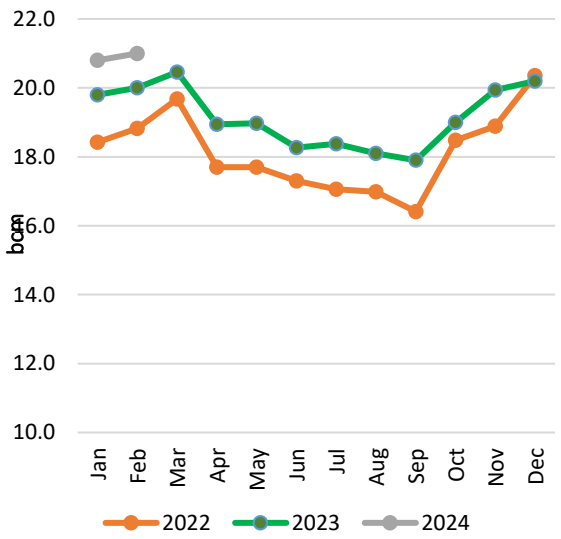
3.2 Asia Pacific

3.2.1 China

In February 2024, China's gas production output reached 21 bcm, with a 5% y-o-y rise (Figure 49). Coal bed methane gas production continued its growth to reach 1.25 bcm, with a remarkable 20% y-o-y increase (Figure 50). In the first 2 months of 2024, the cumulative gas production totalled 41.8 bcm, representing a 5% increase.

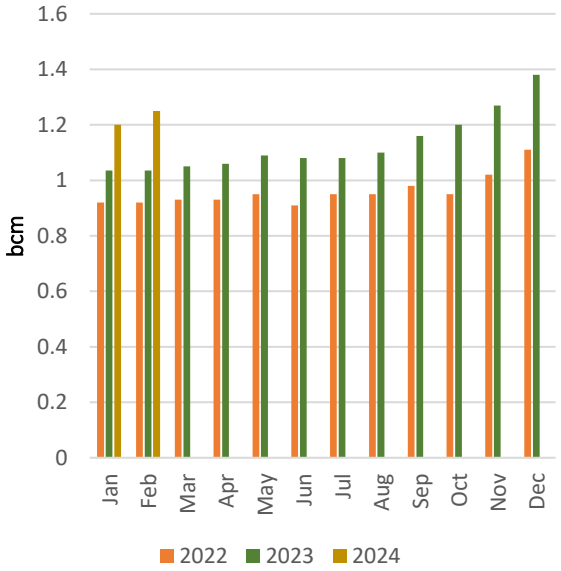
Notably, Sinopec announced that the Fuling shale gas field in Chongqing area, southwest China produced about 1.8 bcm of gas in Q1 2024, with 33 new wells put on production. This represented a 50% increase in the number of newly drilled wells, compared to the same period of 2023. It is worth noting that Fuling field is considered the first large-scale shale gas field to enter commercial production in China.

Figure 49: Trend in gas production in China



Source: GECF Secretariat based on data from Refinitiv

Figure 50: Trend in CBM production in China

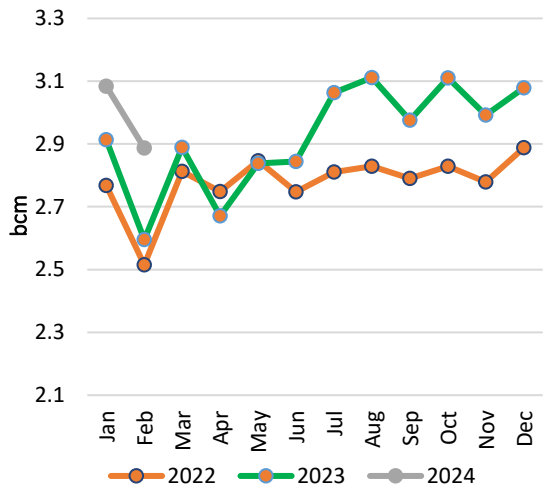


Source: GECF Secretariat based on data from the National Bureau of Statistics of China

3.2.2 India

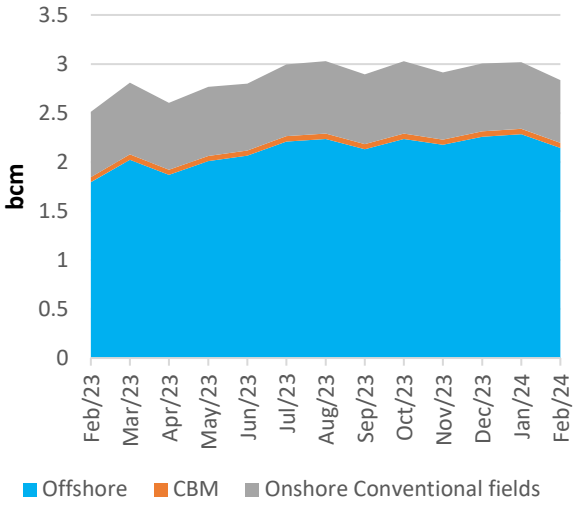
In February 2024, India's gas production increased by 10.5% y-o-y to reach 2.9 bcm (Figure 51). In terms of distribution, the offshore gas fields output reached 2.15 bcm, with a 19% y-o-y rise. The conventional onshore gas fields witnessed a 4.2% decline y-o-y, while coal bed methane production was similar to the previous year (Figure 52). In the first 2 months of 2024, the cumulative gas production reached 6 bcm, representing an 8.9% y-o-y increase.

Figure 51: Trend in gas production in India



Source: GECF Secretariat based on data from Refinitiv

Figure 52: Distribution of gas production in India



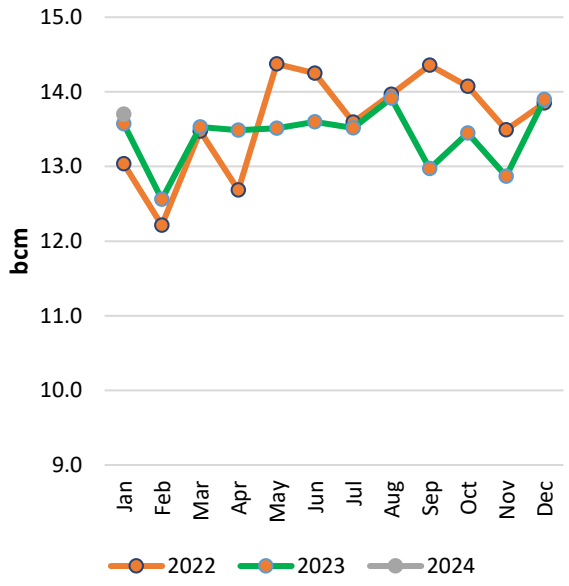
Source: GECF Secretariat based on data from Refinitiv

3.2.3 Australia

According to the Australian Department of Energy data, the country's gas production in January 2024 reached 13.7 bcm, nearly mirroring the production level recorded for the same month in the previous year (Figure 53).

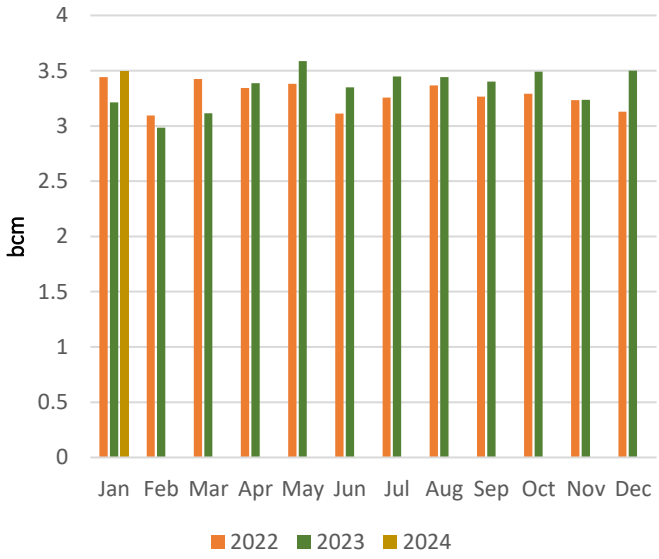
Natural gas production from coal bed methane fields reached 3.5 bcm, representing 25.5% of the total production, with an 8.9% y-o-y increase. These production volumes have maintained Australia as a global frontrunner in coal bed methane production (Figure 54).

Figure 53: Trend in gas production in Australia



Source: GECF Secretariat based on data from the Australian Department of Energy

Figure 54: Trend in CBM production in Australia



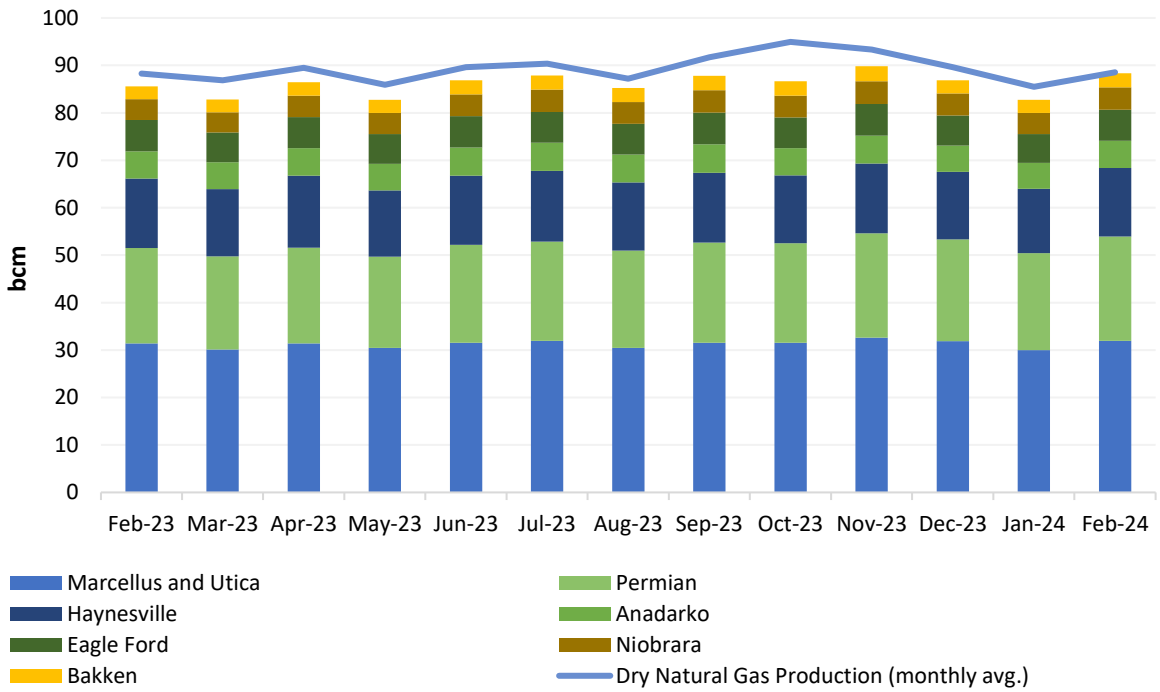
Source: GECF Secretariat based on data from the Australian Department of Energy

3.3 North America

3.3.1 US

In March 2024, the US total dry gas production rose by 0.3% to reach 88.5 bcm, despite the announced cuts in gas production by some private producers amidst low Henry Hub gas prices. The key shale gas producing regions - Anadarko, Appalachian, Bakken, Eagle Ford, Haynesville, Niobrara and Permian regions - experienced a 2.7% y-o-y production growth, reaching a total of 88.3 bcm (Figure 55). The Appalachian region, which includes the Marcellus and Utica shale formations, accounted for 36% of the total shale gas production, while the Permian shale oil play with its associated gas production represented 26%.

Figure 55: Trend in shale gas production in the US shale oil/gas producing regions

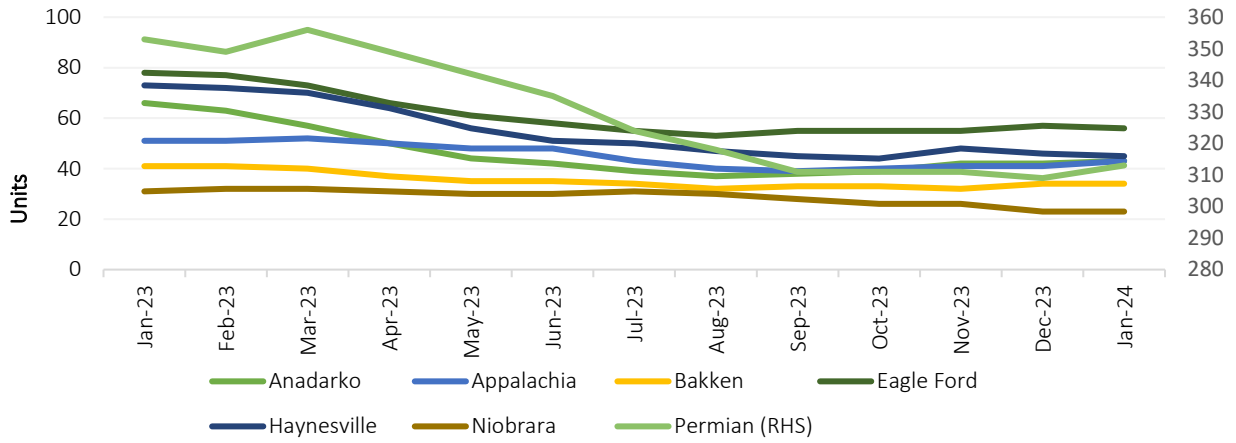


Source: GECF Secretariat based on data from Refinitiv, EIA

As of February 2024, the number of oil and gas drilling rigs operating in the seven key shale oil and gas regions in the US was 557. This represented an increase of 5 rigs since January 2024 and a decrease of 147 rigs from February 2023 (Figure 56). The Permian basin accounted for the major share of the drilling rigs with more than 56%.

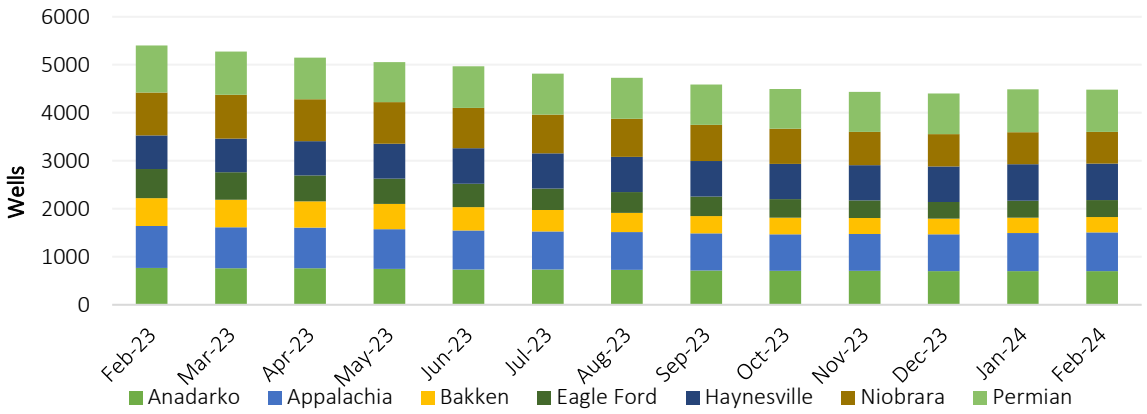
Additionally, in February 2024, the total number of drilled but uncompleted (DUC) wells in the seven major regions amounted to 4,482, marking a decrease of 4 wells compared to the number in January 2024, according to the latest EIA Drilling Productivity Report (Figure 57).

Figure 56: US shale region oil and gas rig count



Source: GECF Secretariat based on data from Refinitiv and EIA

Figure 57: Drilled but uncompleted well (DUCs) counts in the US

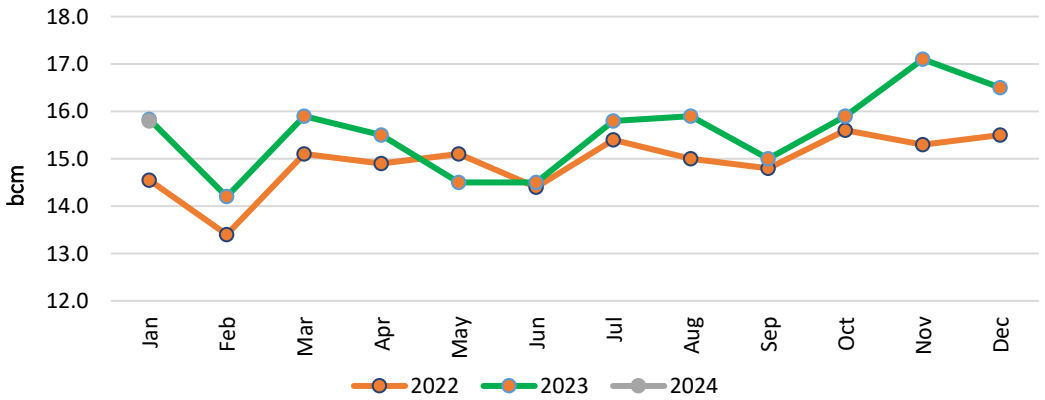


Source: GECF Secretariat based on data from Refinitiv, US EIA

3.3.2 Canada

In January 2024, Canada's gas production reached 15.8 bcm. The state of Alberta accounted for 9.5 bcm, representing 61% of the total Canadian gas production (Figure 58).

Figure 58: Trend in gas production in Canada



Source: GECF Secretariat based on data from the Canada Energy Regulator (CER)

3.4 Latin America and the Caribbean (LAC)

3.4.1 Brazil

In February 2024, Brazil's gross gas production rose by 1.1% y-o-y to reach 4.46 bcm (Figure 59); 51% of the produced gas was reinjected into reservoirs. Additionally, gas flaring witnessed a 16% m-o-m rise to reach 0.15 bcm, representing 4% of the gross production (Figure 60). Notably, pre-salt fields were responsible for three quarters of the production. The Tupi field in the Santos pre-salt basin emerged as the largest gas-producing field at 1.08 bcm. The FPSO facility in Guanabara in the shared Mero field was the highest gas producing facility with 0.33 bcm.

In the first 2 months of 2024, Brazilian output stood at 9 bcm, representing a 3% y-o-y increase.

Figure 59: Trend in gas production in Brazil

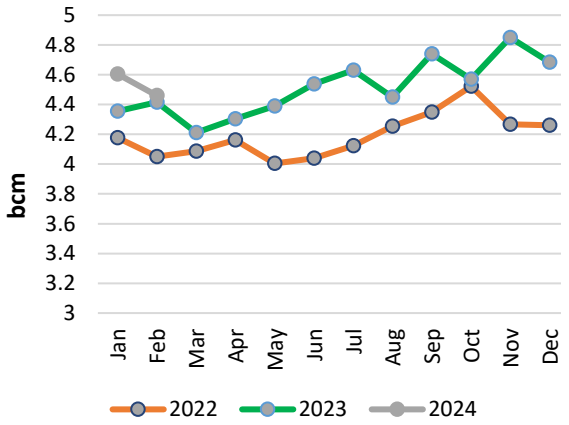
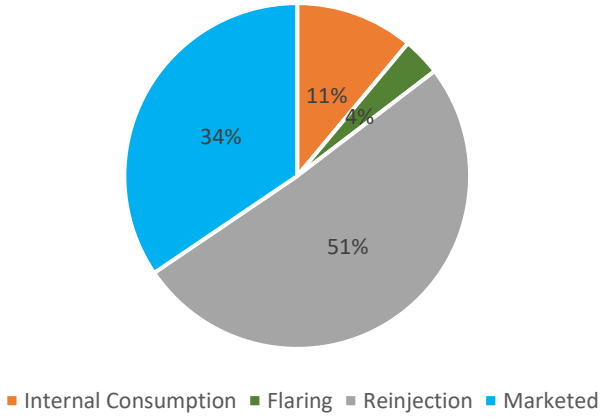


Figure 60: Distribution of gross gas production in Brazil



Source: GECF Secretariat based on data from the Brazilian National Agency of petroleum (ANP)

3.4.2 Argentina

In February 2024, Argentina's gross gas production declined by 4% y-o-y to reach 3.38 bcm (Figure 61). Shale gas production rose by 6% y-o-y to amount to 1.55 bcm, representing 45% of the total production (Figure 62). In addition, tight gas reservoir production had a 15% share, with the remaining contribution originating from conventional gas fields. In the first 2 months of 2024, the output stood at the level of 7.2 bcm, representing a 5.3% y-o-y decrease.

Figure 61: Trend in gas production in Argentina

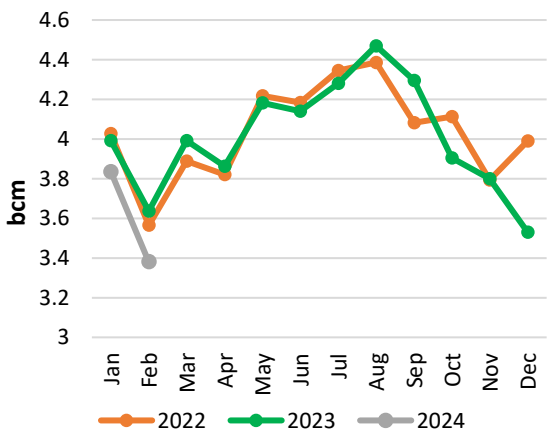
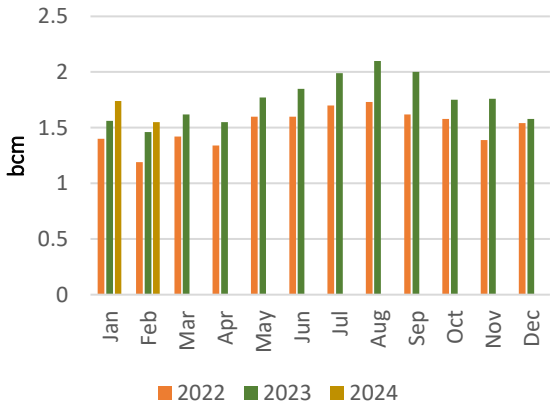


Figure 62: Trend in shale gas production in Argentina



Source: GECF Secretariat based on data from Argentinian Ministry of Economy

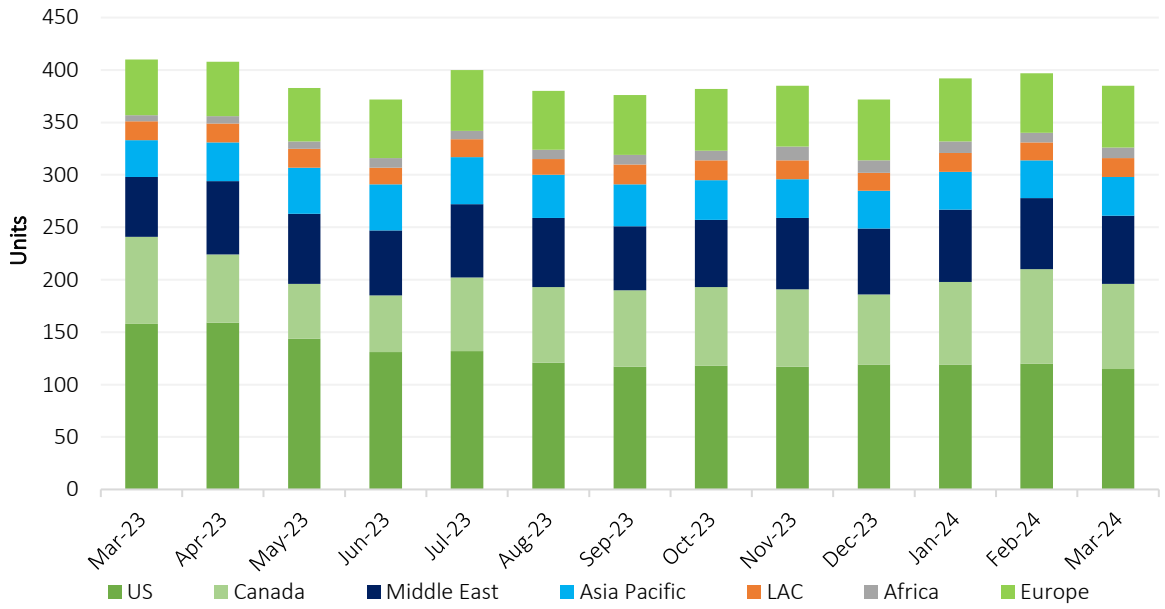
3.5 Global developments

3.5.1 Upstream tracker

In 2024, global gas production is expected to increase by 105 bcm to reach 4186 bcm, according to Rystad Energy. This increase is likely to originate mainly from the growth of the Russian gas production, driven by new project start-ups. In addition, the growth in US gas production is estimated to also continue driving global growth, however at a slower pace, amid lower gas prices. The associated gas production from shale oil plays in the Permian basin is expected to be the main contributor to this growth.

In March 2024, the global number of gas drilling rigs dropped by 12 units m-o-m to reach 385 rigs, due to a decrease in rigs throughout Canada, the US and the Middle East by 9, 5 and 3 rigs, respectively (Figure 63). In addition, this marked a decrease from the 410 rigs in March 2023.

Figure 63: Trend in monthly global gas rig count

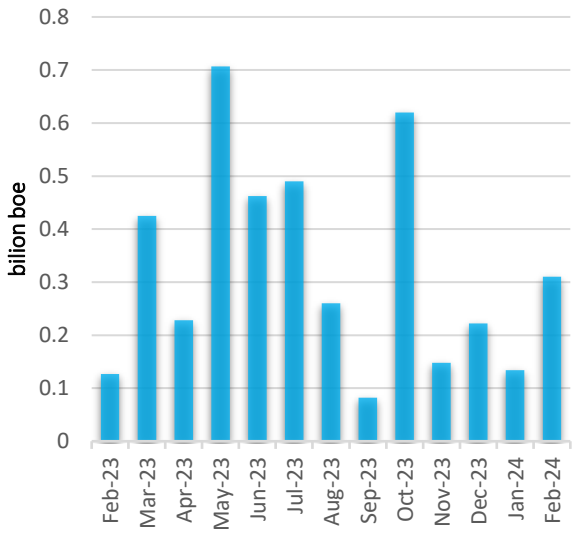


Source: GECF Secretariat based on data from Baker Hughes
Note: Excludes data for Eurasia and Iran

In February 2024, the total volume of discovered gas and liquids amounted to 310 million barrels of oil equivalent (boe). Of this, liquid oil accounted for the majority with 97% (300 million boe), while natural gas constituted only 3% (2 bcm). Cumulative volume for the period January-February 2024 amounting to 445 million boe (Figure 64). Offshore discoveries represented nearly all the discovered volumes, dominated by the Mangetti oil discovery offshore Namibia, the second in the country in 2024 thus far. Therefore, Africa dominated the new discovered volumes with 97%, mainly in Namibia's prolific offshore activities, while Asia Pacific held 3% of the discoveries (Figure 65).

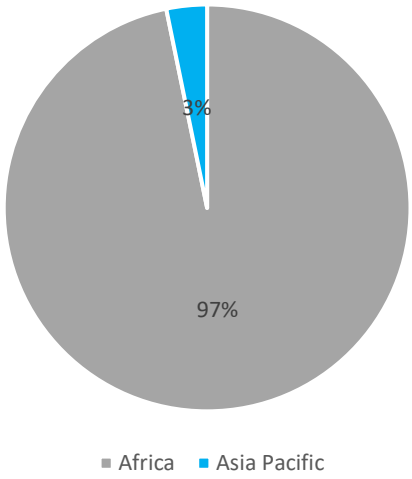
The Kharo gas discovery, located in the Khewari exploration licence area, Sindh Province, onshore Pakistan, was the only gas discovery announced in February 2024. The discovery was made through the exploration well Kharo-1, drilled to a depth of 3,762 m. The well was successfully flow tested with 14.3 mmcf/d.

Figure 64: Monthly gas and liquid discovered volumes



Source: GECF Secretariat based on Rystad Energy Ucube

Figure 65: Discovered volumes in February 2024 by region



Source: GECF Secretariat based on Rystad Energy Ucube

3.5.2 Other developments

Iran to boost gas production from the giant South Pars field by 2.55 tcm throughout the field life: According to an Iranian Oil Ministry announcement, the government signed major contracts with domestic contractors to boost gas production from the giant offshore South Pars gas field. The development plan is estimated to increase gas production by a total of 2.55 tcm and condensate production by 2 billion bbl. The contracts were signed between the Pars Oil and Gas Company, a subsidiary of the Iranian Oil Ministry, and contractors, including Petropars, Oil Industries' Engineering and Construction (OIEC Group), the Khatam al-Anbiya Construction Headquarters and MAPNA Group. It is worth noting that the massive South Pars gas field development plan was divided into 24 phases, with the latest phase (phase 11) starting production in August 2023.

Saudi Aramco to expand Fadhili gas processing plant: According to a Saudi Aramco release, the company has awarded the Engineering, Procurement and Construction (EPC) contract for the expansion of Fadhili gas processing plant in the Eastern Province of Saudi Arabia. The contract aims to increase the plant processing capacity from 25.7 bcma to the level of 41.2 bcma. The 7.7 billion USD contract is also expected to add sulphur production capacity up to 0.84 Mtpa. This additional 15.5 bcma of processing capacity is expected to contribute to the company's strategy to raise gas production by more than 60% by 2030, compared to 2021 levels.

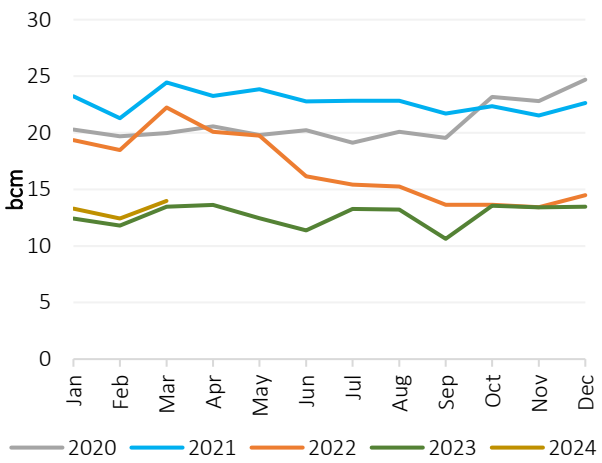
4 Gas Trade

4.1 PNG trade

4.1.1 Europe

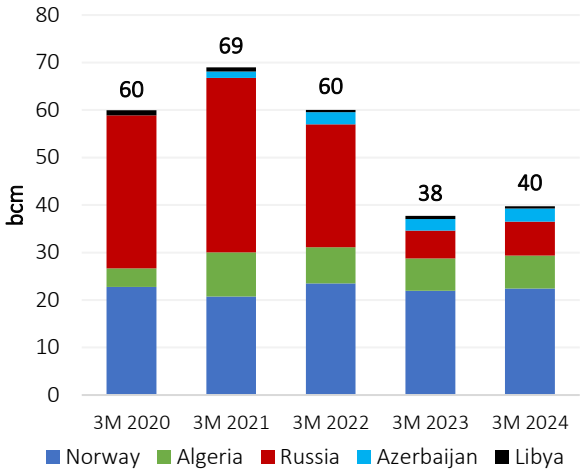
In March 2024, there was a surge in PNG imports to the EU, reaching 14.0 bcm. This volume was 12% higher m-o-m, and 4% greater than the level of one year ago (Figure 66). PNG supply to the region has been consistently higher in 2024 than in the previous year. In fact, during the first quarter of 2024, PNG imports to the EU totalled 40 bcm, an increase on 5% y-o-y (Figure 67). Russia has been the main driver for the rise in imports in 2024, having increased supply by 23% in this year, compared with Q1 2023.

Figure 66: Monthly PNG imports to the EU



Source: GECF Secretariat based on data from Refinitiv

Figure 67: Year-to-date EU PNG imports by supplier

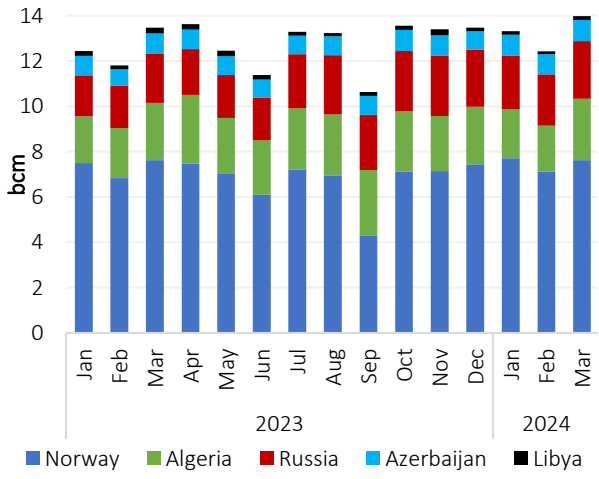


Source: GECF Secretariat based on data from Refinitiv

March 2024 also represented the highest level of monthly PNG imports to the EU since December 2022 (Figure 68). After three months of 2024, Norwegian supply accounted for 57% of the PNG imported by the EU, followed by Russia at 18% and Algeria at 17%.

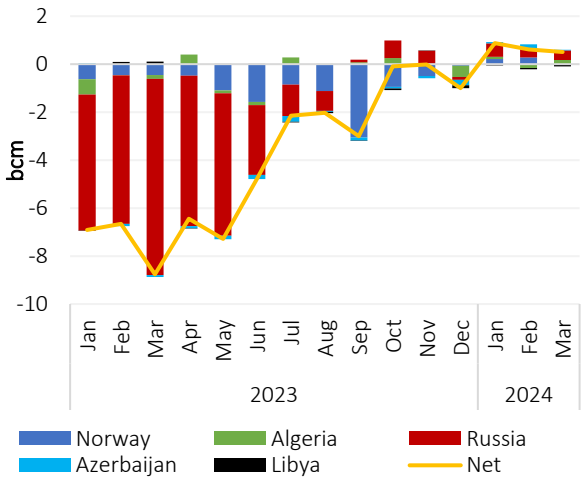
There have been increases in 2024 in volumes delivered from each of the EU's gas suppliers except for Libya, compared with the previous year (Figure 69). This continued the trend, which started in October 2023, of the return to net positive y-o-y variation in PNG supply to the region, following the marked decreases over the course of 2023. This observation further underlines that the PNG imports to the region have reached a stable level.

Figure 68: Monthly EU PNG imports by supplier



Source: GECF Secretariat based on data from Refinitiv

Figure 69: Y-o-Y PNG supply changes in the EU



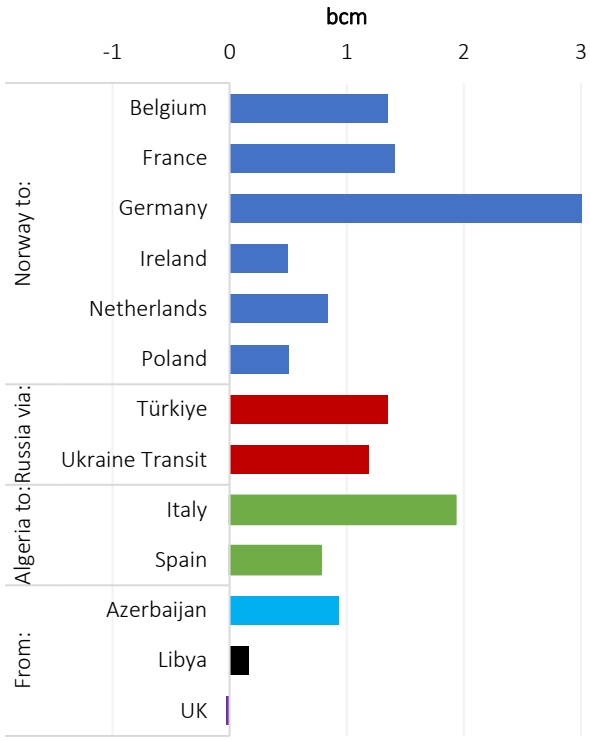
Source: GECF Secretariat based on data from Refinitiv

Figure 70 shows the PNG imports to the EU via the major supply routes in March 2024.

In this period, each of the EU's five PNG suppliers increased deliveries. Norway's supply to Poland was the only supply route which observed a decline for the month, falling by just 1%. There was a 50% rise in PNG exports from Algeria to Italy, which boosted the supply share to that market to 71%. Russia delivered 53% of its volumes via Turkiye, and flows along that pipeline increased by 17% m-o-m. There were 0.03 bcm of net flows towards the UK, marking the first such month of PNG exports from the EU since May 2021.

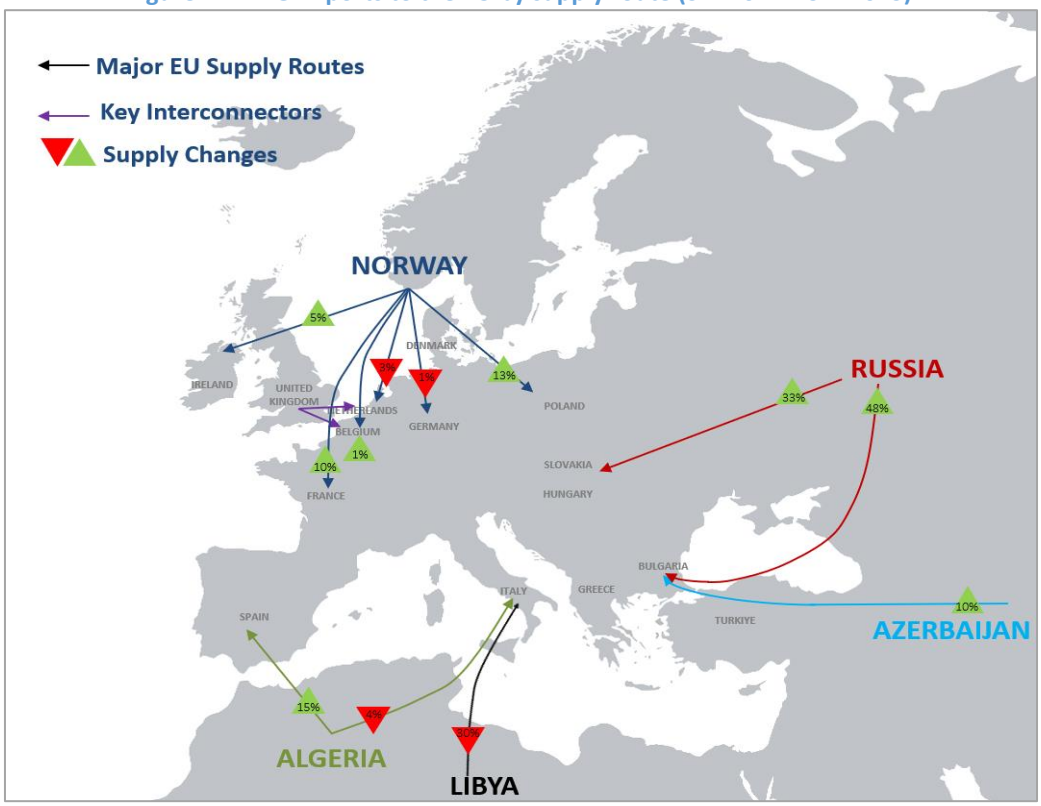
Figure 71 displays the PNG imports to the EU via the major supply routes during the first quarter of 2024, versus the same period in 2023. Russian imports increased via the two supply routes, particularly by 48% via Turkstream. Algeria increased supply to Spain by 15%, while Azerbaijan increased deliveries by 10%.

Figure 70: EU PNG imports by supply route, in March 2024



Source: GECF Secretariat based on data from Refinitiv

Figure 71: PNG imports to the EU by supply route (3M 2024 v 3M 2023)

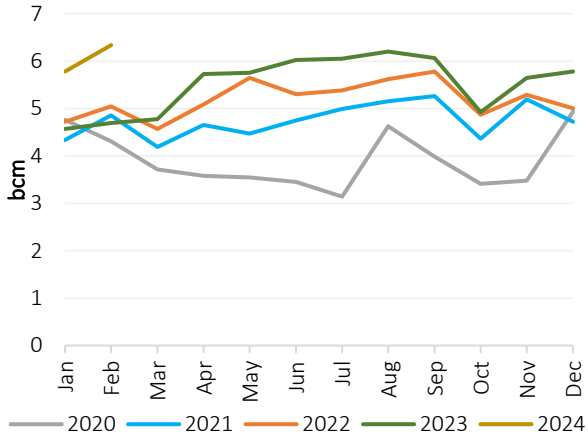


Source: GECF Secretariat based on data from Refinitiv

4.1.2 Asia

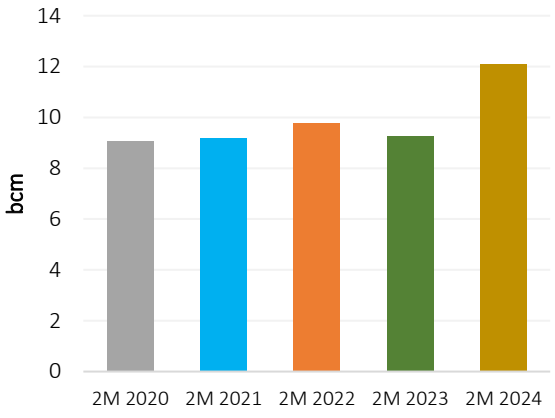
In February 2024, China imported 6.3 bcm of PNG, which was 10% more than in the previous month (Figure 72). This quantity was also 35% higher than the level recorded in February 2023, continuing the trend of increasing imports in recent months. Moreover, in February 2024, China surpassed the previous record for monthly PNG imports, beyond the value for August 2023. The share of PNG imports in the country's overall gas imports for February was 44%. During the first two months of the year, China's PNG imports have increased by 31% y-o-y (Figure 73).

Figure 72: Monthly PNG imports in China



Source: GECF Secretariat based on data from Refinitiv and General Administration of Customs China

Figure 73: Year-to-date PNG imports in China

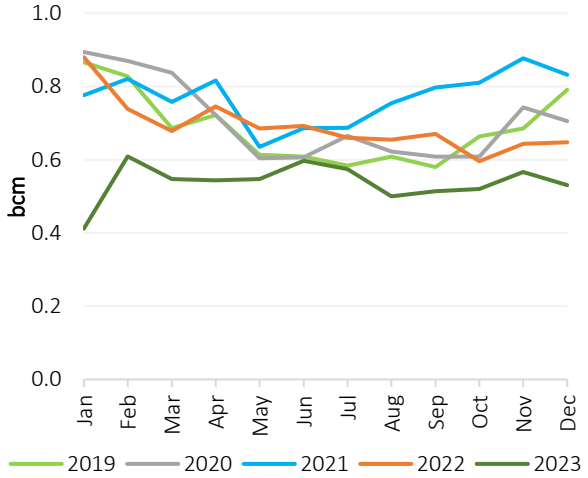


Source: GECF Secretariat based on data from Refinitiv and General Administration of Customs China

Singapore imported 0.53 bcm of PNG from Indonesia and Malaysia in December 2023, which was a decrease of 6% from the level recorded in the previous month and 18% lower y-o-y (Figure 74). Over the course of 2023, total PNG imports totalled 6.5 bcm, which was 22% lower than during 2022.

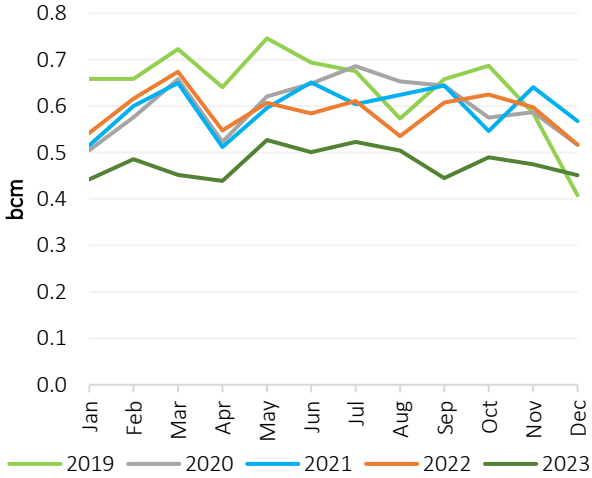
In December 2023, Thailand imported 0.45 bcm of PNG supply from Myanmar. This volume was 5% less than the amount imported one month earlier, and 13% less than the amount imported in December 2022 (Figure 75). Over the course of 2023, total PNG imports for Thailand reached 5.7 bcm, a decrease of 19% y-o-y.

Figure 74: Monthly PNG imports in Singapore



Source: GECF Secretariat based on data from JODI Gas

Figure 75: Monthly PNG imports in Thailand



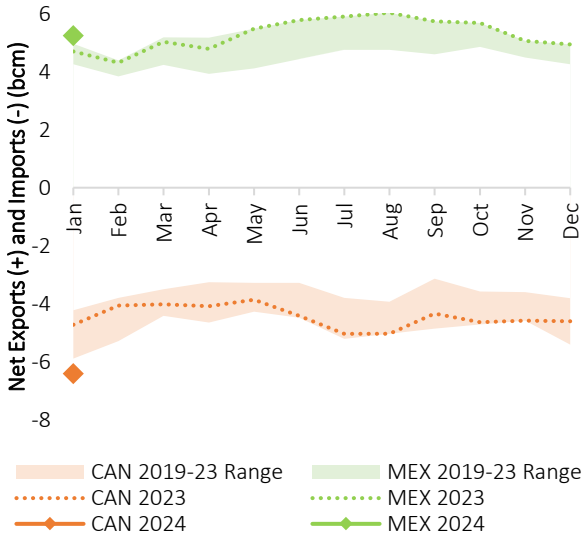
Source: GECF Secretariat based on data from JODI Gas

4.1.3 North America

The US continued the trend of increased PNG exports to Mexico in recent months, with 5.2 bcm delivered in January 2024. This quantity was 6% greater than the previous month and was 12% higher y-o-y (Figure 76). Net PNG imports from Canada to the US reached 6.4 bcm during the month, which was the highest level since January 2011. This quantity was 39% higher m-o-m, and 36% greater than that of January 2023.

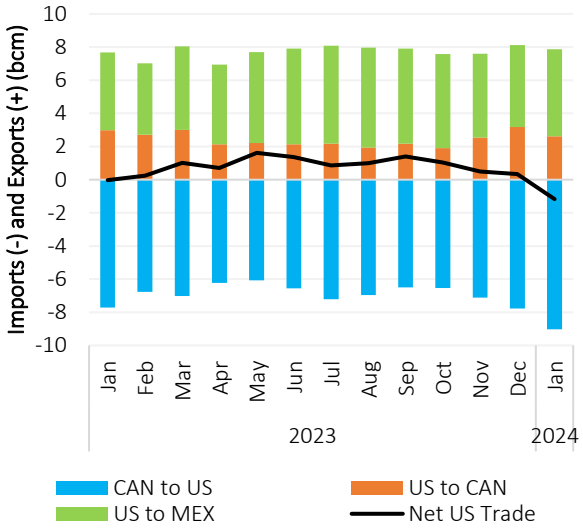
In January 2024, there was a net flow of 1.2 bcm of PNG into the US from the other countries of North America, (Figure 77). This marked the first month of US net imports since December 2022. The average monthly flows in the region in January 2024 were 9.0 bcm from Canada to the US, 2.6 bcm from the US to Canada and 5.2 bcm from the US to Mexico.

Figure 76: Historical net PNG trade in the USA



Source: GECF Secretariat based on data from US EIA

Figure 77: Monthly US PNG trade



Source: GECF Secretariat based on data from US EIA

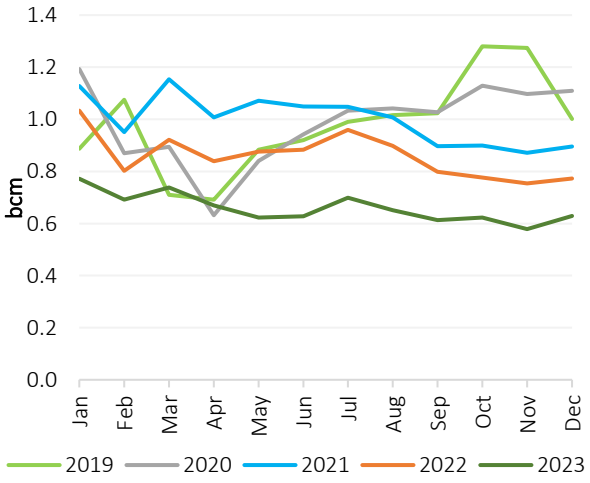
4.1.4 Latin America and the Caribbean

Bolivia exported 0.63 bcm of PNG to Brazil and Argentina in December 2023 (Figure 78). This quantity represented a 9% increase from the previous month but was 19% lower than the level recorded one year ago.

Overall, in 2023, Bolivia exported 7.9 bcm of PNG, which was a decrease of 23% compared with the same period in 2022.

In December 2023, Argentina exported 0.15 bcm of PNG to Chile, decreasing by 18% m-o-m, and 47% y-o-y. Total exports from January to December 2023 increased by 7% y-o-y to reach 2.2 bcm.

Figure 78: Monthly PNG exports from Bolivia



Source: GECF Secretariat based on data from JODI Gas

4.1.5 Other developments

Delays in the construction of the Central Asia-China gas pipeline: The Energy Minister of Turkmenistan has announced that construction work on the latest phase of the Central Asia-China gas pipeline has been delayed, as a result of a disagreement between the involved countries regarding pricing. This pipeline will be Line D of the Central Asian gas corridor, and will transport natural gas from Turkmenistan to China via Uzbekistan, Tajikistan and Kyrgyzstan. Construction of the 966 km Line D began in 2014.

Iran extends pipeline gas exports to Iraq: The National Iranian Gas Company (NIGC) has concluded a gas supply agreement with the Ministry of Electricity of Iraq. This new arrangement is a five-year extension of the existing contract between the parties, which was first concluded in July 2013. Under the new terms, NIGC will supply volumes of up to 50 mcm per day, according to the requirements of Iraq's power generation sector. In 2022, Iran's supply to Iraq was just around half of that rate.

4.2 LNG trade

4.2.1 LNG imports

In March 2024, global LNG imports grew by 2.6% (0.91 Mt) y-o-y to reach 35.32 Mt, which is a record high for the month of March (Figure 79). The stronger LNG imports were driven mainly by the Asia Pacific region, with small increases from the LAC and MENA regions, which together offset a sharp decline in European LNG imports (Figure 80). For the period January to March 2024, global LNG imports stood at 108.05 Mt, representing a growth of 3.3% (3.45 Mt) y-o-y.

Figure 79: Trend in global monthly LNG imports

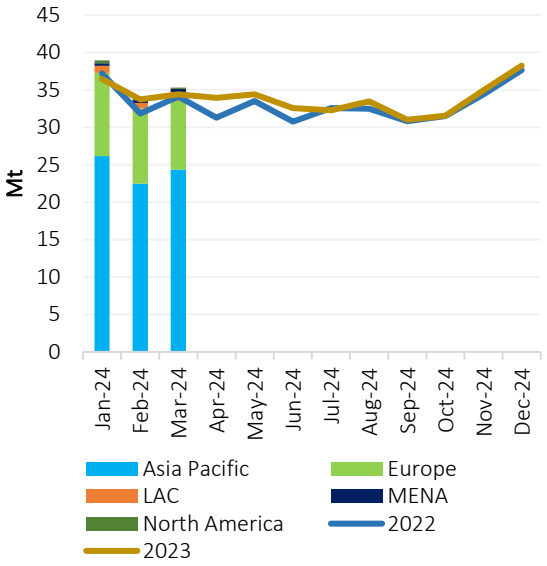
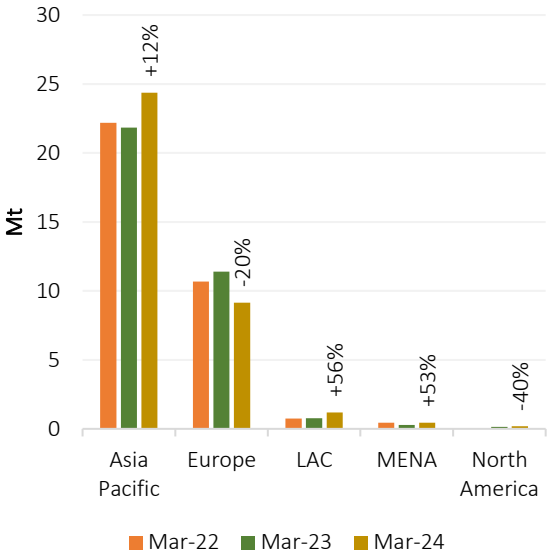


Figure 80: Trend in regional LNG imports



Source: GECF Secretariat based on data from ICIS LNG Edge

4.2.1.1 Europe

In March 2024, European LNG imports continued to slide, falling by 20% (2.25 Mt) y-o-y to 9.14 Mt, which is well below the March 2022 level (Figure 81). The weaker LNG imports were mainly attributed to lower gas consumption, ample gas volumes in storage and higher pipeline gas imports in the region. Italy, the Netherlands, Spain, Türkiye and the UK led the decline in Europe's LNG imports, offsetting higher LNG imports in France (Figure 82). For the period January and March 2024, European LNG imports declined sharply by 13% (4.56 Mt) y-o-y to 30.31 Mt.

Italy recorded its first monthly year-on-year decline in LNG imports since October 2023. The drop in LNG imports was driven by lower gas consumption and higher pipeline gas imports. In the Netherlands, weaker gas consumption, and a drop in pipeline gas exports to Germany, coupled with stronger pipeline gas imports from Norway, led to the decline in LNG imports. An increase in pipeline gas imports from Algeria, as well as lower gas consumption and a fall in pipeline gas exports to France, contributed to the decrease in Spain's LNG imports. The lower LNG imports in Türkiye were attributed to an uptick in gas production and lower gas consumption. Furthermore, the decrease in the UK's LNG imports was due to higher pipeline gas imports from Norway, a drop in gas consumption, and the decline in pipeline gas exports to mainland Europe. Despite weaker gas consumption and higher pipeline gas imports from Norway, an increase in pipeline gas exports to Switzerland, a ramp-up in imports through the Le Havre LNG import terminal boosted French LNG imports.

Figure 81: Trend in Europe's monthly LNG imports

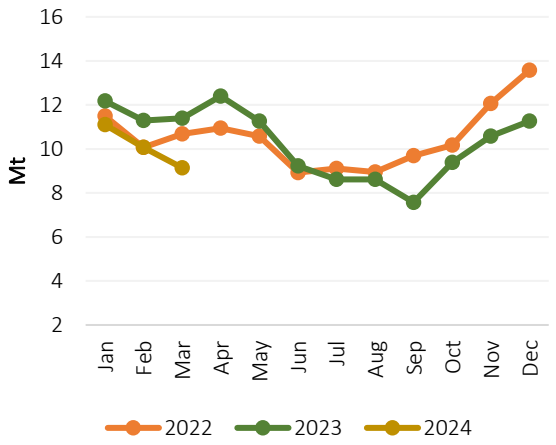
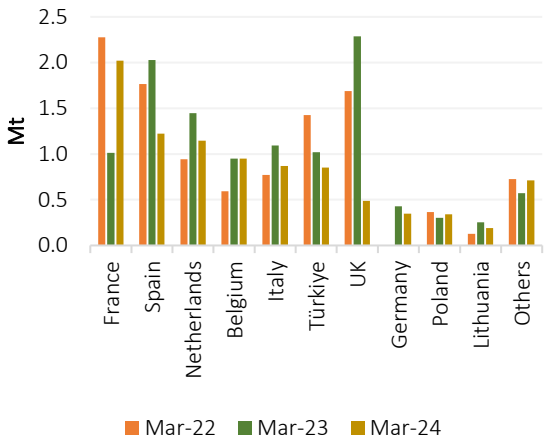


Figure 82: Top LNG importers in Europe



Source: GECF Secretariat based on data from ICIS LNG Edge

4.2.1.2 Asia Pacific

In March 2024, LNG imports in the Asia Pacific region jumped by 12% (2.54 Mt) y-o-y to stand at 24.37 Mt, which also surpassed the imports in March 2021 (Figure 83). The stronger LNG imports were driven by a combination of higher gas consumption and lower spot LNG prices, which stimulated spot LNG demand in price sensitive markets. China, India, Japan, Singapore and Thailand led the increase in the region's LNG imports, offsetting weaker imports in South Korea (Figure 84). For the period January to March 2024, Asia Pacific's LNG imports increased sharply by 9.2% (6.17 Mt) y-o-y to 73.01 Mt.

The rise in LNG imports in China and India was attributed to an increase in gas consumption in both countries as well as lower spot LNG prices, which have become competitive with long-term contractual LNG prices, thus stimulating spot LNG demand. In Japan, stronger gas consumption in the electricity sector, due to colder weather, drove its LNG imports higher. Meanwhile, weaker pipeline gas imports supported the increase in Singapore's LNG imports. The stronger LNG imports in Thailand were due to higher gas consumption in the electricity sector and attractive spot LNG prices, which stimulated spot LNG demand. Conversely, the drop in South Korea's LNG imports was mainly due to ample LNG volumes in storage.

Figure 83: Trend in Asia's monthly LNG imports

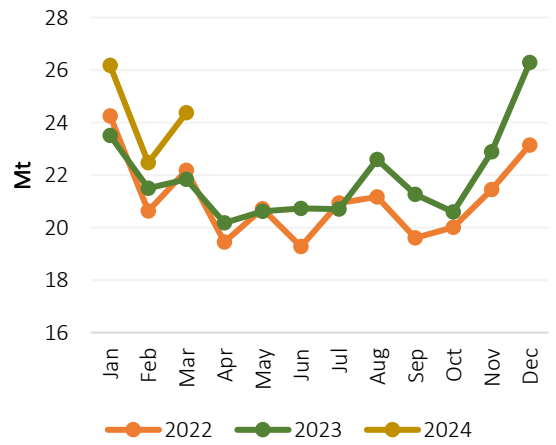
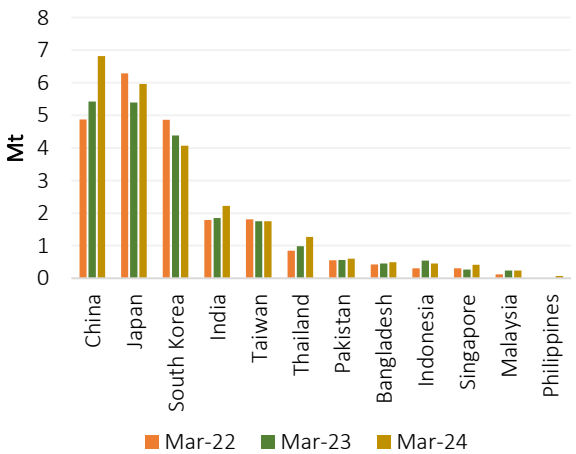


Figure 84: Top LNG importers in Asia Pacific



Source: GECF Secretariat based on data from ICIS LNG Edge

4.2.1.3 Latin America & the Caribbean (LAC)

In March 2024, LNG imports in the LAC region surged by 56% (0.42 Mt) y-o-y to 1.19 Mt, which is the highest level since July 2023 (Figure 85). The stronger LNG imports were driven by Brazil, Colombia and the Dominican Republic, which offset weaker imports in Chile and Jamaica (Figure 86). For the period January and March 2024, LNG imports in the LAC region jumped by 55% (1.01 Mt) y-o-y to 2.83 Mt.

Brazil saw a sharp rise in LNG imports in March due to planned maintenance on the Rota 1 gas pipeline, compensating for disruption in offshore gas supply to consumers. In Colombia, the ongoing El Niño-induced drought increased gas burn in the electricity sector, driving up LNG imports. In addition, increased gas consumption in the Dominican Republic's electricity sector fuelled higher LNG imports. Conversely, Chile's LNG imports dropped as it relied more on pipeline gas imports from Argentina. Meanwhile, Jamaica did not import any LNG cargoes.

Figure 85: Trend in LAC's monthly LNG imports

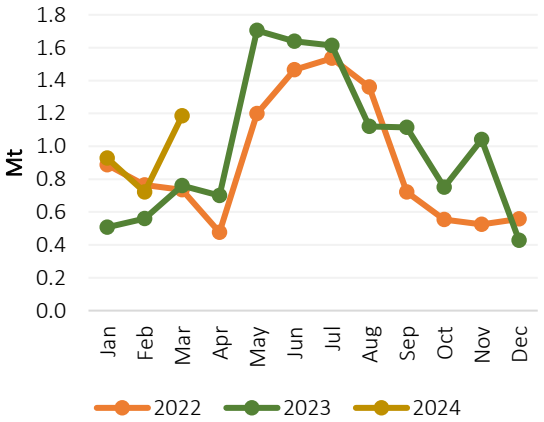
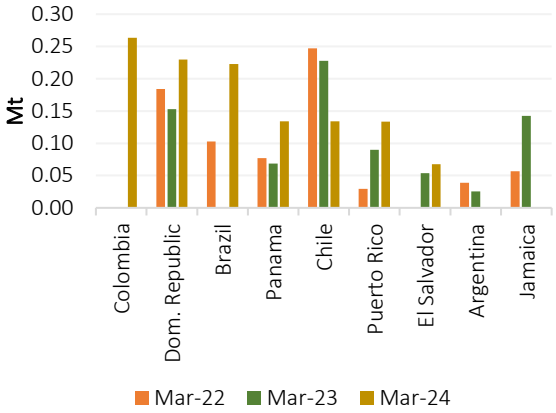


Figure 86: Top LNG importers in LAC



Source: GECF Secretariat based on data from ICIS LNG Edge

4.2.1.4 MENA

In March 2024, the MENA region's LNG imports rose sharply by 53% (0.15 Mt) y-o-y to 0.44 Mt (Figure 87). Kuwait continues to be the sole LNG importer in the region, with stronger LNG imports from Qatar and the US driving the increase in its LNG imports (Figure 88). Between January and March 2024, LNG imports in the MENA region rose by 78% (0.51 Mt) to 1.17 Mt.

Figure 87: Trend in MENA's monthly LNG imports

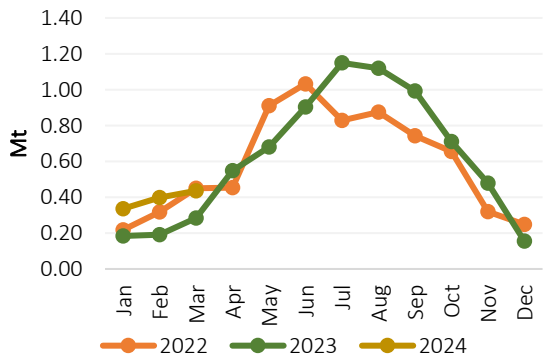
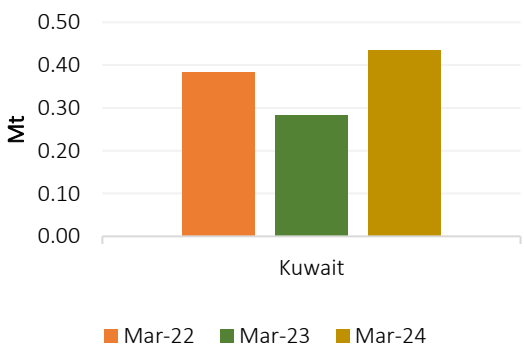


Figure 88: Top LNG importers in MENA



Source: GECF Secretariat based on data from ICIS LNG Edge

4.2.2 LNG exports

In March 2024, global LNG exports grew by 2.3% (0.82 Mt) y-o-y to stand at 36.31 Mt, which is the highest historic figure for March (Figure 89). Non-GECF countries led the rise in LNG exports while higher LNG exports from GECF Member Countries contributed to a lesser extent. Conversely, global LNG reloads declined during the month. The Republic of the Congo (Congo-Brazzaville) joined the club of LNG exporters in March.

Non-GECF countries were the largest LNG exporters in March with a market share of 52.4% up from 50.8% a year earlier. In contrast, the market share of GECF Member Countries and LNG reloads in global LNG exports declined from 47.7% and 1.5% to 47.4% and 0.2% respectively. The leading LNG exporting countries were the US, Australia and Qatar (Figure 90). For the period January and March 2024, the cumulative global LNG exports increased by 3.3% (3.47 Mt) y-o-y to 107.66 Mt.

Figure 89: Trend in global monthly LNG exports

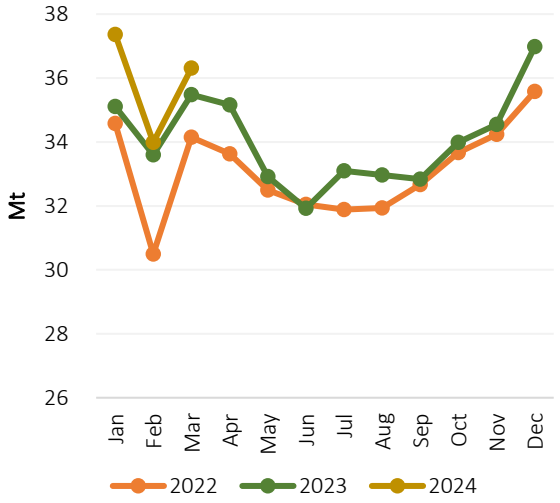
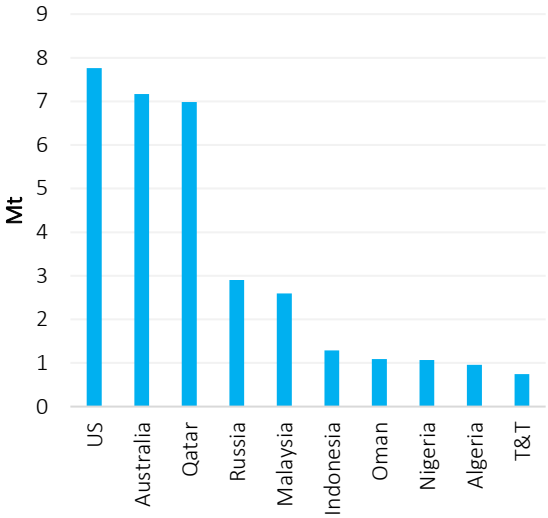


Figure 90: Top 10 LNG exporters in Mar 2024



Source: GECF Secretariat based on data from ICIS LNG Edge

4.2.2.1 GECF

In March 2024, LNG exports from GECF member countries and observers rose by 1.8% (0.30 Mt) y-o-y to 17.21 Mt (Figure 91), which is the highest historic rate of exports for the month of March. Angola, Malaysia, Qatar, Russia and the UAE drove the increase in GECF's LNG exports, offsetting lower LNG exports from Egypt and Nigeria (Figure 92). For the period January and March 2024, GECF's LNG exports grew by 3.3% (1.62 Mt) y-o-y to reach 51.27 Mt.

In Angola and Qatar, lower planned maintenance activity at the Angola LNG and Qatargas 4 facility respectively, compared to a year earlier, boosted LNG exports from both countries. The increase in Malaysia's LNG exports was supported by stronger LNG exports from the Bintulu and PFLNG 2 facilities in the country. Meanwhile, higher LNG exports from the Sakhalin 2, Vysotsk and Yamal LNG facilities contributed to the rise in Russia's LNG exports. In the United Arab Emirates, the increased LNG exports was attributed to the rise in LNG production at the Das Island LNG facility.

Conversely, the weaker LNG exports from Egypt and Nigeria were due to lower volumes of feed gas in both countries.

Figure 91: Trend in GECF monthly LNG exports

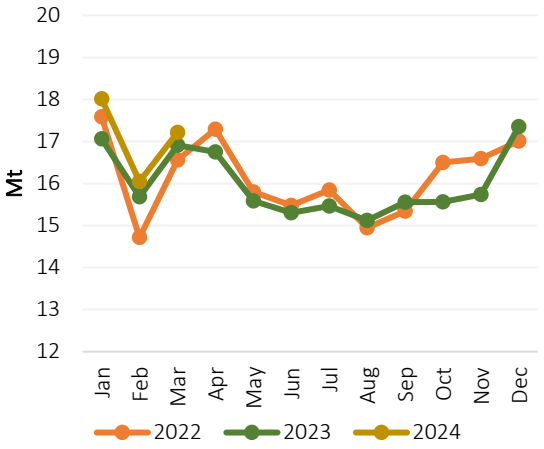
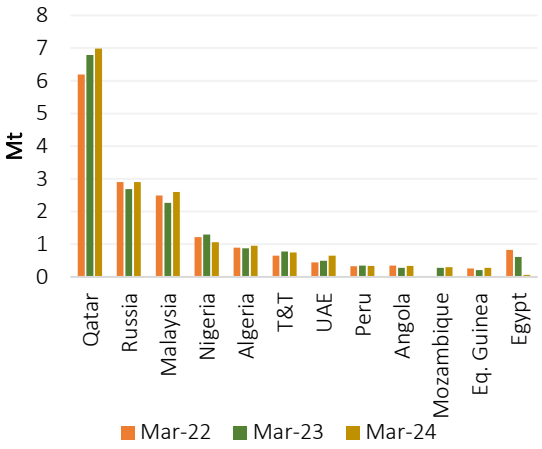


Figure 92: GECF's LNG exports by country



Source: GECF Secretariat based on data from ICIS LNG Edge

4.2.2.2 Non-GECF

In March 2024, LNG exports from non-GECF countries expanded by 5.5% (0.99 Mt) y-o-y to 19.03 Mt (Figure 93). The stronger LNG exports was driven by Australia, Congo-Brazzaville, Indonesia and the US (Figure 94). For the period January to March 2024, non-GECF's LNG exports increased by 5.6% (2.94 Mt) y-o-y to 55.75 Mt.

Congo-Brazzaville joined the club of LNG exporters in March, with the export of its first LNG cargo. In Australia, the higher LNG exports were supported by an increase in exports from the APLNG, Ichthys and QCLNG facilities, which offset lower exports from the North West Shelf LNG facility. The higher LNG exports from the APLNG and QCLNG facilities were due to lower planned and unplanned maintenance activities. The ramp-up in production at the Tangguh LNG train 3 contributed to the increase in Indonesia's LNG exports. Furthermore, the ramp-up in production at the Calcasieu Pass LNG facility, coupled with uptick in exports at the Cameron, Cove Point and Sabine Pass LNG facilities, drove the increase in the US LNG exports.

Figure 93: Trend in non-GECF monthly LNG exports

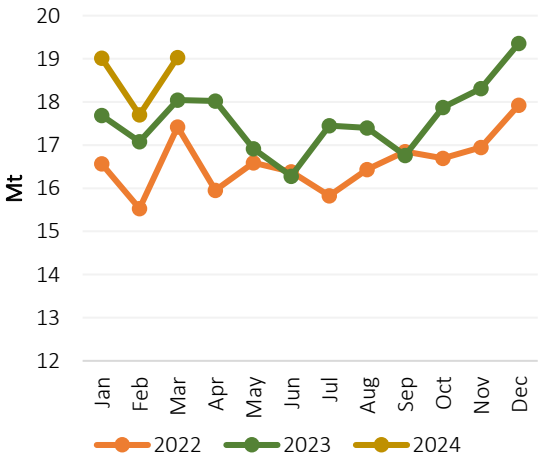
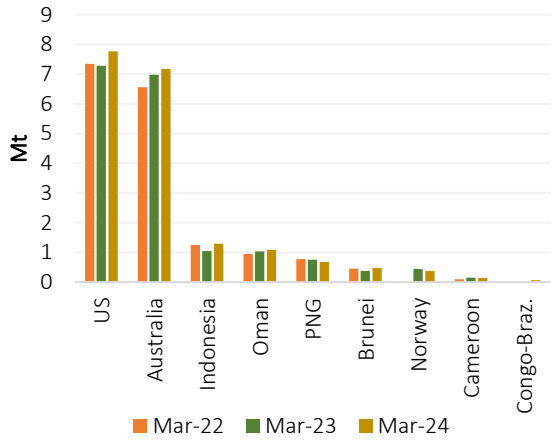


Figure 94: Non-GECF's LNG exports by country



Source: GECF Secretariat based on data from ICIS LNG Edge

4.2.3 Global LNG reloads

In March 2024, global LNG reloads continued to decline and slumped by 88% (0.47 Mt) y-o-y to just 0.07 Mt, which is the lowest monthly reloads since November 2019 (Figure 95). China, Malaysia, Singapore and Spain accounted for the bulk of the incremental decrease in global LNG reloads (Figure 96). For the period January and March 2024, global LNG reloads plunged by 63% (1.09 Mt) y-o-y to 0.64 Mt.

The drop in LNG reloads in China, Malaysia and Singapore was mainly attributed to ample spot LNG supplies in the market and weaker spot LNG prices, which reduced the profitability for LNG re-exports to other markets. Meanwhile, weaker LNG demand in Italy led to the drop in Spain's LNG reloads, since Italy has been the main market for Spain's LNG re-exports.

Figure 95: Trend in global monthly LNG reloads

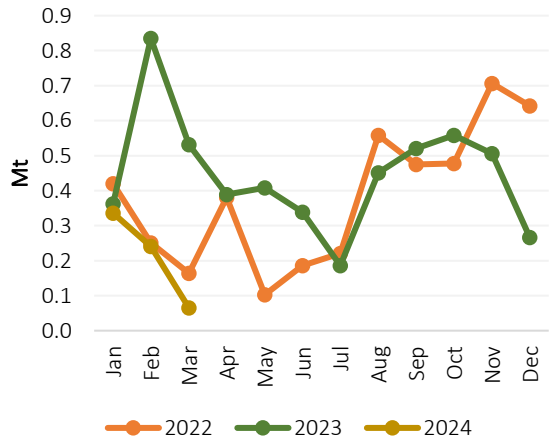
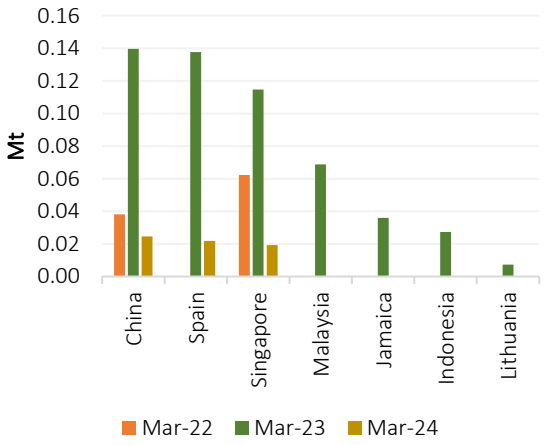


Figure 96: Global LNG reloads by country



Source: GECF Secretariat based on data from ICIS LNG Edge

4.2.4 Arbitrage opportunity

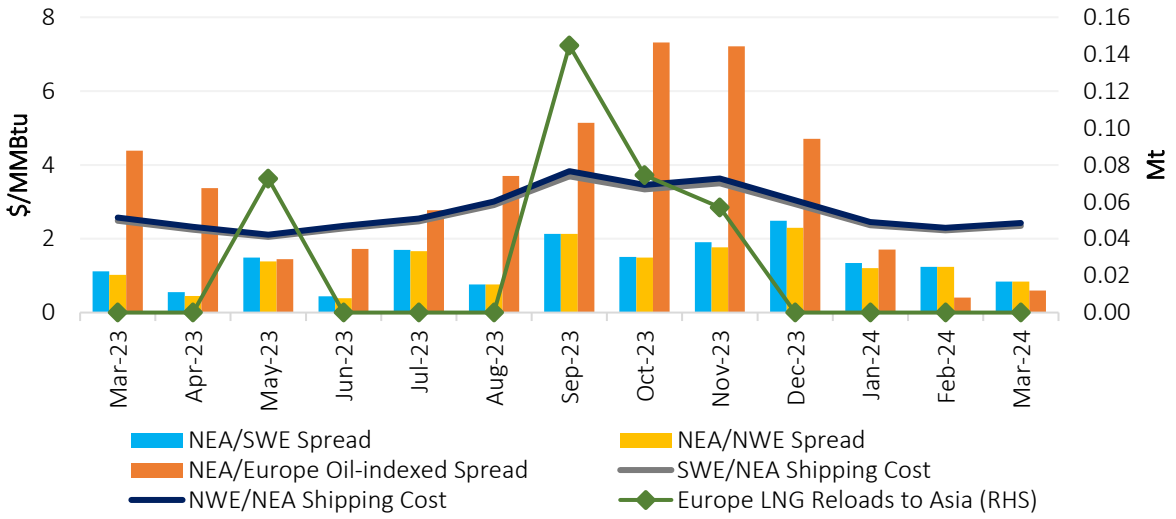
In March 2024, the arbitrage for LNG reloads from Europe to Asia Pacific was closed. The absence of the arbitrage opportunity was attributed to the spot LNG price spreads between Asia Pacific and Europe maintaining a discount compares to the spot LNG shipping costs between both markets (Figure 97). Similarly, the spot LNG shipping cost held a premium over the price spread between spot LNG price in Asia Pacific and oil-indexed prices in Europe.

The price spreads between NEA/SWE and NEA/NWE each fell by 32% ($0.40/MMBtu) m-o-m to $0.84/MMBtu respectively. The higher increase in European spot LNG prices compared to the NEA spot LNG price led to the narrowing price spreads. Meanwhile, the price spread between spot LNG prices in Asia Pacific and oil-indexed prices in Europe grew by 46% ($0.19/MMBtu) m-o-m to $0.60/MMBtu due to the weaker oil-indexed price in Europe.

In comparison to March 2023, the NEA/SWE and NEA/NWE price spreads declined by 25% ($0.28/MMBtu) and 18% ($0.18/MMBtu) y-o-y, respectively. Likewise, the price spread between NEA spot LNG and European oil-indexed gas prices, as well as the NEA/SWE and NEA/NWE spot shipping costs fell by 86% ($3.79/MMBtu), 5.6% ($0.14/MMBtu) and 5.4% ($0.14/MMBtu) y-o-y, respectively.

In terms of the shipping costs for the NEA/SWE and NEA/NWE spot routes, they each grew by 5.5% ($0.12/MMBtu) m-o-m each to $2.35/MMBtu and $2.43/MMBtu, respectively. However, it is important to note that shipping costs can vary depending on the specific vessels used. Medium to long-term chartered vessels may have lower costs compared to spot shipping rates. The absence of the arbitrage opportunity prevented LNG reloads from Europe to Asia Pacific in March.

Figure 97: Price spreads & shipping costs between Asia & Europe spot LNG markets

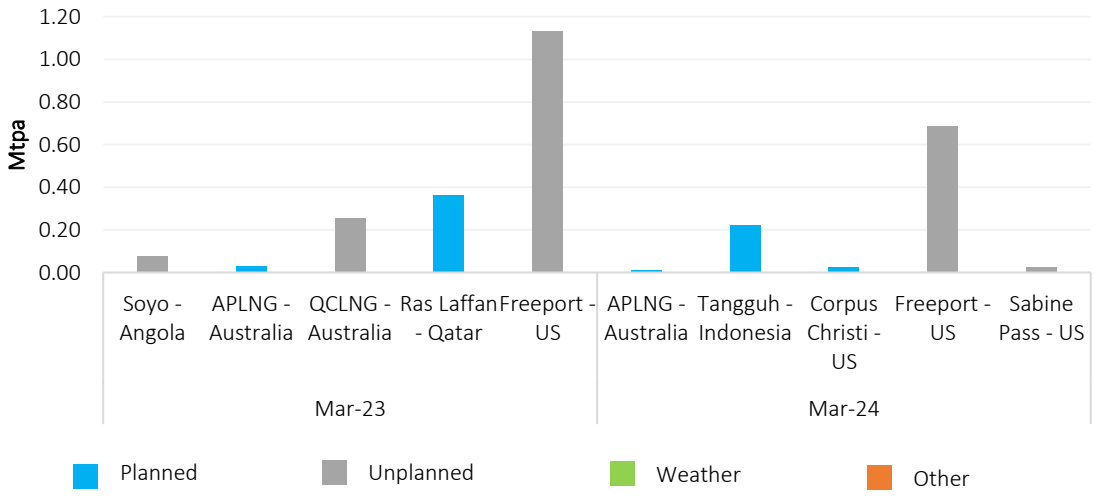


Source: GECF Secretariat based on data from GECF Shipping Model, Argus and ICIS LNG Edge

4.2.5 Maintenance activity at LNG liquefaction facilities

In March 2024, the combined impact of scheduled maintenance, unexpected shutdowns, and other factors at liquefaction plants globally reached the equivalent of 0.97 Mt, which was around 50% lower than the liquefaction capacity that was impacted in March 2023 (Figure 98). The main events in 2024 included planned maintenance activity at the APLNG facility in Australia, the Tangguh LNG facility in Indonesia, and the Corpus Christi LNG facility in the US, as well as unplanned outages at the Freeport and Sabine Pass LNG facilities in the US.

Figure 98: Maintenance activity at LNG liquefaction facilities during March (2023 and 2024)



Source: GECF Secretariat based on information from Argus, ICIS LNG Edge and Refinitiv

4.2.6 Other developments

Congo FLNG 1 exports its first LNG cargo – The Congo FLNG 1 terminal exported its first LNG cargo on 2 March 2024. With this, the Republic of the Congo (Congo Brazzaville) joined the club of LNG exporters. The Congo FLNG 1 facility, with a liquefaction capacity of 0.6 Mtpa, was developed by Eni. The first LNG cargo was loaded aboard the GasLog Savannah LNG carrier and exported to the Piombino LNG import terminal in Italy.

Stade FSRU arrives in Germany – The Energos Force FSRU arrived in Germany on 15 March 2024, to serve as an LNG import terminal in Stade. The LNG import project was developed by Deutsche Energy Terminals (DET). The FSRU, with an import capacity of 5.4 Mtpa, is the fourth FSRU in Germany. It is expected to become operational in a few weeks following test operations.

Germany's Stade LNG import terminal reaches FID – Germany's first onshore LNG import terminal, the Stade LNG terminal, reached FID on 21 March 2024. The project is being developed by Hanseatic Energy Hub, a consortium consisting of Partners Group, Enagas, Dow, and Buss Group. The terminal will have an LNG import capacity of 10 Mtpa and is expected to cost US$1.09 billion, with commissioning slated for 2027. Upon the commissioning of the Stade onshore terminal, the Energos Force FSRU, currently serving as an LNG import terminal in Stade, will depart.

Gazprom buys Shell stake in Sakhalin 2 LNG facility in Russia – Gazprom's subsidiary, Sakhalinsky Project, bought Shell's 27.5% stake in the Sakhalin 2 LNG export terminal in Russia for US$1.02 billion. The Russian government issued a decree on 23 March 2024 approving the sale. With this acquisition, Gazprom now owns 77.5% of the 11 Mtpa LNG facility. The other shareholders include Mitsui (12.5%) and Mitsubishi (10%).

In terms of LNG agreements, four contracts were signed in March 2024 (Table 1).

Table 1: New LNG sale agreements signed in February 2024

Contract Type	Exporting Country	Project	Seller	Importing Country	Buyer	Volume (Mtpa)	Duration (Years)
SPA	Portfolio		Summit Power	Bangladesh	Petrobangla	1.5	15
HOA	UAE	Ruwais LNG	ADNOC	Germany	SEFE	1	15
HOA	US	Texas LNG	Glenfarne Energy Transition	Portfolio	Gunvor	0.5	20
SPA	Oman	Qalhat LNG	Oman LNG	Germany	SEFE	0.4	4

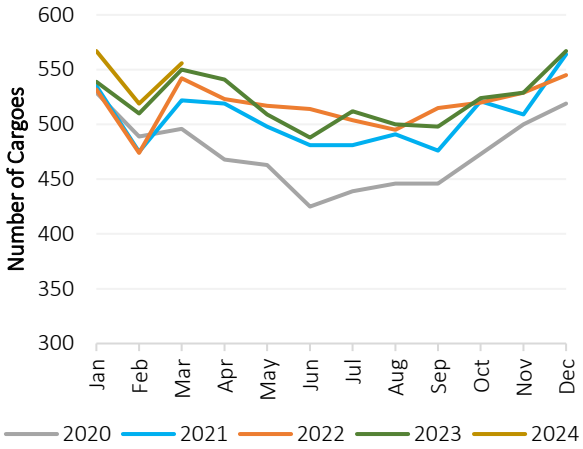
Source: GECF Secretariat based on Project Updates and News

4.2.7 LNG shipping

In March 2024, there were 556 LNG cargoes exported, which was 7% more than the number of shipments in the previous month, and 1% more than the level of one year ago (Figure 99). During the first quarter of 2024, there have been 1,642 cargoes exported, an increase of 3% or 43 deliveries compared with the same period in 2023 (Figure 100).

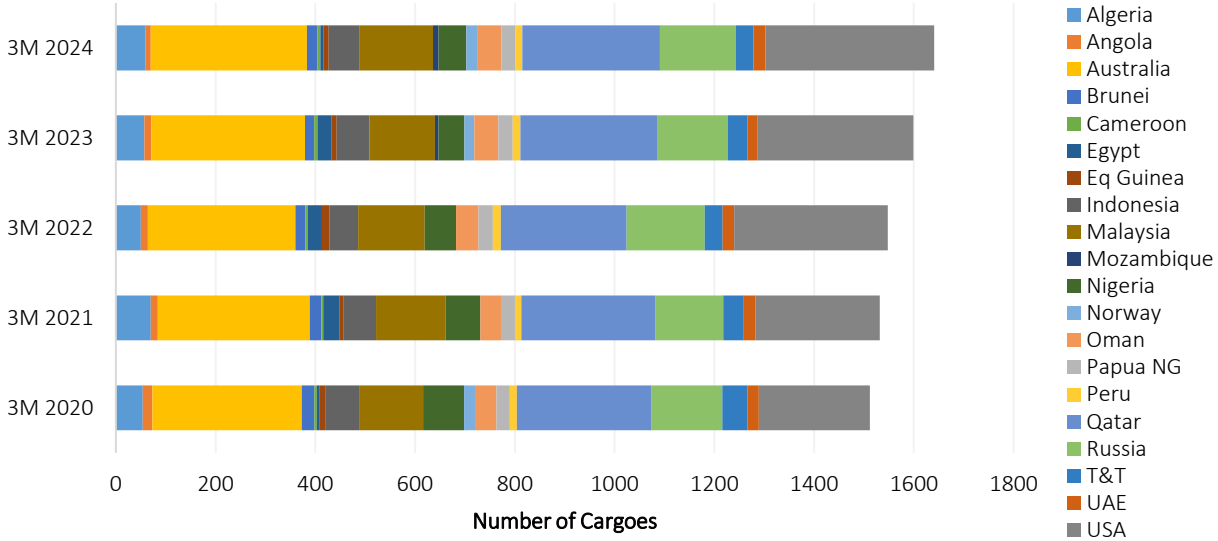
During this period, the US has delivered 25 more cargoes than in the same period of 2023, followed by Malaysia with 15 (Figure 101). Mozambique increased its shipments by 57%, followed by the UAE with 25%.

Figure 99: Number of LNG export cargoes



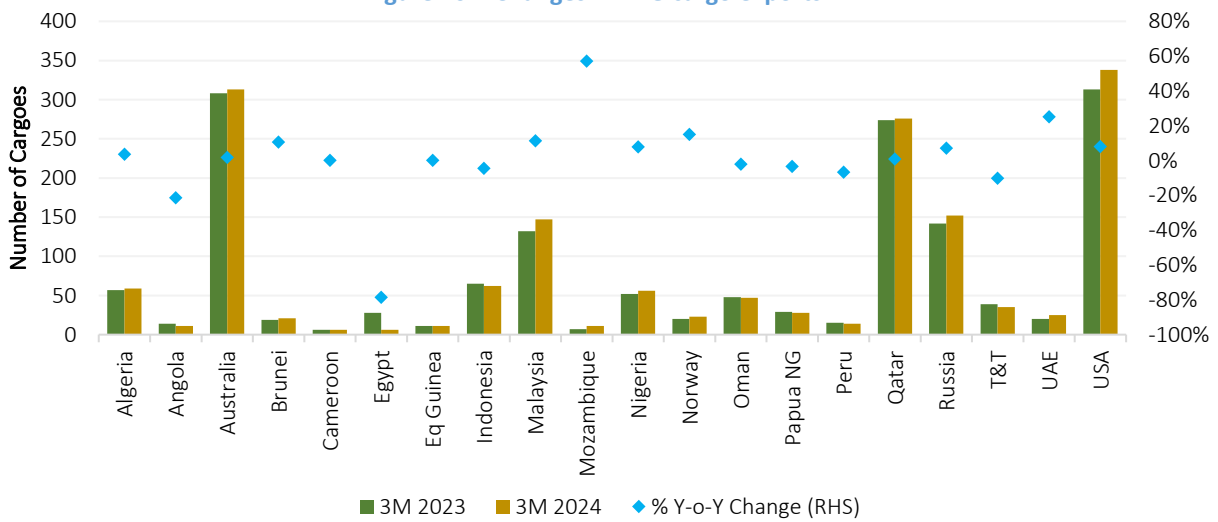
Source: GECF Secretariat based on data from ICIS LNG Edge

Figure 100: Number of LNG cargoes by exporting country



Source: GECF Secretariat based on data from ICIS LNG Edge

Figure 101: Changes in LNG cargo exports



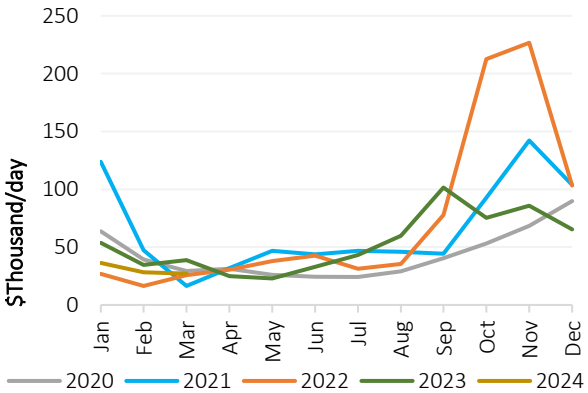
Source: GECF Secretariat based on data from ICIS LNG Edge

Charter rates continued to slide, a trend which has been observed since October 2023. In March 2024, the monthly average spot charter rate for steam turbine LNG carriers reached $27,100 per day, which was a decrease of 4% m-o-m (Figure 102). This monthly average charter rate was also 30% lower y-o-y, returning to the level of the five-year average price for the month. The other segments of the global LNG carrier fleet recorded similar rate decreases as well. The average spot charter rate for TDFE vessels declined by 4% m-o-m to reach $40,900 per day, while the average spot charter rate for two-stroke vessels decreased by 8% m-o-m to reach $56,800 per day.

While the average charter rate for steam turbine vessels decreased from February to March 2024, there were gains and losses in the daily rate during the month. The daily rate was generally constant throughout the first half of March, reflecting the continued tepid demand and high vessel availability in both basins, observed in the previous month. The inter-basin arbitrage began to widen thereafter, supported by incentive to supply to Asia. As charterers began to undertake the longer inter-basin voyages, the shipping market tightened, and charter rates rose accordingly. However, the prevailing high vessel availability still held the most influence in the market and reversed the gains in charter rates by the end of the month.

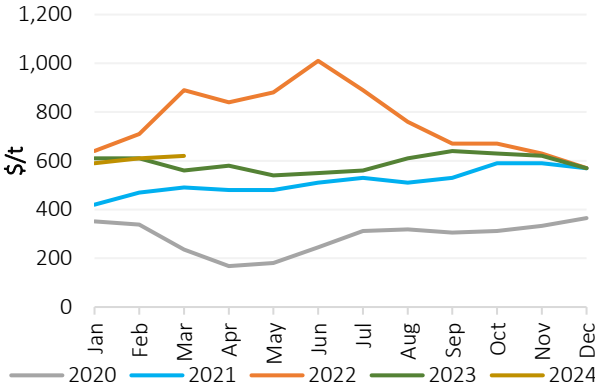
In March 2024, the average price of the shipping fuels was estimated at $620 per tonne, which was 2% higher m-o-m, and 11% higher y-o-y (Figure 103).

Figure 102: Average LNG spot charter rate



Source: GECF Secretariat based on data from ICIS LNG Edge and Argus

Figure 103: Average price of shipping fuels



Source: GECF Secretariat based on data from Bunker Ports News Worldwide and Argus

The GECF's assessment of LNG spot shipping costs for steam turbine carriers in March 2024 is shown in Table 2.

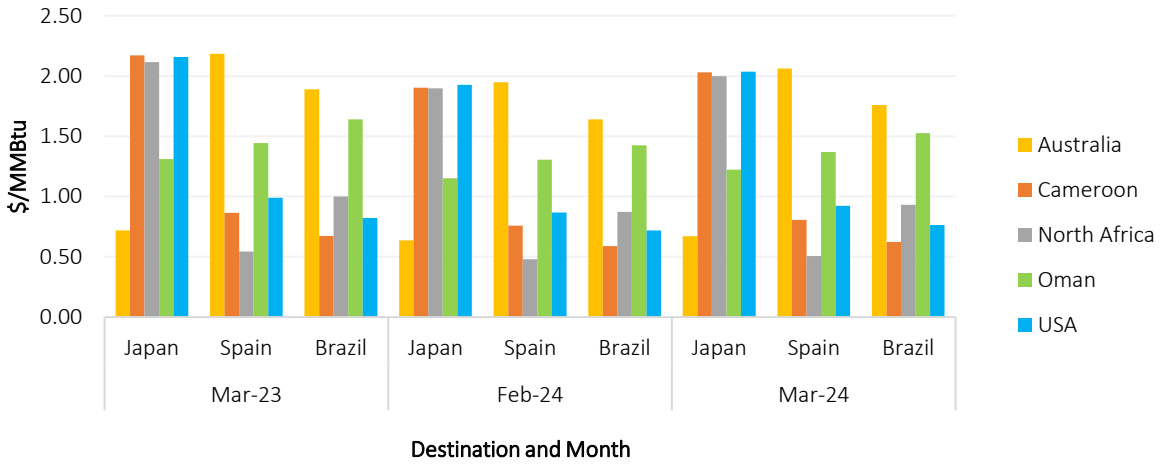
Table 2: Shipping costs for LNG spot cargoes from selected regions ($/MMBtu) – March 2024

		Destination						
LNG Supplier	From \ To	Japan	China	India	UK	Spain	Argentina	Brazil
	Spot LNG delivered price	9.13	9.13	8.83	8.17	8.11	8.65	8.17
	Australia	0.67	0.71	0.81	2.13	2.06	1.62	1.76
	Cameroon	2.03	2.01	1.34	0.88	0.81	0.95	0.62
	North Africa	2.00	1.99	1.13	0.58	0.51	1.33	0.93
	Oman	1.22	1.14	0.26	1.44	1.37	1.55	1.53
	USA	2.04	2.24	2.18	0.95	0.92	1.28	0.76

Source: GECF Shipping Cost Model

In March 2024, the delivered spot LNG prices, and the cost of LNG shipping fuels both increased relative to the previous month, while the average LNG carrier spot charter rate declined. As a result, there was a net increase in the LNG spot shipping costs for steam turbine carriers by up to $0.13/MMBtu on certain routes, relative to the previous month (Figure 104). When compared with one year ago, in March 2024, the monthly average spot charter rate, as well as the delivered spot LNG prices were lower, while the cost of shipping fuels increased slightly, resulting in LNG shipping costs of up to $0.18/MMBtu lower than March 2023.

Figure 104: LNG spot shipping costs for steam turbine carriers



Source: GECF Shipping Cost Model

Softening of restrictions at the Panama Canal: On 8 March 2024, the Panama Canal Authority issued the *Advisory to Shipping No. A-08-2024*, which marked an easing of the restrictions on the number of vessel transits through the waterway. Lower levels of precipitation, because of the El Nino weather phenomenon, caused a decrease in the water levels at Gatun Lake. This prompted the Authority to limit the maritime traffic through the canal from September 2023 onwards. However, Panama recorded significant rainfall during Q4 2023, which has enabled the Authority to delay further restrictions to the canal's operations. Accordingly, this new Advisory allows two additional transit slots to be available for auction, starting from 18 March 2024. Additionally, another slot will become available from 25 March 2024. The Panama Canal Authority does not foresee any further restrictions in the period up to April 2024.

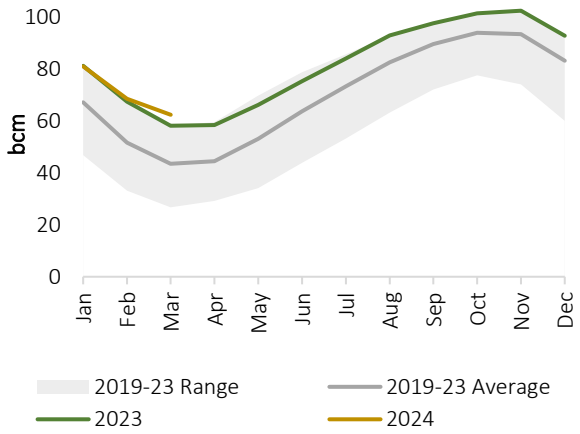
5 Gas Storage

5.1 Europe

In March 2024, the average daily volume of gas in storage in the EU decreased to 62.5 bcm, down from 68.6 bcm in the previous month (Figure 105). This average quantity of gas in storage was the highest on record for the month of March. The average capacity utilisation of the UGS sites in the region decreased to 60% during the month. Moreover, there was 4.2 bcm more gas in storage than the average level recorded in March 2023.

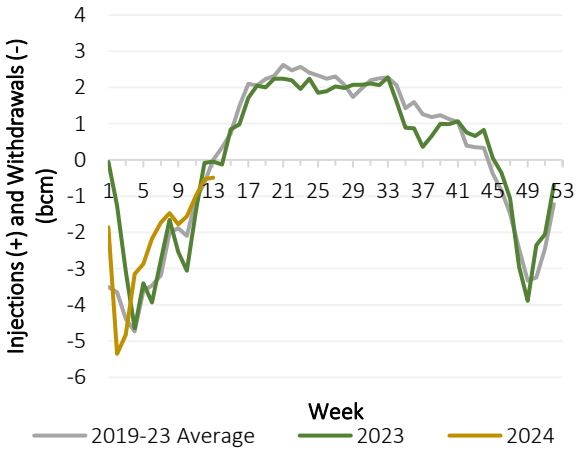
The delta between the gas storage level in March 2024 and the five-year average for the month was 18.9 bcm. March typically marks the last part of the winter season in Europe, hence while net gas withdrawals were observed during 28 days of the month, there were three days of net gas injections. In total, there were 5.8 bcm of gas taken out of storage during the month, compared with 2.2 bcm of gas injections into the UGS sites.

Figure 105: Underground gas storage in the EU



Source: GECF Secretariat based on data from AGSI+

Figure 106: Weekly rate of EU UGS level changes



Source: GECF Secretariat based on data from AGSI+

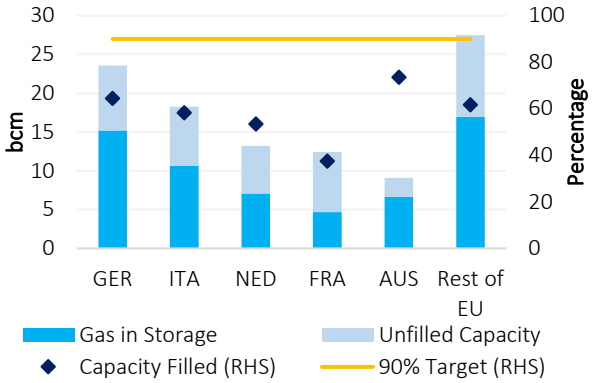
In March 2024, the average rate of gas withdrawal was 1.1 bcm/week (Figure 106) which was less than the 1.4 bcm/week recorded in March 2023, but was a similar level to the five-year average withdrawal rate for the month. Gas withdrawal from storage decreased during the month in response to the softening heating demand in the region as the winter season drew to a close. By the end of March 2024, there was a total of 42 bcm of gas taken out of storage over the 2023/24 winter season.

Since 2022, the European Commission has established targets for the filling of gas storage sites in member states. EU countries are obliged to fill UGS sites to a minimum of 90% by 1 November 2024, with checkpoints set at different points of the year. According to this filling trajectory, the EU countries are collectively around 36 bcm in excess of the target by the end of March 2024.

The top EU countries for UGS capacity are Germany, Italy, Netherlands, France and Austria. By the end of March 2024, gas storage levels in Austria remained above 70% of capacity, while Germany and Italy averaged around 60% (Figure 107). The gas storage level in France stood at 37%.

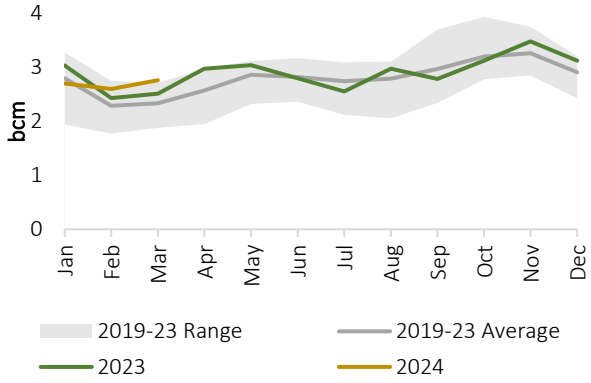
The EU has 5.0 bcm of LNG storage capacity, primarily concentrated in Spain (40%) and France (16%). In March 2024, the combined amount of LNG stored in the EU countries was 2.8 bcm (Figure 108). This quantity represented a 6% increase m-o-m and was 18% higher than the five-year historical average for the month.

Figure 107: UGS in EU countries as of Mar 31, 2024



Source: GECF Secretariat based on data from AGSI+

Figure 108: Total LNG storage in the EU

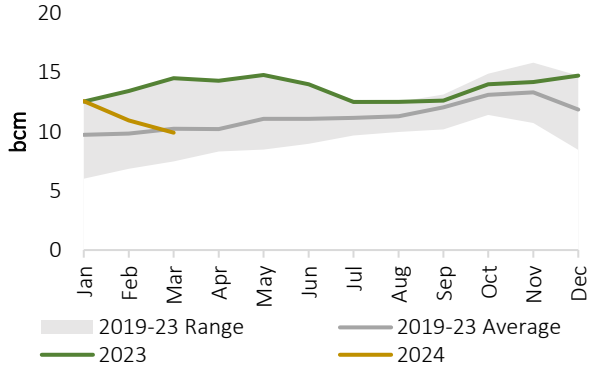


Source: GECF Secretariat based on data from ALSI

5.2 Asia

Japan and South Korea possess a combined capacity of 17 bcm of LNG storage. The combined volume of LNG in storage in both countries continued to decline in March 2024, to reach an estimated 9.9 bcm, falling by 9% from the previous month amidst lower LNG imports (Figure 109). This volume was 32% lower y-o-y, as well as 0.3 bcm less than the five-year average for the month. Storage in Japan and South Korea accounted for 5.1 bcm and 4.8 bcm, respectively.

Figure 109: LNG in storage in Japan and South Korea

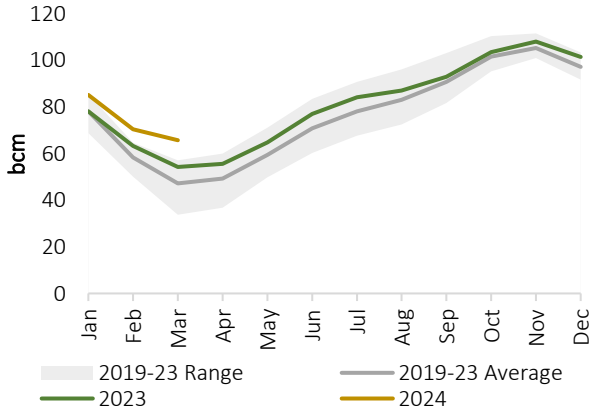


Source: GECF Secretariat based on data from Refinitiv

5.3 North America

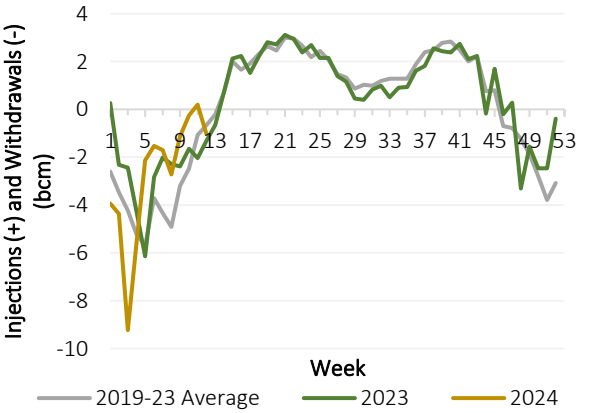
In March 2024, net gas withdrawals continued in the US, and the average daily volume of gas in storage decreased to 65.7 bcm, down from 70.5 bcm in the previous month (Figure 110). The average capacity utilisation of the UGS sites in the country decreased to 49%, but was the highest level for the month of March since 2016. As such, the storage level in March 2024 was 11.5 bcm higher than one year ago, and 18.5 bcm higher than the five-year average. Gas withdrawals during the month was observed at an average rate of 0.6 bcm/week, compared with 1.6 bcm/week in March 2023 and the five-year rate of 1.5 bcm/week (Figure 111).

Figure 110: Underground gas storage in the US



Source: GECF Secretariat based on data from US EIA

Figure 111: Weekly rate of UGS changes in the US



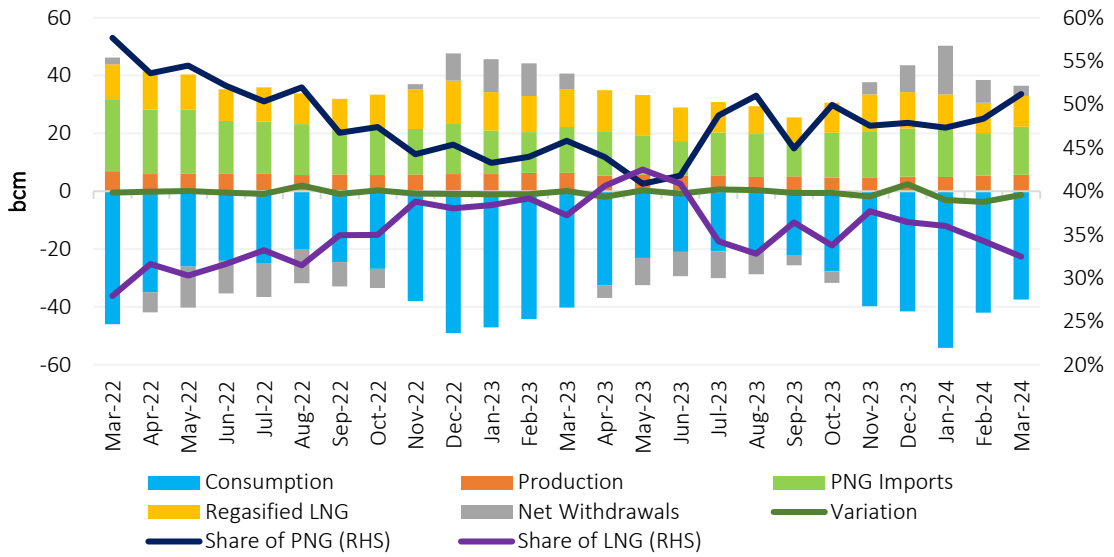
Source: GECF Secretariat based on data from US EIA

6 Gas Balance

6.1 EU + UK

In March 2024, the share of regasified LNG in the gas supply for the combined EU and UK declined to 32%, from 36% in February 2024 and 37% in March 2023. Meanwhile, the share of gas imports via pipelines averaged 51% in March, representing increases from 48% in February and 46% in March 2023 (Figure 112). The m-o-m decrease in the share of regasified LNG send-out and uptick in the share of pipeline gas imports were driven by the stronger increase in pipeline gas imports compared to the rise in regasified LNG send-out. Similarly, the y-o-y increase in the share of pipeline gas imports compared to regasified LNG send-out was due to an increase in pipeline gas imports while LNG send-out fell sharply.

Figure 112: EU + UK monthly gas balance



Note: Variation refers to losses and statistical differences
Source: GECF Secretariat based on data from AGSI+, JODI Gas and Refinitiv

Table 3 below provides data on the gas supply and demand balance for the EU + UK for the month of March 2024.

Table 3: EU + UK gas supply/demand balance for March 2024 (bcm)

	2023	Mar-23	Mar-24	YTD 2023	YTD 2024	Change* y-o-y	Change** 2024/2023
(a) Gas Consumption	380.85	40.20	37.40	131.50	133.50	-7%	2%
(b) Gas Production	63.46	5.87	5.32	17.60	16.31	-9%	-7%
Difference (a) - (b)	317.39	34.33	32.08	113.91	117.19	-7%	3%
PNG Imports	174.88	15.88	16.65	44.94	47.56	5%	6%
Regasified LNG	143.59	12.91	10.55	38.75	33.30	-18%	-14%
Net Withdrawals	-4.86	5.62	3.61	28.23	28.33	-36%	0%
Variation	3.78	-0.07	1.26	1.99	8.00		

Source: GECF Secretariat based on data from AGSI+, JODI Gas and Refinitiv
Note: variation refers to statistical differences and losses
(*): y-o-y change for Mar 2024 compared to Mar 2023
(**): y-o-y change for YTD 2024 compared to YTD 2023

6.2 OECD

Table 4 below provides data on the gas supply and demand balance for all OECD countries, including OECD Americas, OECD Asia Oceania and OECD Europe for the month of December 2023.

Table 4: OECD's gas supply/demand balance for December 2023 (bcm)

	2022	Dec-22	Dec-23	2022	2023	Change* y-o-y	Change** 2023/2022
(a) OECD Gas Consumption	1806.4	192.4	180.6	1806.4	1769.6	-6.1%	-2.0%
(b) OECD Gas Production	1671.8	143.7	149.4	1671.8	1699.8	3.9%	1.7%
Difference (a) - (b)	134.6	48.7	31.3	134.6	69.7	-35.8%	-48.2%
OECD LNG Imports	346.9	34.1	32.0	346.9	329.8	-6.4%	-4.9%
LNG Imports from GECF	161.8	15.6	12.6	161.8	140.8	-19.1%	-13.0%
LNG Imports from Non-GECF	185.1	18.6	19.4	185.1	189.1	4.3%	2.1%
OECD LNG Exports	223.2	19.7	22.0	223.2	238.4	11.3%	6.8%
Intra-OECD LNG Trade	152.7	14.5	16.0	152.7	154.9	10.6%	1.4%
OECD Pipeline Gas Imports	632.0	48.6	45.4	632.0	499.5	-6.5%	-21.0%
OECD Pipeline Gas Exports	565.1	46.2	42.3	565.1	480.4	-8.4%	-15.0%
Stock Changes and losses	56.0	-31.9	-18.2	56.0	40.8		

Source: GECF Secretariat based on data from ICIS LNG Edge and IEA Monthly Gas Statistics
(*): y-o-y change for Dec 2023 compared to Dec 2022
(**): y-o-y change for 2023 compared to 2022

6.3 India

Table 5 below provides data on the gas supply and demand balance for India for the month of February 2024.

Table 5: India's gas supply/demand balance for February 2024 (bcm)

	2023	Feb-23	Feb-24	YTD 2023	YTD 2024	Change* y-o-y	Change** 2024/2023
(a) India Gas Consumption	62.31	4.43	5.33	9.25	10.83	20.4%	17.0%
(b) India Gas Production	35.09	2.60	2.89	5.51	5.97	11.3%	8.4%
Difference (a) - (b)	27.22	1.84	2.45	3.74	4.86	33.2%	29.7%
India LNG Imports	30.27	1.75	2.70	3.72	5.75	54.1%	54.5%
LNG Imports from GECF	23.57	1.56	2.04	3.28	4.61	30.7%	40.3%
LNG Imports from Non-GECF	6.70	0.19	0.66	0.44	1.14	245.9%	161.3%
Stock Changes and losses	3.05	-0.08	0.25	-0.02	0.89		

Source: GECF Secretariat based on data from ICIS LNG Edge and India's PPAC
(*): y-o-y change for Feb 2024 compared to Feb 2023
(**): y-o-y change for YTD 2024 compared to YTD 2023

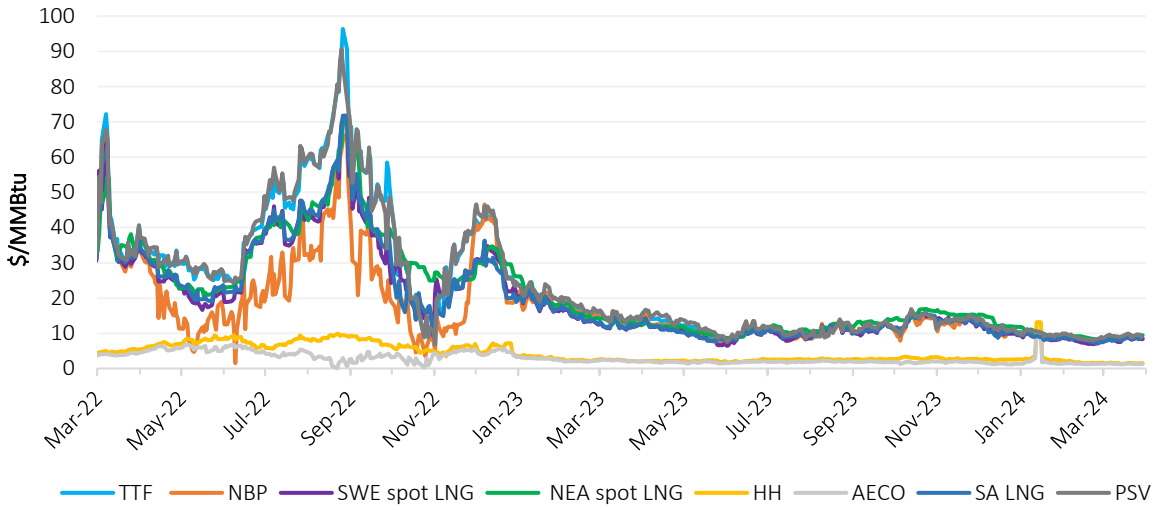
7 Energy Prices

7.1 Gas prices

7.1.1 Gas & LNG spot prices

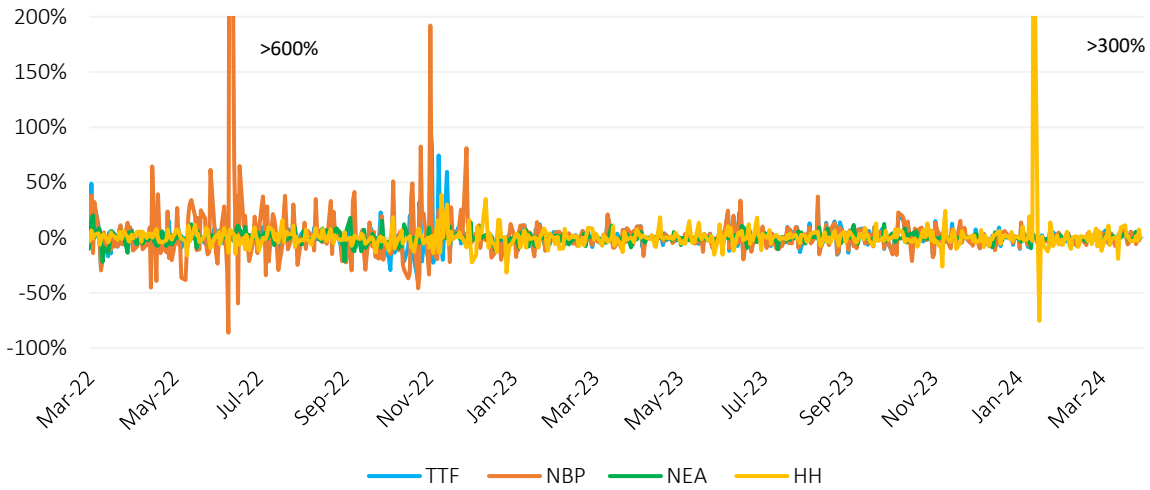
In March 2024, gas and LNG spot prices in Europe and Asia experienced an uptick, following a three-month period of decline, with volatility remaining relatively low (Figure 113 and Figure 114). This rise in spot prices was primarily attributed to projections of colder weather and multiple outages on the UK Continental Shelf (UKCS) and Norwegian gas fields. Additionally, supply constraints in the US, notably the maintenance of Freeport LNG Trains 2 and 3 scheduled until May 2024, contributed to a more bullish sentiment. Looking ahead, it is anticipated that increased demand from price-sensitive countries in South and Southeast Asia will bolster prices in the forthcoming months.

Figure 113: Daily gas & LNG spot prices



Source: GECF Secretariat based on data from Argus and Refinitiv Eikon
Note: SA LNG price is an average of the LNG delivered prices for Argentina, Brazil and Chile based on Argus assessment.

Figure 114: Daily variation of spot prices

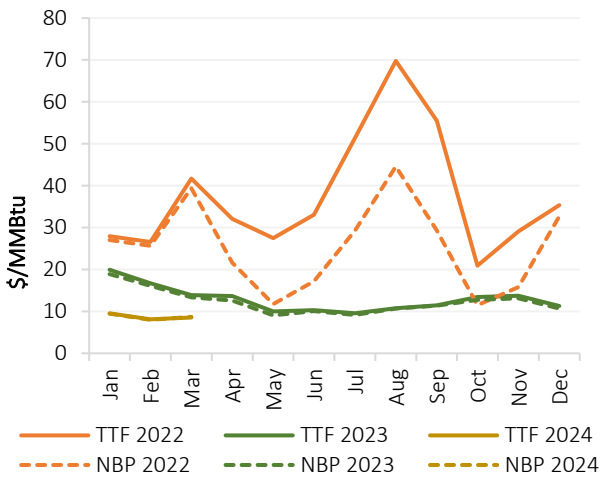


Source: GECF Secretariat based on data from Argus and Refinitiv Eikon

7.1.1.1 European spot gas and LNG prices

In March 2024, TTF spot gas prices averaged $8.51/MMBtu, reflecting a 5% increase m-o-m, but remained 35% lower y-o-y. In addition, NBP spot prices averaged $8.67/MMBtu, reflecting a 9% increase m-o-m and a 35% decrease y-o-y (Figure 115). The SWE spot LNG prices averaged $8.17/MMBtu in March 2024 (8% increase m-o-m and 33% decrease y-o-y). In addition, the PSV spot price averaged $9.27/MMBtu in March 2024 (6% increase m-o-m and 37% decrease y-o-y).

Figure 115: Monthly European spot gas prices



Source: GECF Secretariat based on data from Refinitiv Eikon

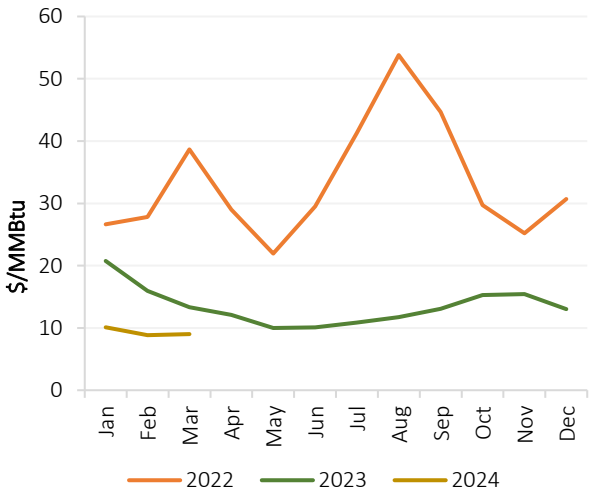
European gas and LNG spot prices experienced an increase after declining for three consecutive months. This uptick was primarily driven by forecasts of colder weather, coupled with multiple outages on the UKCS and Norwegian gas fields in mid-March. However, by the end of the month, supplies had largely returned to normal. Daily TTF spot prices peaked at $9.14/MMBtu during this period.

From January to March 2024, TTF and NBP averaged $8.72/MMBtu and $8.71/MMBtu, respectively, representing substantial declines of 48% and 46% y-o-y, respectively.

7.1.1.2 Asian spot LNG prices

In March 2024, the average North East Asia (NEA) spot LNG price experienced a slight uptick by 2% m-o-m, reaching an average of $9.01/MMBtu. This represents a 33% decline y-o-y (Figure 116).

Figure 116: Monthly Asian spot LNG prices



Source: GECF Secretariat based on data from Argus and Refinitiv Eikon

Asian LNG prices tracked gains in European hub prices. Moreover, forecasts of colder weather in several countries, including South Korea and Japan, spurred buying interest. Supply constraints in the US, notably Freeport LNG Trains 2 and 3, undergoing maintenance until May 2024, likely contributed to a more bullish sentiment. Daily NEA spot LNG prices peaked at $9.65/MMBtu during the month.

From January to March 2024, the average NEA spot LNG price stood at $9.32/MMBtu, representing a 44% y-o-y decrease.

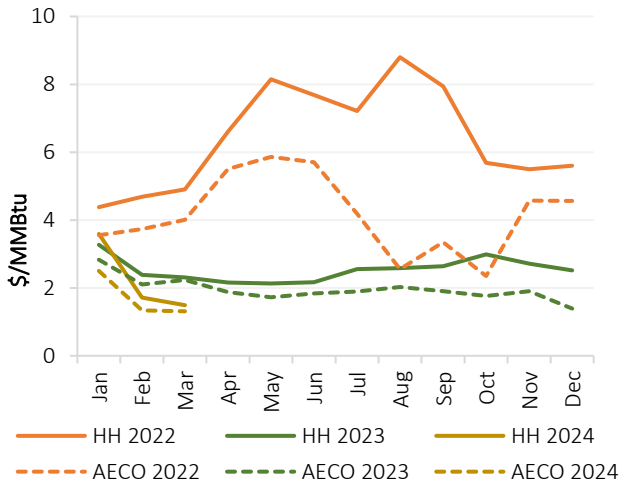
7.1.1.3 North American spot gas prices

In March 2024, the HH spot gas price averaged $1.49/MMBtu, reflecting a decline of 13% m-o-m. Additionally, it was 35% lower than the average price of $2.31/MMBtu observed in March 2023. (Figure 117).

Henry Hub prices declined for the second consecutive month, influenced by mild weather and high storage levels. Furthermore, daily HH spot prices dropped to multi-year lows, reaching $1.25/MMBtu on March 13, 2024. This marked its lowest level since December 1998.

Similarly, in Canada, the AECO spot price averaged $1.31/MMBtu in March 2024, reflecting a decrease of 2% m-o-m and 41% y-o-y.

Figure 117: Monthly North American gas spot prices



Source: GECF Secretariat based on data from Argus and Refinitiv Eikon

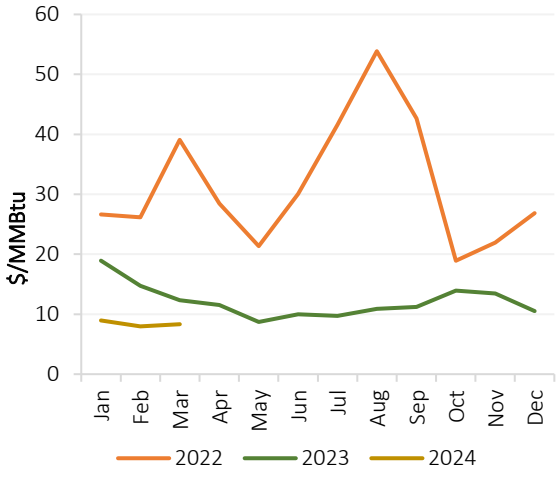
From January to March 2024, the HH spot price averaged $2.66/MMBtu, representing a decline of 15% y-o-y. Meanwhile, the AECO spot price averaged $1.72/MMBtu, marking a 28% y-o-y decrease.

7.1.1.4 South American spot LNG prices

In March 2024, the South American (SA) LNG price experienced a 4% m-o-m increase, averaging $8.31/MMBtu. Additionally, the SA LNG price was 33% lower compared to the average price of $12.32/MMBtu observed in March 2023 (Figure 118).

LNG spot prices in South America continued to align with the trends observed in European and Asian spot prices. The average delivered prices for LNG in Argentina, Brazil and Chile averaged $8.33/MMBtu, $8.15/MMBtu and $8.46/MMBtu, respectively.

Figure 118: Monthly South American LNG spot prices



Source: GECF Secretariat based on data from Argus
Note: SA LNG price is an average of the LNG delivered prices for Argentina, Brazil and Chile based on Argus assessment

7.1.2 Spot and oil-indexed long-term LNG price spreads

In March 2024, the average Oil-indexed I LNG price was $12.82/MMBtu, reflecting declines of 1% m-o-m and 4% y-o-y. Similarly, the Oil-indexed II LNG price averaged $9.67/MMBtu, reflecting a 1% increase m-o-m and a 1% decrease y-o-y (Figure 119). Furthermore, Oil-indexed I prices traded an average premium of $4/MMBtu over NEA spot LNG prices. Additionally, Oil-indexed II prices held an average premium of $1/MMBtu over the NEA spot LNG prices.

In Europe, the Oil-indexed III price averaged $8.41/MMBtu in March 2024, being relatively stable m-o-m, but remained 1% lower y-o-y (Figure 120). Moreover, the average Oil-indexed III price held a slight premium of less than $1/MMBtu over the average SWE LNG price.

From January to March 2024, the Oil-indexed I LNG price exhibited a 5% decrease y-o-y, while the Oil-indexed II LNG price showed a 2% decrease y-o-y. Additionally, the Oil-indexed III LNG price for the same period was 9% lower y-o-y.

Figure 119: Asia: Spot and oil-indexed price spread

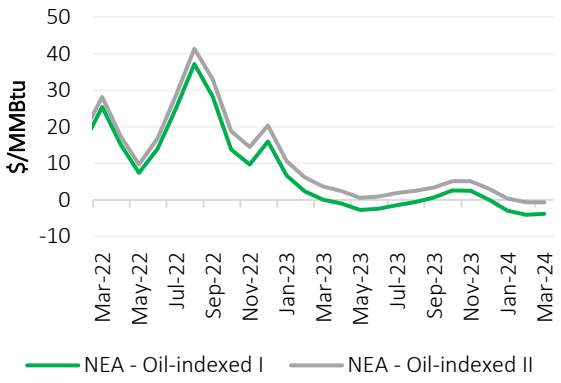
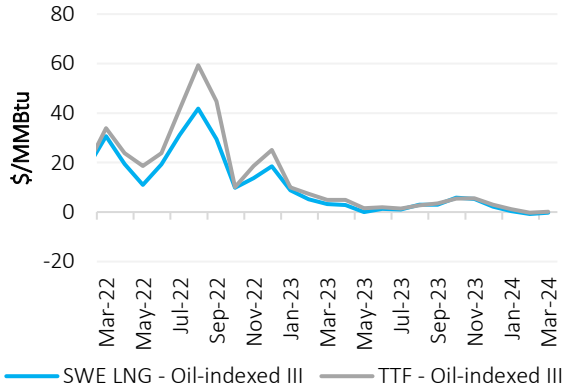


Figure 120: Europe: Spot and oil-indexed price spread



Source: GECF Secretariat based on data from Argus and Refinitiv Eikon
Note: Oil-indexed I LNG prices are calculated using the traditional LTC slope (14.9%) and 6-month historical average of Brent. Oil-indexed II LNG prices are calculated using the 5-year historical average LTC slope (11.4% for 2024) and 3-month historical average of Brent. Oil-indexed III LNG prices are based on Argus' assessment for European oil-indexed long-term LNG prices.

7.1.3 Regional spot gas & LNG price spreads

In March 2024, the NEA-TTF price spread remained positive, and decreased slightly compared to the previous month. The average premium of NEA LNG spot price over the average TTF spot price was $0.50/MMBtu. Both benchmark prices experienced similar upward movement during the month (Figure 121).

NBP traded at a premium of $0.16/MMBtu compared to TTF, for the first time since May 2021 (Figure 122). Although the NBP-TTF spread turned slightly positive, pipeline gas flows through the IUK and BBL were minimal as both markets were balanced.

Furthermore, the NWE LNG-TTF spread remained negative, with the NWE LNG spot price trading at a discount of $0.34/MMBtu compared to TTF, indicating high LNG sendout in the region (Figure 123). The NWE LNG-SA LNG price spread was negative, averaging $0.14/MMBtu (Figure 124). Meanwhile, the NEA-HH and TTF-HH spreads both widened to $7.52/MMBtu and $7.02/MMBtu, respectively (Figure 125 and Figure 126). The premium of the Asian and European spot prices over North American spot prices increased during the month.

Figure 121: NEA-TTF price spread

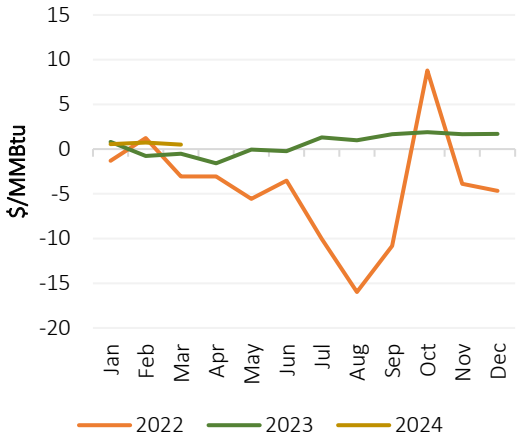


Figure 122: NBP-TTF price spread

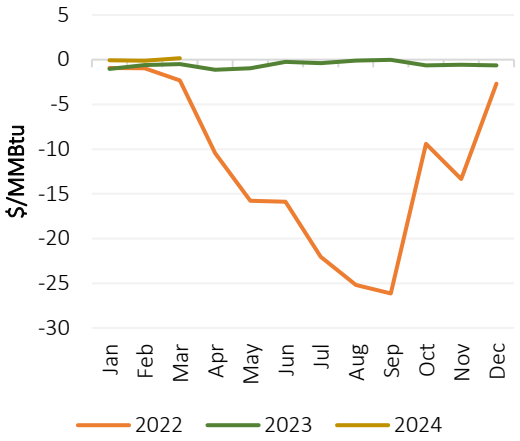


Figure 123: NWE LNG-TTF price spread

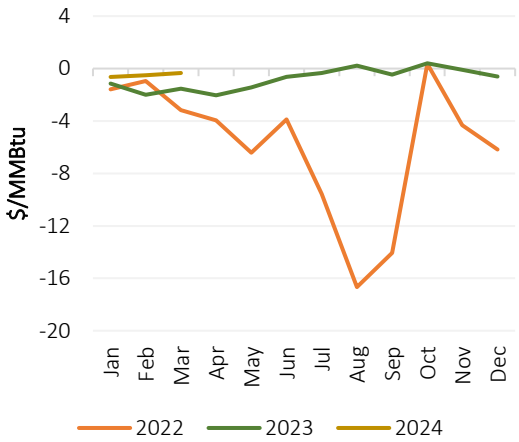


Figure 124: NWE LNG – SA LNG price spread

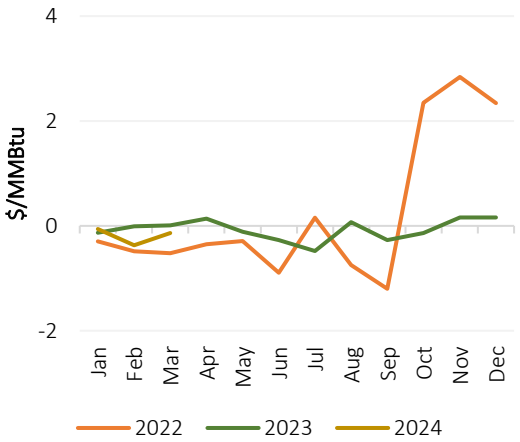


Figure 125: NEA-HH price spread

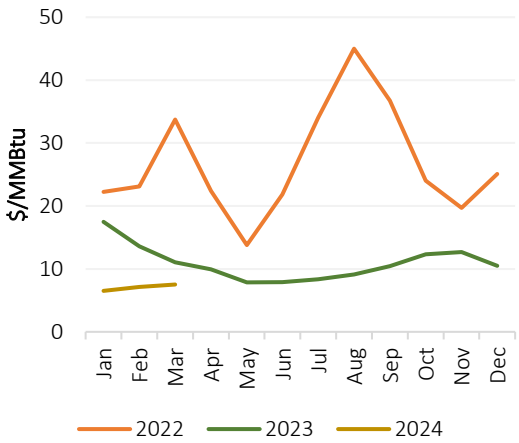
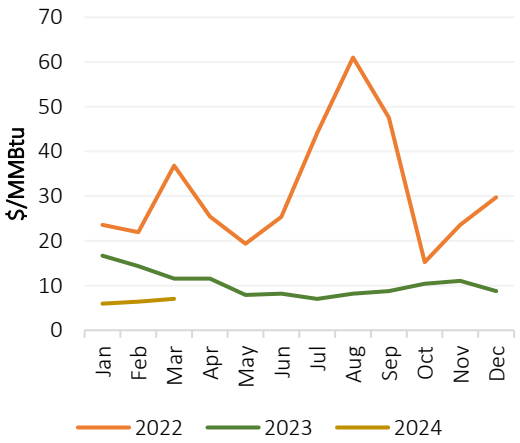


Figure 126: TTF-HH price spread



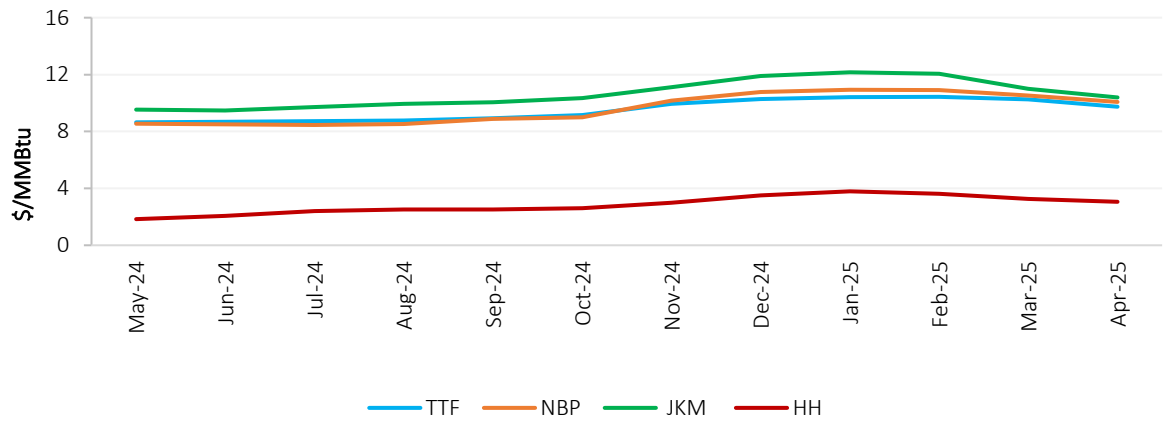
Source: GECF Secretariat based on data from Argus and Refinitiv Eikon

7.1.4 Gas & LNG futures prices

For the six-month period spanning May to October 2024, the JKM-TTF futures price spread is expected to remain positive, reflecting the likelihood for Asian LNG prices to maintain a premium over European spot prices. Over this period, JKM is expected to trade at an average premium of $1/MMBtu compared to TTF. Additionally, the NBP-TTF spread is expected to be negligible in the same six-month period, with both prices converging (Figure 127).

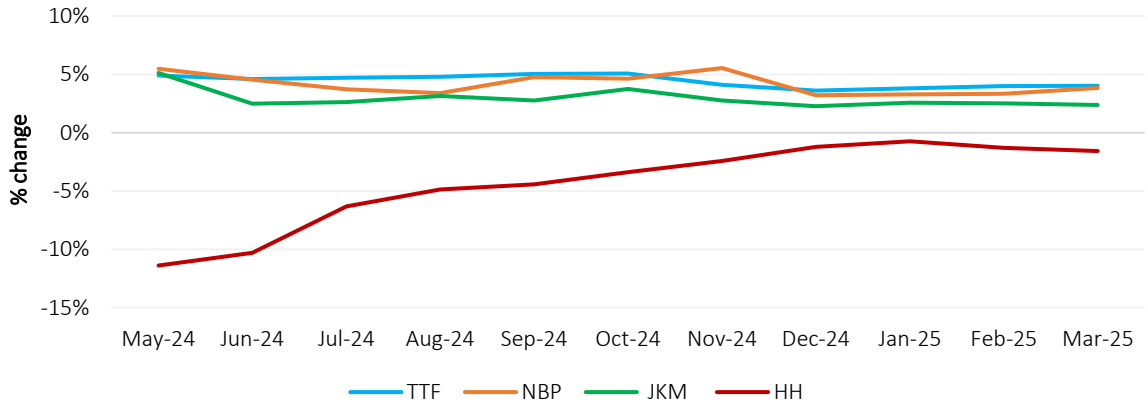
Moreover, gas and LNG futures prices for TTF, NBP and JKM for the six-month period from May to October 2024, (as of April 2, 2024) are higher than the futures prices expectations considered on March 5, 2024 (as reported in the GECF MGMR March 2024). Moreover, as of April 2, 2024, the average futures prices for TTF, NBP and JKM during the same six-month period are $8.82/MMBtu, $8.65/MMBtu and $9.85/MMBtu, respectively. Meanwhile, the average HH futures price is $2.32/MMBtu, which is slightly lower than previous expectations (Figure 128).

Figure 127: Gas & LNG futures prices



Source: GECF Secretariat based on data from Refinitiv Eikon
Note: Futures prices as of April 2, 2024.

Figure 128: Variation in gas & LNG futures prices



Source: GECF Secretariat based on data from Refinitiv Eikon
Note: Comparison with the futures prices as of March 5, 2024, as reported in GECF MGMR March 2024.

7.2 Cross commodity prices

7.2.1 Oil prices

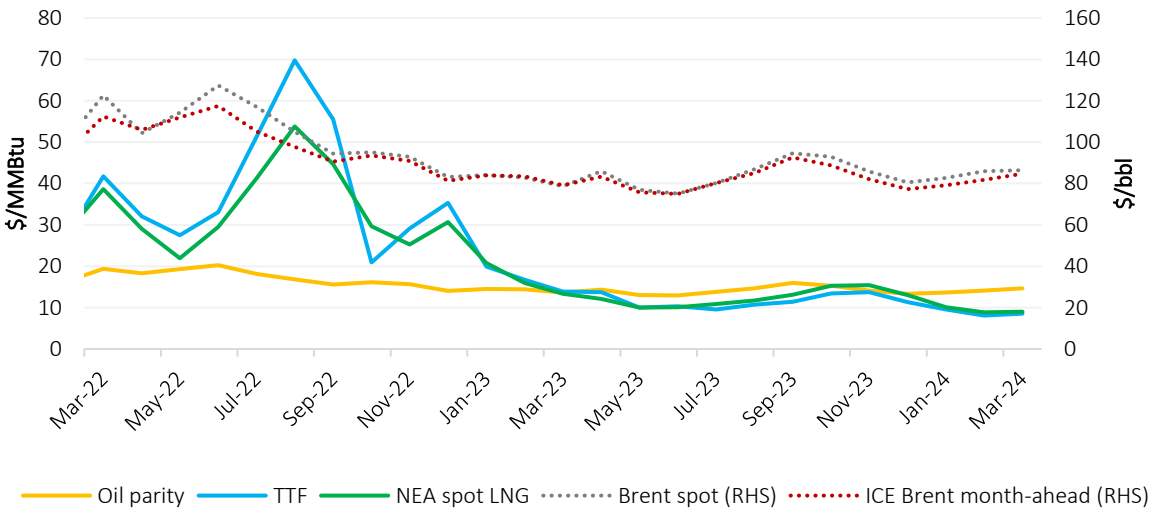
In March 2024, the average Brent spot price was $86.36/bbl, reflecting increases of 1% m-o-m and 10% y-o-y (Figure 129). The Brent month-ahead price averaged $84.67/bbl, marking a 4% increase m-o-m and a 7% increase y-o-y.

Oil prices increased for the third consecutive month amid escalating geopolitical tensions, expectations of tighter supply and increased demand growth. Additionally, daily Brent month-ahead prices reached a high of $87.48/bbl, marking its highest level since October 2023.

Furthermore, in March 2024, TTF spot prices traded at a discount to the oil parity price of $6/MMBtu, compared to the previous month. Similarly, NEA LNG spot prices maintained a discount of $6/MMBtu to the oil parity price.

From January to March 2024, the average Brent spot price was $85.00/bbl, representing a 5% increase y-o-y. Similarly, the average Brent month-ahead price was $81.85/bbl, representing a 1% increase y-o-y.

Figure 129: Monthly crude oil prices



Source: GECF Secretariat based on data from Argus and Refinitiv Eikon
Note: Conversion factor of 5.8 was used to calculate the oil parity price in $/MMBtu based on the ICE Brent month-ahead price.

7.2.2 Coal prices

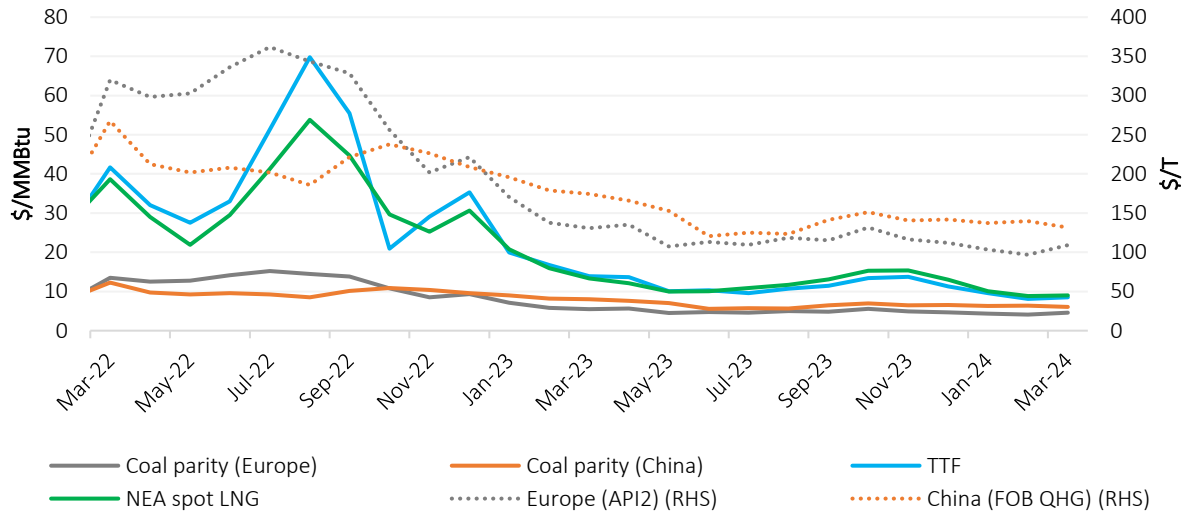
In March 2024, the European coal price (API2) averaged $109.24/T, increasing significantly by 13% m-o-m, but was 16% lower y-o-y. Meanwhile, in China, the QHG coal price averaged $131.78/T, reflecting 2% decline m-o-m and a 25% decrease y-o-y (Figure 130).

European coal prices rose after several bearish months, mirroring gains in European gas prices. This uptick may have also been influenced by the Baltimore Bridge disaster, which affected the shipping exports of coal.

The premium of TTF spot price over the API2 parity price remained at approximately $4/MMBtu in March 2024. Additionally, the premium of NEA spot LNG price over the QHG parity price increased by 22% m-o-m to $3/MMBtu.

From January to March 2024, the European API2 averaged $103.20/T, representing a 29% decrease y-o-y. Meanwhile, the Chinese QHG price averaged $136.27/T, which was 26% lower y-o-y.

Figure 130: Monthly coal parity prices



Source: GECF Secretariat based on data from Argus and Refinitiv Eikon
Note: Conversion factors of 23.79 and 21.81 were used to calculate the coal prices in $/MMBtu for Europe (API2) and China (QHG) respectively.

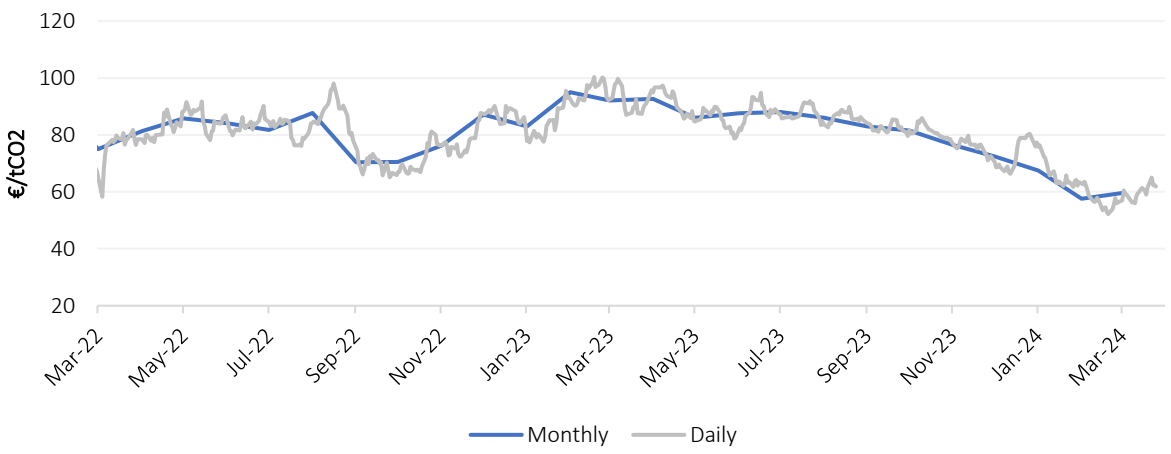
7.2.3 Carbon prices

In March 2024, EU carbon prices averaged €59.62/tCO_2, reflecting a 3% increase m-o-m, and a 35% decline y-o-y (Figure 131).

EU carbon prices experienced a modest rebound following a steady decline since August 2023, with daily prices reaching €65/tCO_2. Moreover, carbon prices largely tracked gains in TTF spot prices throughout the month.

From January to March 2024, EU carbon prices averaged €61.55/tCO2, representing a decline of 32% y-o-y.

Figure 131: EU carbon prices

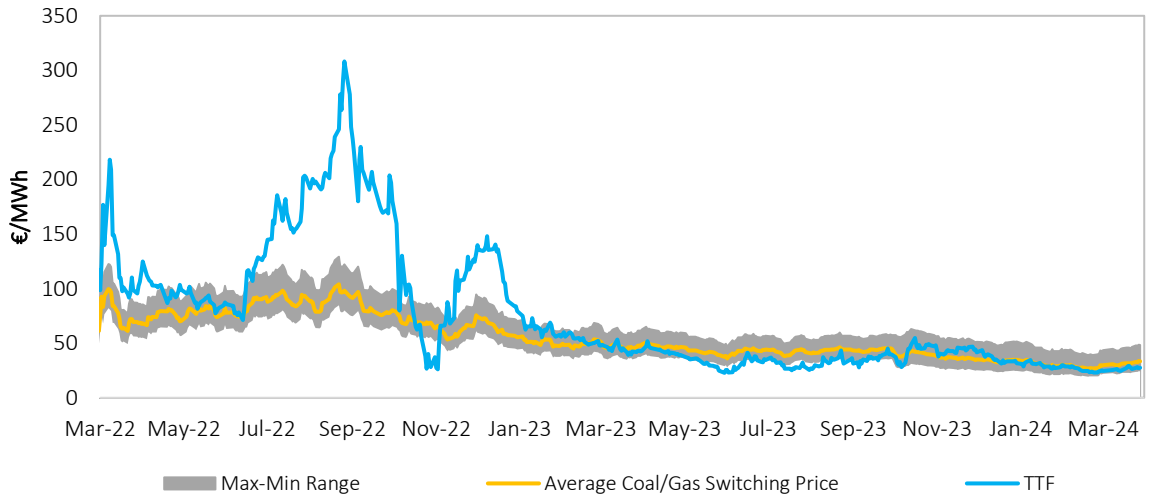


Source: GECF Secretariat based on data from Refinitiv Eikon

7.2.4 Fuel switching

In March 2024, daily TTF spot prices stayed within the range that is favourable for coal-to-gas switching. The average coal-to-gas switching price experienced an increase of 11% m-o-m to reach €31.34/MWh. The TTF spot prices also increased slightly during the month. However, the monthly spread between the TTF spot price and the coal-to-gas switching price became more negative compared to the previous month, averaging -€5/MWh (Figure 132). Looking ahead to May 2024, the TTF spot price is likely to remain below the average coal-to-gas switching price, potentially encouraging coal-to-gas switching in Europe.

Figure 132: Daily TTF vs coal-to-gas switching prices



Source: GECF Secretariat based on data from Refinitiv Eikon
Note: Coal-to-gas switching price is the price of gas at which generating electricity with coal or gas is equal. The estimate takes into consideration coal prices, CO2 emissions prices, operation costs and power plant efficiencies. The efficiencies considered for gas plants are max: 56%, min: 46%, avg: 49.13%. The efficiencies considered for coal plants are max: 40%, min: 34%, avg: 36%.

8 Abbreviations

Abbreviation	Explanation
AE	Advanced Economies
AECO	Alberta Energy Company
bcm	Billion cubic metres
bcma	Billion cubic metres per annum
bcm/yr	Billion cubic metres per year
CBAM	Carbon Border Adjustment Mechanism
CBM	Coal bed methane
CCS	Carbon, Capture and Storage
CCUS	Carbon Capture, Utilization and Storage
CDD	Cooling Degree Days
CNG	Compressed Natural Gas
CO_2	Carbon dioxide
CO_{2e}	Carbon dioxide equivalent
CPI	Consumer Price Index
DOE	Department of Energy
EC	European Commission
ECB	European Central Bank
EEXI	Energy Efficiency Existing Ship Index
EMDE	Emerging Markets and Developing Economies
EU	European Union
EU ETS	European Union Emissions Trading Scheme
EUA	European Union Allowance
Fed	Federal Reserve
FID	Final Investment Decision
FSU	Floating Storage Unit
FSRU	Floating Storage Regasification Unit

G7	Group of Seven
GDP	Gross Domestic Product
GECF	Gas Exporting Countries Forum
GHG	Greenhouse Gas
HDD	Heating Degree Days
HH	Henry Hub
IEA	International Energy Agency
IMF	International Monetary Fund
IMO	International Maritime Organization
JKM	Japan Korea Marker
LNG	Liquefied Natural Gas
LAC	Latin America and the Caribbean
LT	Long term
MMBtu	Million British thermal units
mmcm	Million cubic metres
MENA	Middle East and North Africa
METI	Ministry of Trade and Industry in Japan
m-o-m	month-on-month
Mt	Million tonnes
Mtpa	Million tonnes per annum
MWh	Megawatt hour
NEA	North East Asia
NBP	National Balancing Point
NDC	Nationally Determined Contribution
NGV	Natural Gas Vehicle
NZBA	Net-Zero Banking Alliance
OECD	Organization for Economic Co-operation and Development
PNG	Pipeline Natural Gas

PPAC	Petroleum Planning & Analysis Cell
PSV	Punto di Scambio Virtuale (Virtual Trading Point in Italy)
QHG	Qinhuangdao
R-LNG	Regasified LNG
SA	South America
SPA	Sales and Purchase Agreement
SWE	South West Europe
T&T	Trinidad and Tobago
TANAP	Trans-Anatolian Natural Gas Pipeline
TCFD	Task Force on Climate-Related Financial Disclosure
Tcm	Trillion cubic metres
tCO2	Tonne of carbon dioxide
TTF	Title Transfer Facility
TWh	Terawatt hour
UGS	Underground Gas Storage
UAE	United Arab Emirates
UK	United Kingdom
UQT	Upward Quantity Tolerance
US	United States
y-o-y	year-on-year

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