

Natural Gas in Europe

October, 2022

Creating Opportunities

Key messages

- For next winter, if Russia keeps providing some gas at current rates (Ukraine transit and Turkstream pipelines at a total of 30% capacity and LNG at 100%), there should not be a lack of gas at EU level. Reserves accumulated so far (96 bcm) would cover the needs. In particular, assuming:
 - Current flow of imports from outside the EU (which have increased a 30%, mainly from Norway and LNG)
 - Normal weather and
 - A conservative 5% reduction in household and industrial consumption (so far this year consumption has been reduced by 5.6% from normal levels because of higher prices)

... reserves in 12 months' time would still be around 60 bcm, which would even make the 2024 winter manageable

- In a more adverse scenario, in which Europe would only receive its LNG from Russia (a realistic scenario as if Russia stopped sending LNG to the EU and sent it to other countries, the EU would end up importing surplus LNG from these countries) there would be enough gas for the winter of 2023, but additional rationing would be needed for 2024
 - Preparing for winter 2024 is one of the reasons why the EU wants to further adjust consumption (EU countries agreed to cut gas consumption by 15% by next spring) and even impose rationing measures

Key figures: in the last years Russia provided 41% of EU gas consumption



Composition of imports from outside Russia

Prospects for the next 12 months: Under conservative assumptions on more alternatives, scenarios depend on what Russia does, with a gap to be covered by current gas reserves and measures to cut consumption



GERMANY GAS RESERVES AS OF 2ND OF OCTOBER

For next winter and under normal temperatures, the potential gap (prior to a decline in consumption) up to 75-95 bcm can be filled by current reserves (~ 96 bcm)

EU GAS RESERVES AS OF 2ND OF OCTOBER (BCM)



(BCM)

Source: BBVA Research, Bruegel, EUROSTAT, ENTSOG (European Network of Transmission System Operators for Gas).

In the first half of 2022 natural gas consumption was significantly reduced (-5.6% in 22H1 vs 2017-2021 H1 average) mainly due to the increase in the price of gas

NATURAL GAS CONSUMPTION OBSERVED IN THE EU: JANUARY TO JUNE (BCM, % CHANGE VS. 2017-2021 AVG.)





- According to the IEA, most of this drop occurred in the industries and households (but not in gas consumption for power generation). This means that a reduction in household and industrial gas consumption for the next 12 months of 5%/10% vs 2017-2021 average is reasonable, implying 15/30 bcm less gas consumption
- Adding lower gas consumption (20/30 bcm) for power generation through the use of alternative energy sources (renewables + coal) would mean a reduction of gas consumption of 35/60 bcm (-8.7%/-15% of the EU annual consumption) in line with the EU agreement to cut gas consumption by 15% by next spring vs 2017-2021 average^o

Source: BBVA Research, Bruegel, EUROSTAT, ENTSOG (European Network of Transmission System Operators for Gas).

Prospects for reserves: natural gas reserves would be sufficient for at least the next 12 months



- Under normal weather conservative assumptions on imports from outside Russia and a reduction of consumption in line with the EU agreement, the reserves would be manageable for this year, and depending on what Russia does for the winter of 2024
- As the LNG market is an interconnected global market, if Russia stopped sending LNG to the EU and sent it to other countries, the EU would end up importing surplus LNG from these countries. This would bring Russia's total imports down to 20 bcm from the original 164 bcm

Source: BBVA Research, Bruegel, EUROSTAT, ENTSOG (European Network of Transmission System Operators for Gas).



Update of recent news and figures

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Latest Events

- Nord Stream pipeline suffered four ruptures in international waters in the economic areas of Denmark and Sweden. Western allies called the action a sabotage, increasing concerns over regional infrastructure security
- Russia said it could send gas flow to Europe through Nord Stream 2 eventually
- Gazprom resumed gas flow to Italy via Austria
- Russia further threatened to cut gas flows through the Ukraine pipeline
- The European Commission is working on three measures ahead of the next Council on Oct 20th: a
 corridor of decent gas prices with our reliable suppliers, with talks underway with Norwegian companies;
 a limit on the market price of gas, taking out the peaks and speculation at the TTF level; and a partial
 decoupling of gas prices in the formation of power prices
- Gas reserves increased in the EU in the last week at a similar pace to the average of past years
- Gas imports were lower in the last week than in previous years because the increase in gas from other sources (LNG, Norway, Algeria) does not fully compensate for the closure of NS1
- Strong increase in consumption in France and Germany in the last week. The head of the German network regulator warned that the gas consumption remains too high: "we will struggle to avoid a gas emergency this winter without at least 20% savings in private households, businesses and industry"

Gas prices declined across the board as high levels of gas storage and the open option to use Nord Stream 2 offset recent supply issues

NATURAL GAS PRICES IN DIFFERENT MARKETS (First future prices EUR/MWH*)



*Conversion 1 MWH equal to 34.09511 thn or 3,412 MMBtu

Source: BBVA Research.

NATURAL GAS PRICES IN SELECTED MARKETS (EUR/MWH)



	Dutch TTF	MDO Iberico	UK (NBP)	LNG JKM	US HH
1W Change	-6%	0%	25%	-11%	2%
YTD	151%	27%	78%	33%	120%

European gas future prices in a narrow range (€ 180-170 MWH) until the spring of 2024

DUTCH TTF NATURAL GAS FUTURES EUR/MWH*)



NATURAL GAS FUTURES IN SELECTED MARKETS (EUR/MWH*)



*Conversion 1 MWH equal to 34.09511 thn or 3,412 MMBtu

Source: BBVA Research.

In the week up to 2 Oct, reserves increased in a similar way as in previous years, while in September they increased more (even with Nord Stream 1 closed)



EU GAS RESERVES: EVOLUTION IN THE LAST FOUR

EU GAS RESERVES AS OF 2ND OF OCTOBER (BCM)



 As gas imports in the last weeks are lower than in previous years, lower gas consumption than in previous years explains the better evolution of reserves

Source: BBVA Research, Bruegel, EUROSTAT, ENTSOG (European Network of Transmission System Operators for Gas), GIE (Gas Infrastructure Europe)

Gas reserves in Germany and France follow the same pattern

GERMANY GAS RESERVES AS OF 2ND OF OCTOBER (BCM)

FRANCE GAS RESERVES AS OF 2ND OF OCTOBER (BCM)



... and in Spain and (to a lower extent) in Italy

ITALY GAS RESERVES AS OF 2ND OF OCTOBER (BCM)

SPAIN GAS RESERVES AS OF 2ND OF OCTOBER (BCM)



Lately, gas imports are lower than in previous years due to the decline of Russian gas (shutdown of Nord Stream 1), no longer compensated by other suppliers



IMPORTS FROM ARGELIA





LNG IMPORTS



IMPORTS FROM NORWAY



OTHERS IMPORTS



Turkstream and Ukrainian transit are the only pipelines from Russia currently open



UKRAINE TRANSIT



YAMAL (VIA BELARUS)



TURKSTREAM (VIA TURKEY)

NORD STREAM 1 PIPELINE



Source: BBVA Research, Bruegel, ENTSOG, EUROSTAT. For 2022, the latest available data are from week 39: 26th Sep - 2nd Oct. Others correspond mainly to Azerbaijan

Consumption of natural gas increased significantly in Germany in the last week of September

GERMANY: GAS CONSUMPTION (GWh/day - MA7)



FRANCE: GAS CONSUMPTION (GWh/day - MA7)



Source: BBVA Research

12-Dec

27-Dec

However, in Italy and Spain consumption fell



ITALY: GAS CONSUMPTION (GWh/day - MA7)

SPAIN: GAS CONSUMPTION (GWh/day - MA7)

Italy	Last week	Last 4 weeks	YTD	Spain	Last week	Last 4 weeks	YTD
vs 2021	-16%	-16%	-4%	2022 vs 2021	-15%	-7%	4%
vs average last 4 years	-14%	-15%	-2%	2022 vs average last 4 years	-15%	-7%	2%

Source: BBVA Research

2022 2022

Weather: forecasts show a ~50% probability of a November temperature in Europe in the upper tercile of the period 1993-2016

EUROPE: TEMPERATURE FORECAST FOR NOV22 (RELATIVE TO THE OBSERVED CLIMATE FOR 1993-2016) **AS OF OCT22**



EUROPE: TEMPERATURE FORECAST FOR DEC22 (RELATIVE TO THE OBSERVED CLIMATE FOR 1993-2016) **AS OF OCT22**



- However, the director-general of the European Centre for Medium-Range Weather Forecasts (ECMWF), said early indications for November and December were for a period of high pressure over western Europe, which was likely to bring with it colder spells and less wind and rainfall
- The graphs shows the probability of the temperature being above/below the lower/upper tercile for the period 1993-2016
- Long term predictions rely on aspects of Earth system variability which have long time scales (months to years) and are, to a certain extent, predictable. The most important of these is the ENSO (El Nino Southern Oscillation)

Source: BBVA Research, ECMWF (European Centre for Medium-range Weather Forecasts)

Weather: there are indications that in Northern Europe it could rain less in November and December

EUROPE: PRECIPITATION FORECAST FOR NOV22 (RELATIVE TO THE OBSERVED CLIMATE FOR 1993-2016) **AS OF OCT22**



EUROPE: PRECIPITATION FORECAST FOR DEC22 (RELATIVE TO THE OBSERVED CLIMATE FOR 1993-2016) **AS OF OCT22**



- The graphs shows the probability of the precipitation being above/below the lower/upper tercile for the period 1993-2016
- Long term predictions rely on aspects of Earth system variability which have long time scales (months to years) and are, to a certain extent, predictable. The most important of these is the ENSO (El Nino Southern Oscillation)



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