Gas and power market analysis

August 2020

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Market Summary

The **NBP** Month Ahead contract averaged **$1.40/MMBtu** in May, its lowest level in over 15 years (NBP: €4.50/MWh, 12p/th).

Robust imports and slow demand recovery has resulted in record seasonal storage levels, supressing prices:

Demand recovery: Although COVID-19 related control measures are easing globally, various restrictions remain in place, limiting demand recovery:

- **LNG imports in several countries begin recovery**, but have remained low as pandemic related restrictions reduce energy demand. This has compounded an already well supplied situation and US LNG exports have dropped.
- **Across Europe** power demand and industrial demand for gas have started to recover as control measures aimed at limiting the spread of the coronavirus are lifted.

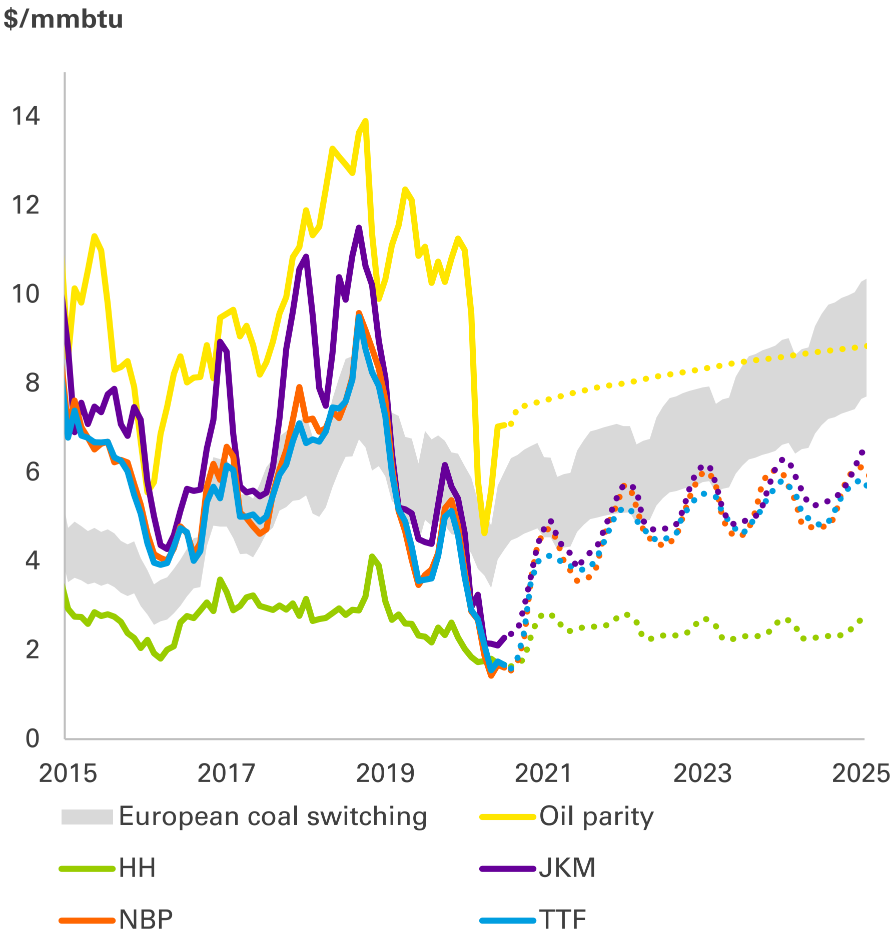
- **European pipeline flows soften:** Russia pipeline flows to Europe were down 19% in June relative to the same time last year, driving a decrease in European pipeline flows.
- **Record seasonal storage levels:** European gas storage levels have been above historic levels since mid-2019 and have remained high throughout 1H20.

Source: BP Analysis

Gas prices reach historic lows in 2Q20

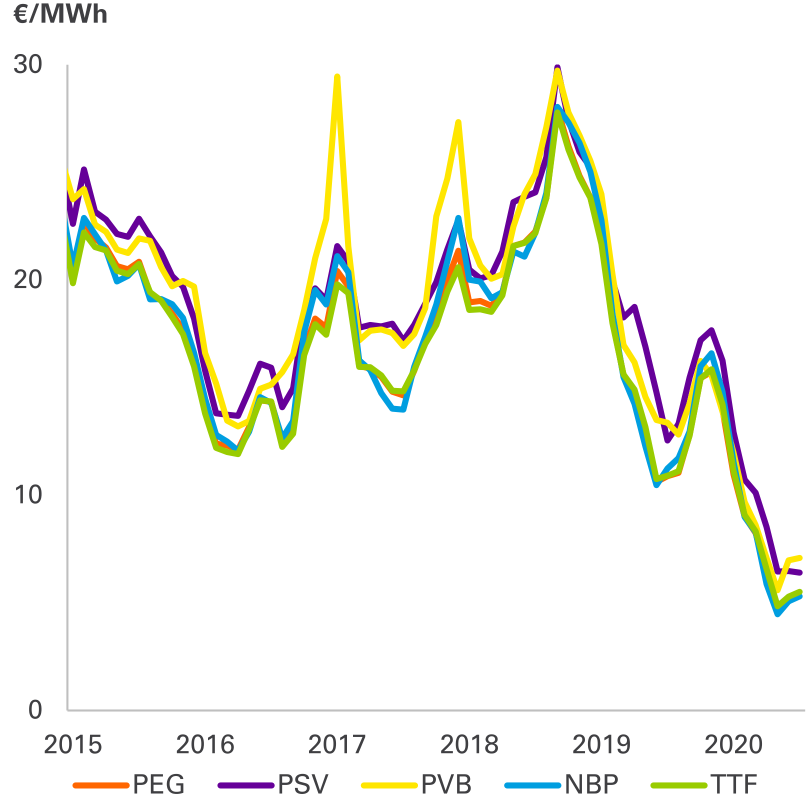
- NBP, TTF and JKM reached historic lows in May-20, with the monthly average price ~65% lower than Dec-19.
- TTF averaged **$1.8/MMBtu** in 2Q20, down **60%** YoY.
- The drop in prices comes against a backdrop of strong gas supplies, record high storage levels, and weak demand due to the spread of COVID-19.

Global gas benchmarks



Futures as of 21/07/2020

European gas benchmarks



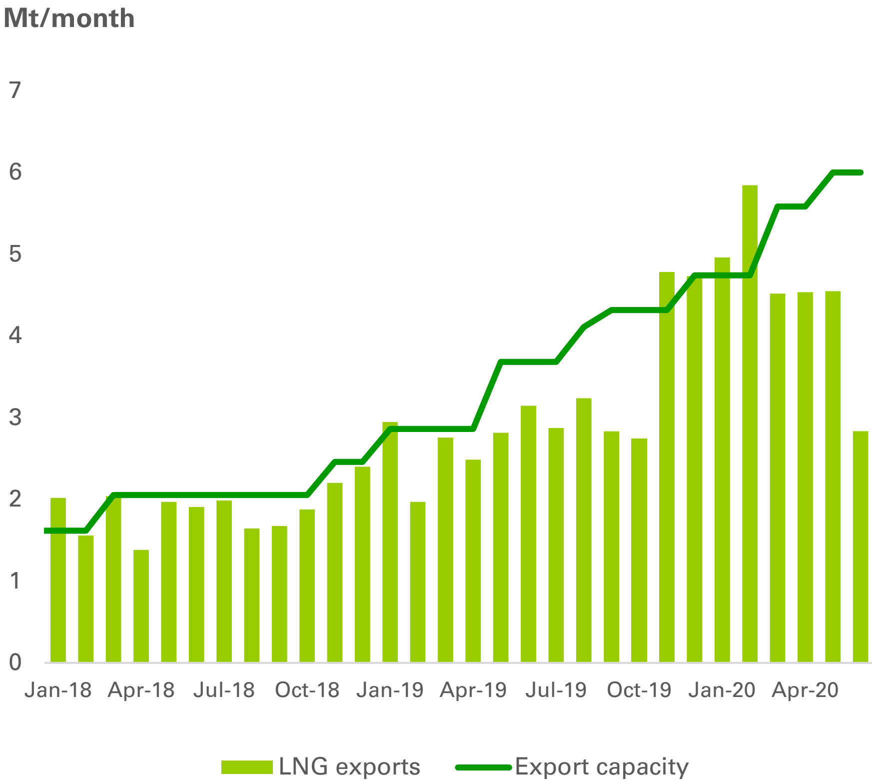
PEG = French gas
PSV = Italian gas
PVB = Spanish gas
NBP = British gas
TTF = Dutch gas

Source: NYMEX, ICE, Heren, S&P Global Platts ®

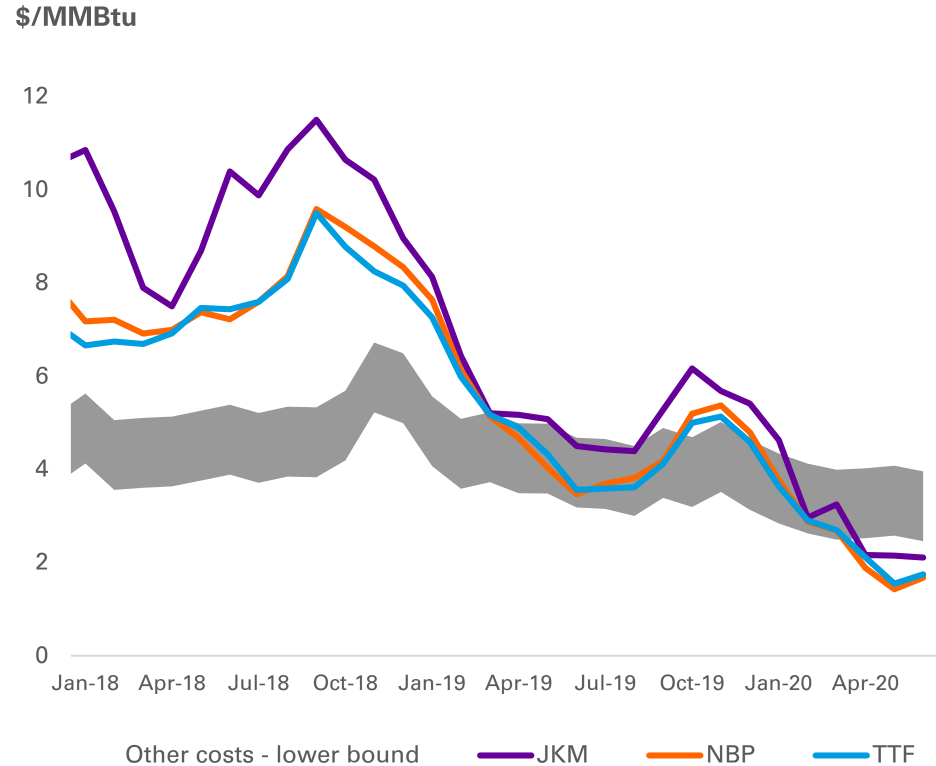
As gas prices stay low, US producers shut-in LNG

- Reports indicate various LNG shipments from US terminals have been cancelled during June and July 2020 as low gas prices make shipping the LNG uneconomic.
- LNG exports from the US in June were less than 50% of nameplate capacity.

US LNG exports & export capacity



LNG costs vs global gas benchmarks



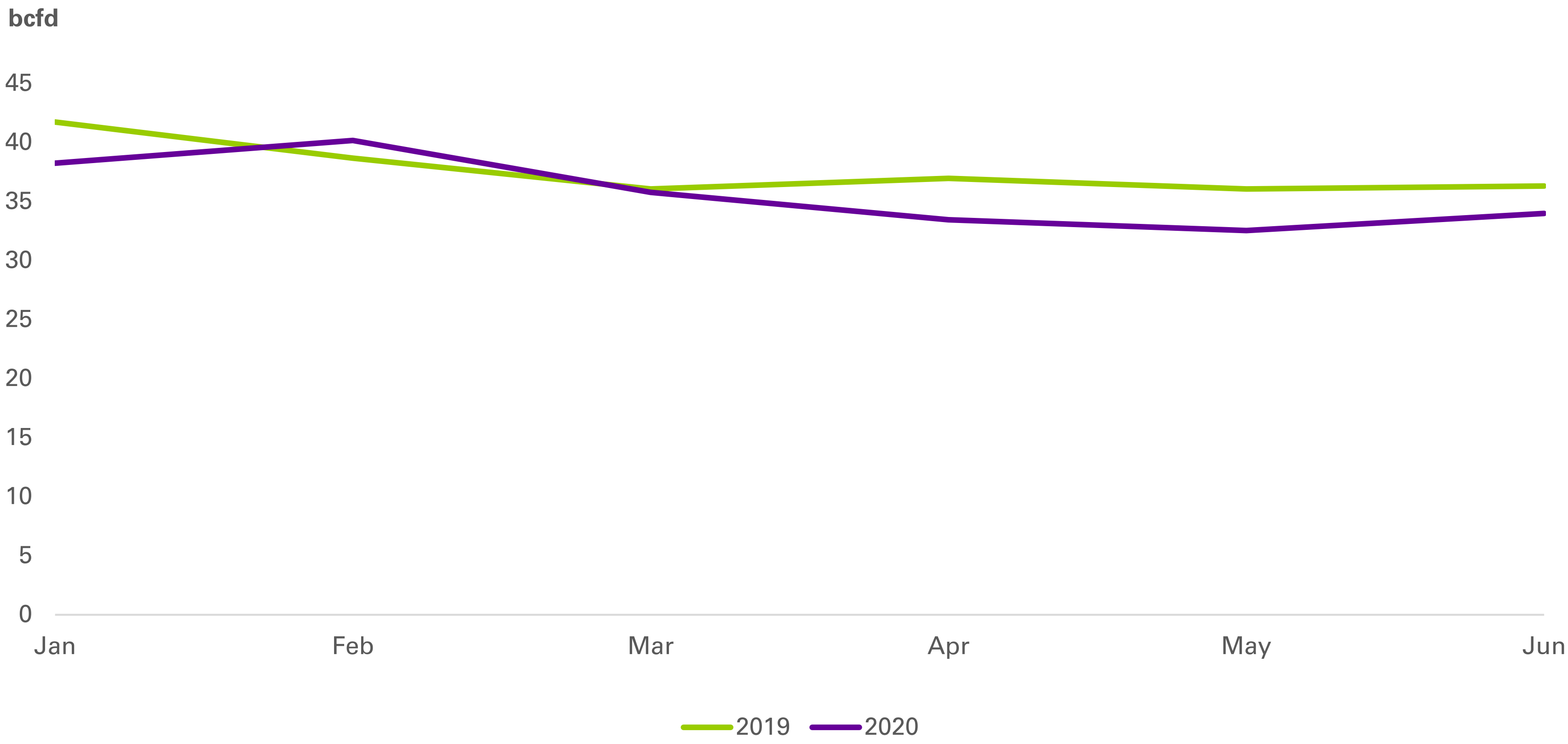
LNG cost calculated as:
Henry Hub front month price + costs (fuel costs, regasification, shipping, entry charges)
Note: This does not include a tolling fee cost.

Source: BP Analysis, Wood Mackensie, NYMEX, ICE, Heren, S&P Global Platts ®

Global LNG deliveries begin recovery

- Global LNG deliveries (excluding Europe) fell **9%** YoY in Apr-20, following weak demand due to the spread of COVID-19 and subsequent containment measures.
- Demand has started to recover towards the end of 2Q20 as countries ease COVID-19 containment measures.
- Although global deliveries (excluding Europe) have recovered over 2Q20, Jun-20 deliveries are still 6% down YoY.

Global LNG deliveries excluding Europe

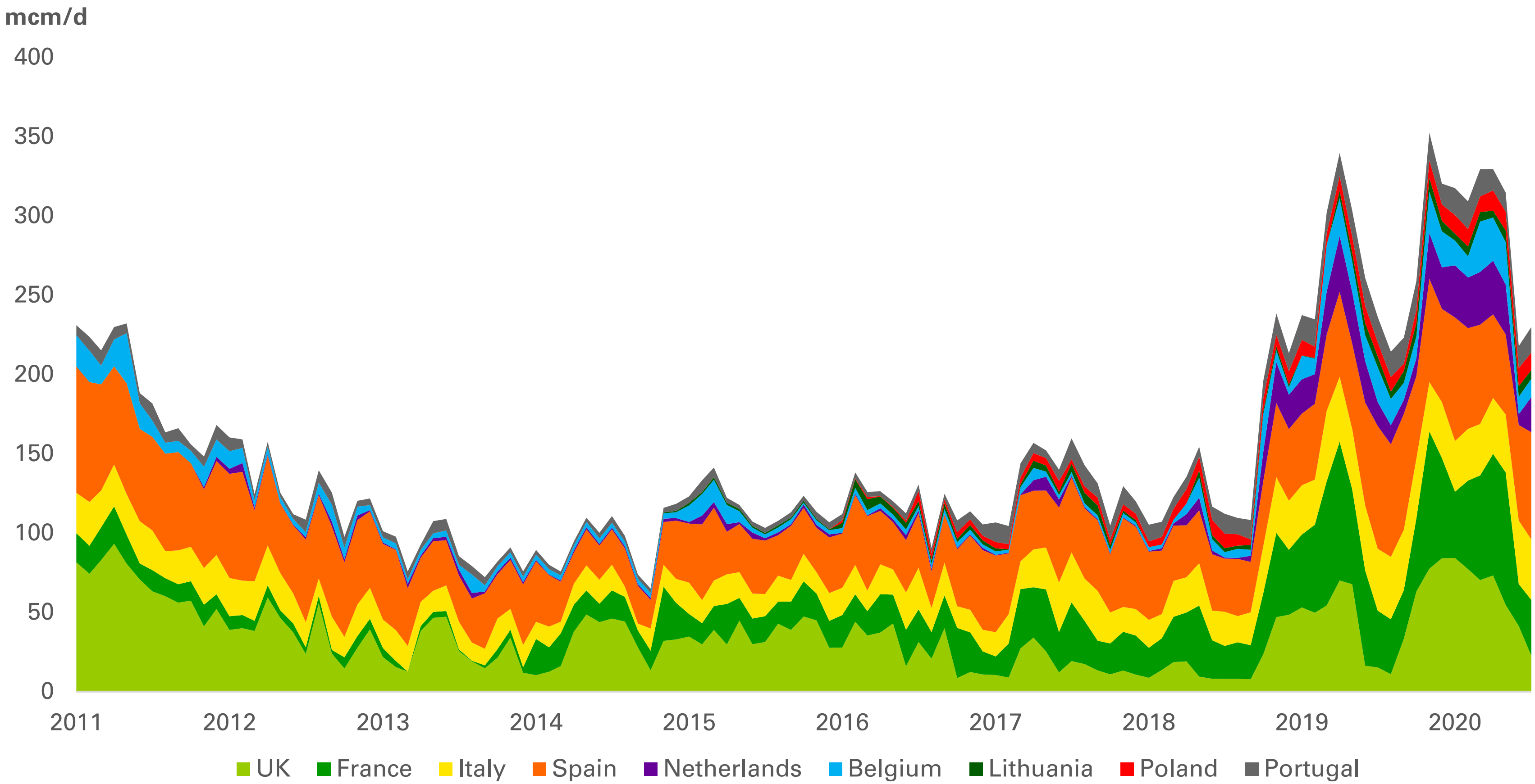


Source: BP Analysis

LNG send-outs fall as low prices curtail global supply

- LNG send-outs have fallen as European storage levels have hit historic highs, reducing European LNG demand. Combined with reduced global supply, this has led to fewer exports to Europe.
- Despite falling to ~220mcm/d in Jun-20, monthly European LNG send-outs remained high.

Monthly European LNG send-outs

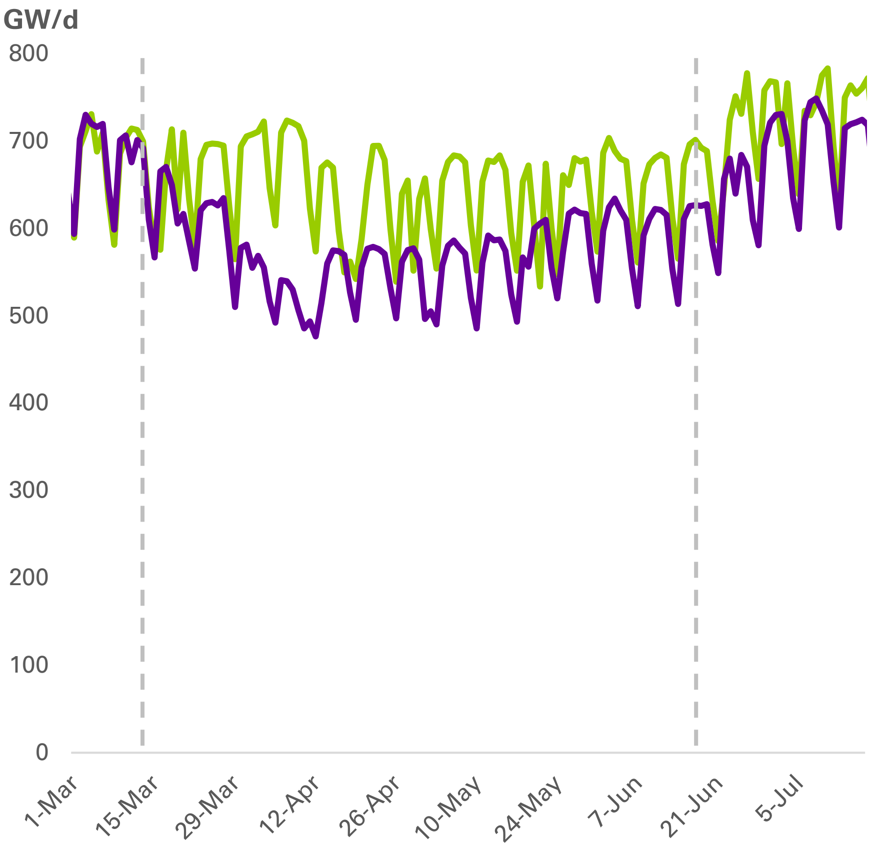


N.B. data does not incorporate all regasification facilities in Europe, but rather can be used as a proxy for LNG send-outs
Source: Official TSO Statistics

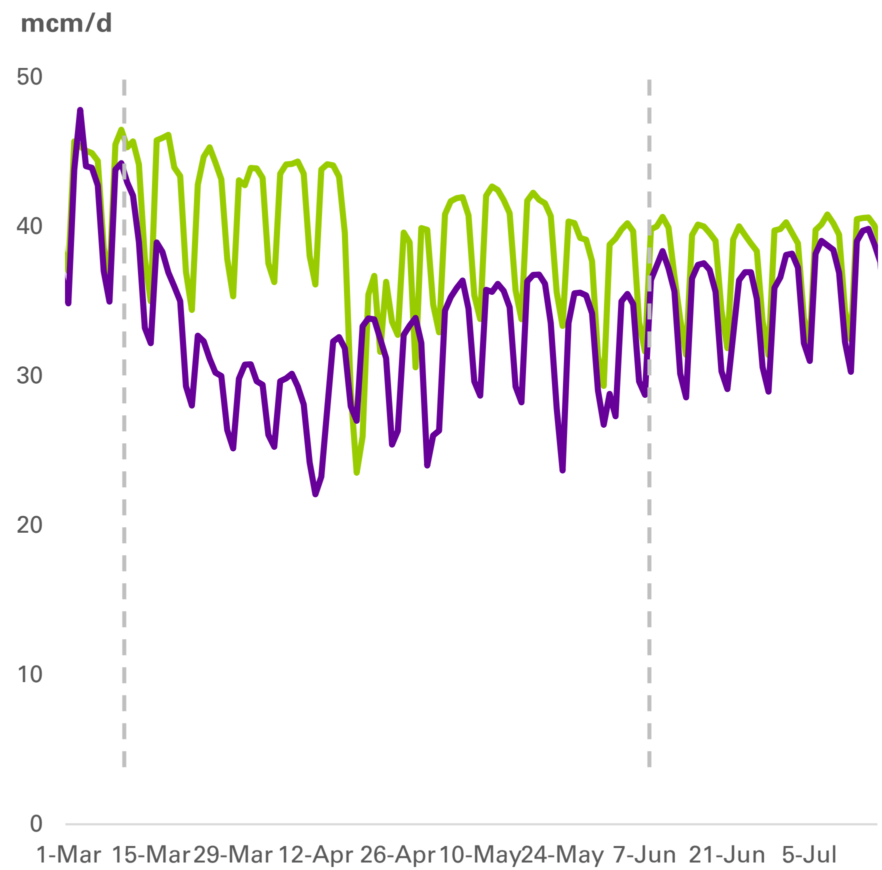
European gas & power demand recovers

- As COVID-19 control measures ease across Europe, gas and power demand has started to recover.
- As the pandemic spread, energy demand fell as industry and working practices changed.
- Italy and Spain introduced control measures in March, and relaxed them in June, as represented by dashed lines on the graph.

Spain power demand



Italy industrial gas demand



2020 2019 Lockdown start/end dates

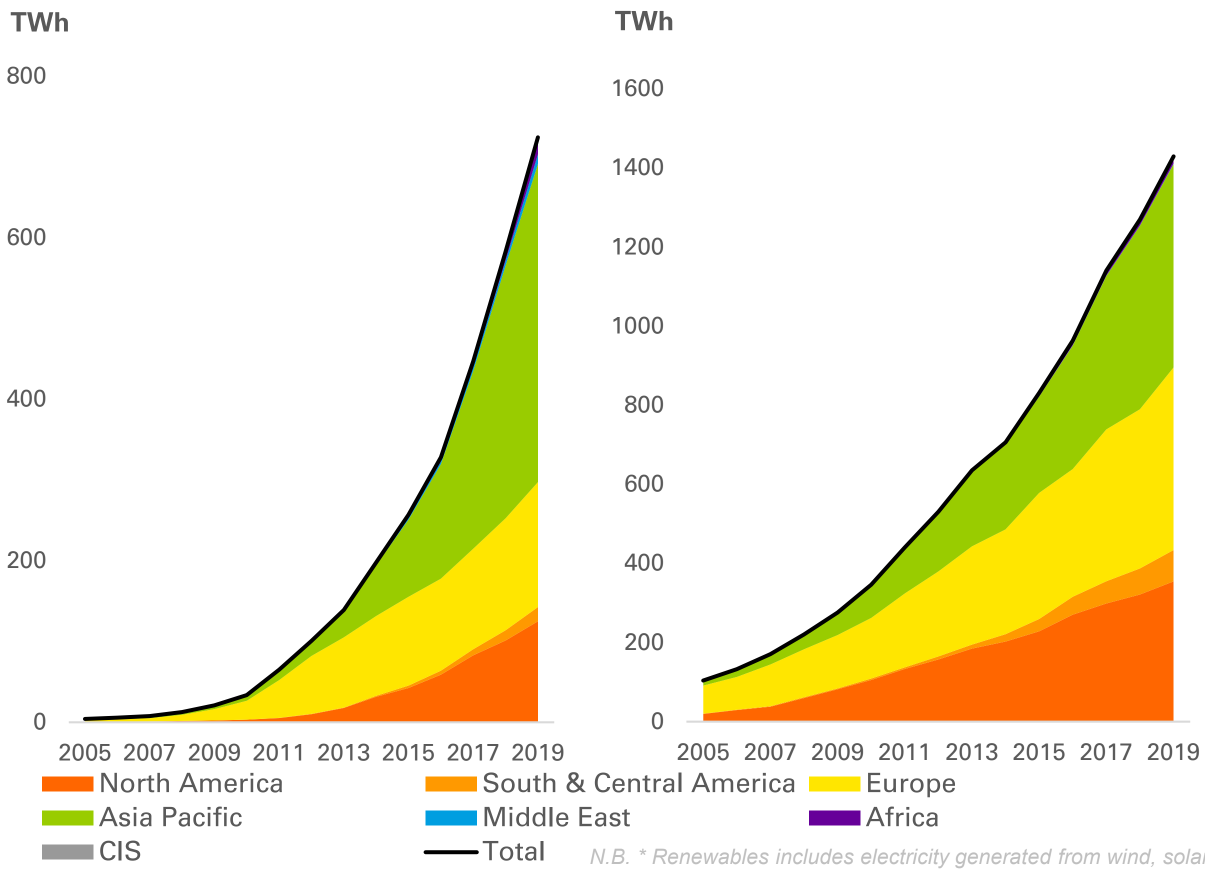
Graph dates refer to 2020 and 2019 data has been aligned to match weeks Source: SNAM, ENTSO-E

EU-27 renewable generation exceeds fossil fuels, as global capacity continues to grow

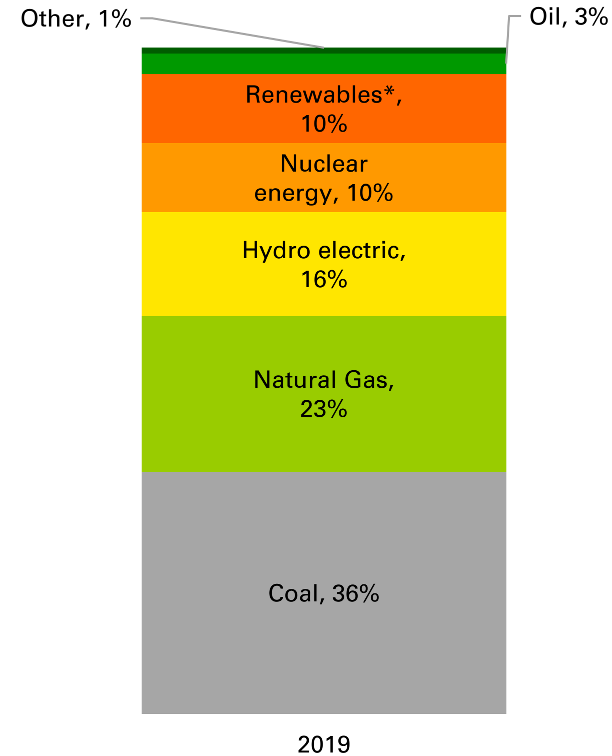
- During 1H20, renewable electricity generation exceeded fossil fuel generation in the EU-27 for the first time, with renewables growing 11% and fossil fuel generation falling 18% YoY.
- According to the bp Statistical Review of World Energy 2020, the share of global electricity generation from wind, solar and other renewable sources reached 10% in 2019, up from 9% in 2018.
- Solar and wind electricity generation grew 24% and 13% respectively in 2019, to a combined total of 2150TWh.

Global Solar power generation

Global Wind power generation



Electricity generation by fuel



*N.B. * Renewables includes electricity generated from wind, solar, geothermal, biomass and other sources of renewable energy.*

Source: bp Statistical Review of World Energy 2020, Ember, ENTSO-E

Carbon prices reach 14-year highs

- EUA prices have risen during 2Q20 and reached €30/tonne of CO_2 for the first time in 14 years on 13th July 2020.
- EUA monthly average pricing was €20 in Apr-20 and €23 in Jun-20, a rise of €3 over 2Q20. As of 22nd July, the monthly average price for Jul-20 is €28.
- The UK will leave the EU Emissions Trading Scheme (ETS) on 1st January 2021 as the Brexit transition period ends. A UK ETS will be formed to replace the EU system.

EUA carbon futures

€/tonne of CO_2

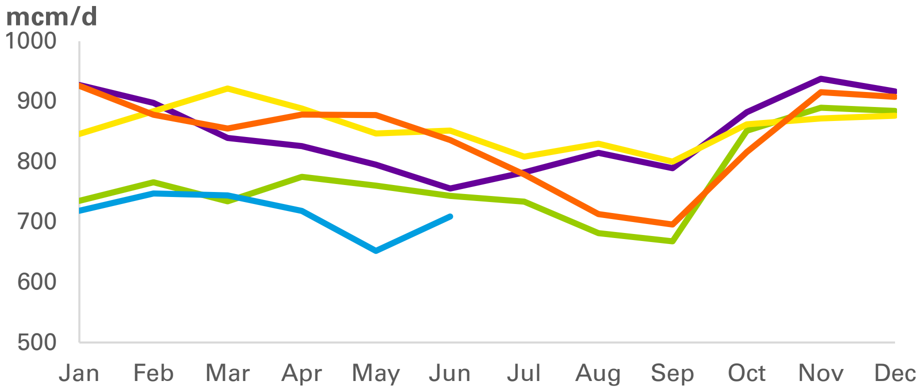
Source: ICE

European pipeline flows soften further

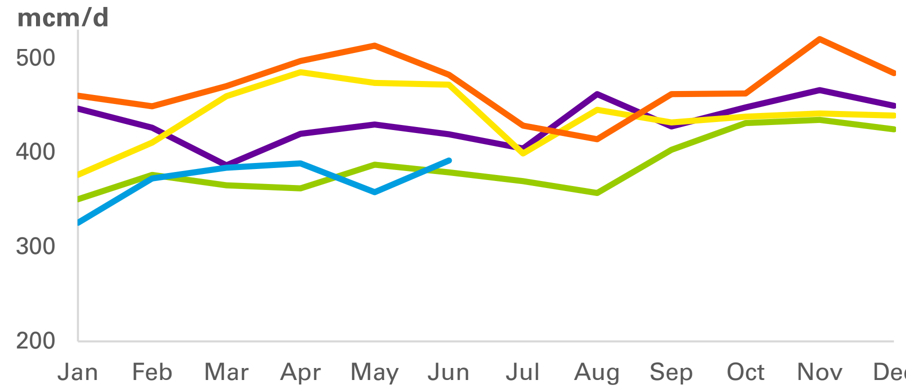
- Total European flows for 2Q20 averaged 170 mcm/d lower than in 2Q19, driven by decreased Russian flows.
- On 01-Jan-20, European pipeline flows from Russia fell, and have not recovered to 2019 highs.
- Average Russian daily pipeline imports to Europe in Jun-20 were 390 mcm/d, 90 mcm/d lower than Jun-19.

Europe pipeline imports

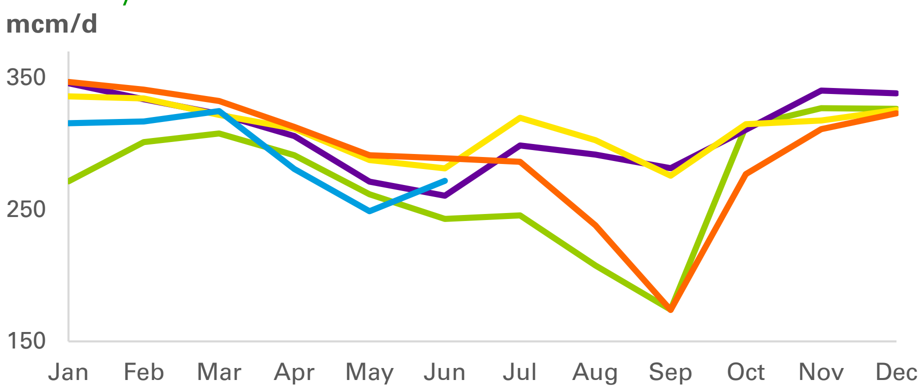
Total



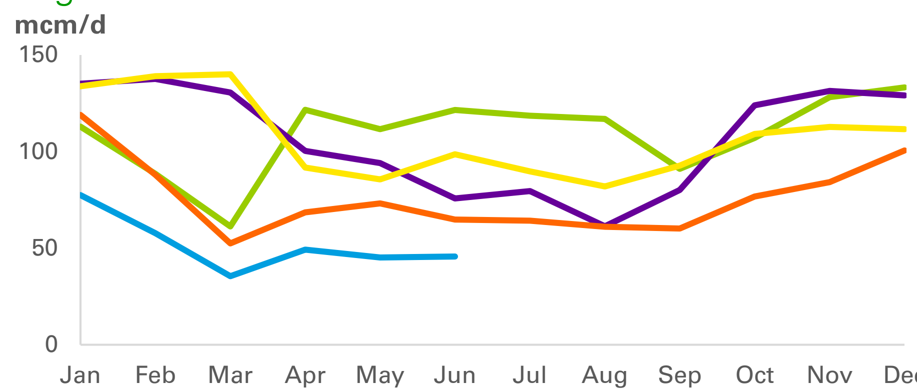
Russia



Norway



Algeria



2016 2017 2018 2019 2020

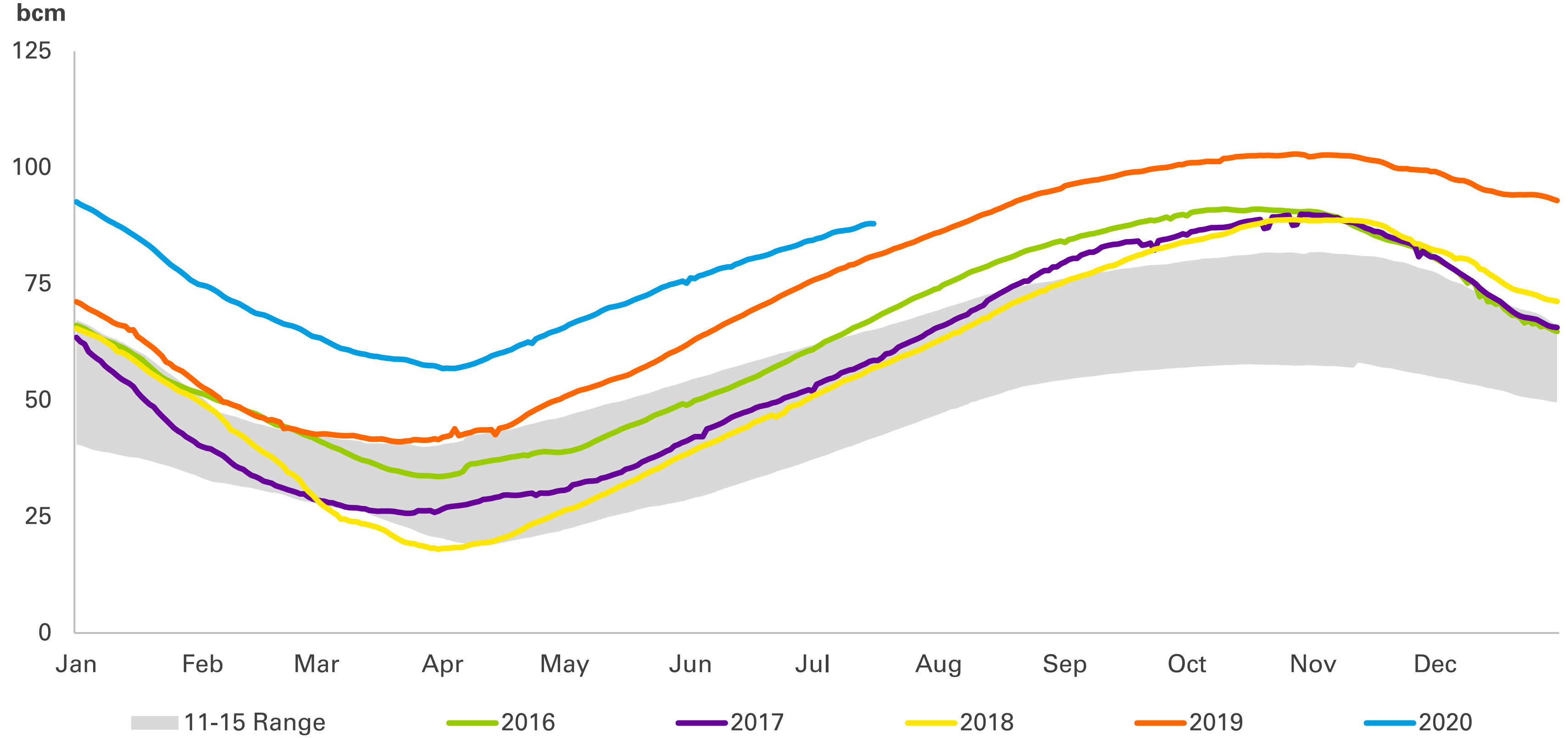
Total flows are from Russia, Norway, Algeria & Libya; Russia flows are to Central and Western Europe only

Source: Official TSO Statistics

European gas inventories remain significantly above seasonal norms

- Robust pipeline imports and record high LNG deliveries in 2019, combined with a warm 2019-2020 winter saw European storages end 1Q20 at historically high levels for the time of year.
- Storage levels have remained high in 2Q20. European gas inventories were 9 bcm, or ~10% higher at the beginning of Jul-20 compared to the same time last year.

European GIE storage



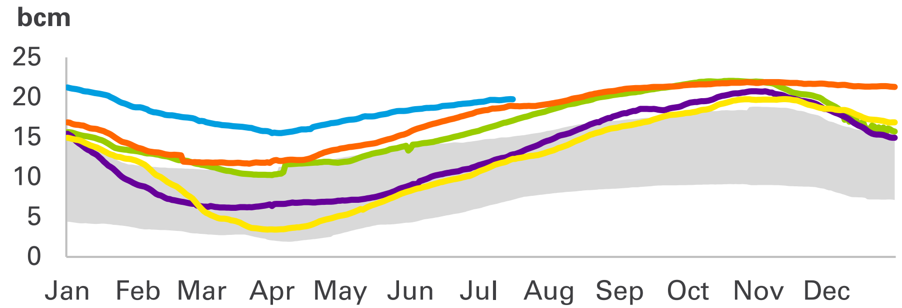
N.B. data from GIE does not incorporate all storage facilities in each country, but rather can be used as a proxy for total storage

Source: Gas Infrastructure Europe

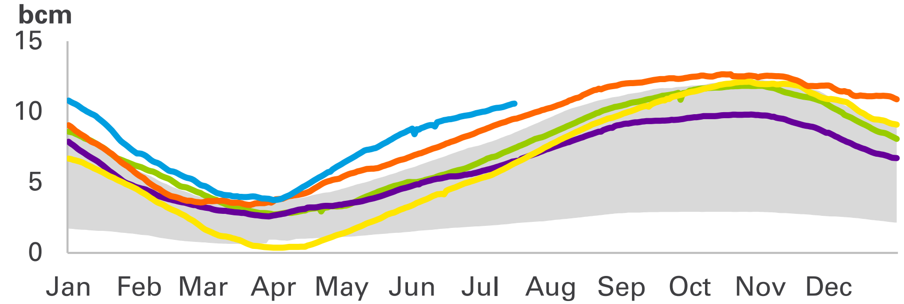
Seasonally high European storage levels

France, Italy and Spain in particular have sustained high inventories.

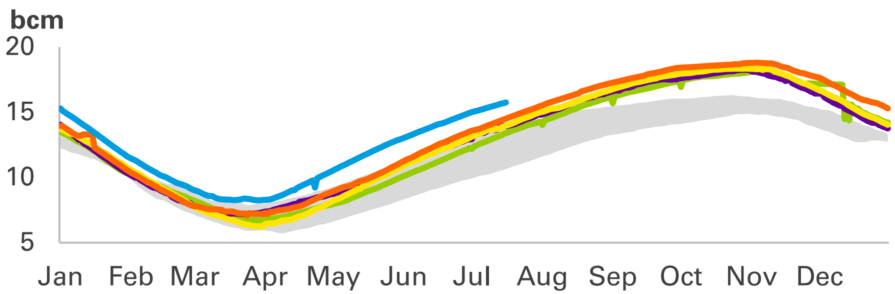
Germany



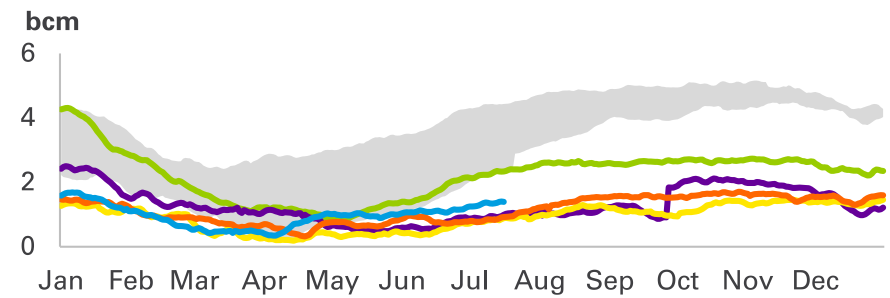
France



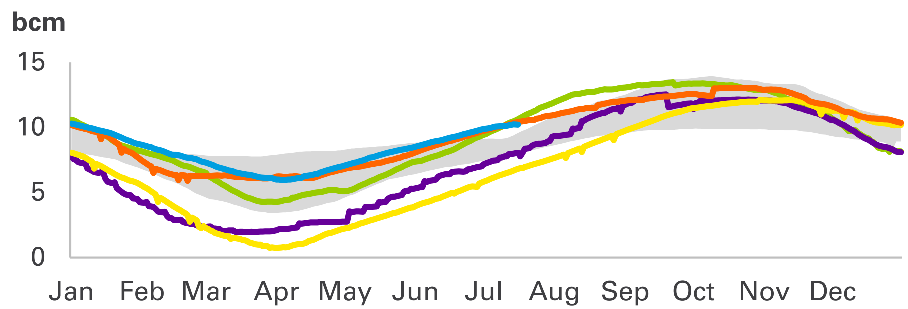
Italy



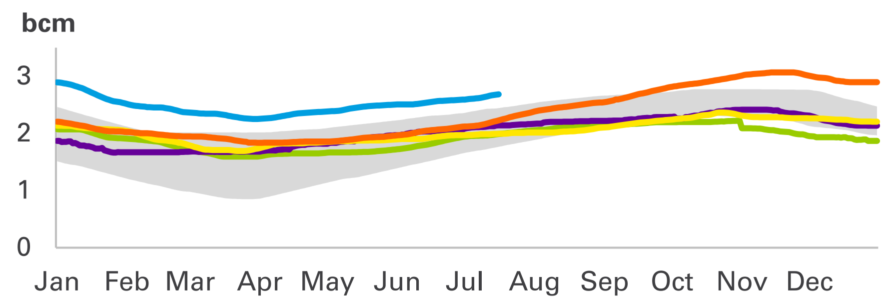
UK



Netherlands



Spain



11-15 Range 2016 2017 2018 2019 2020

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Source: Gas Infrastructure Europe