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STUDIES

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Key insights

Renewables strategy pays off

China has an overcapacity addiction. While this has been a boon for industrial activity, it is also a source of deflation and geopolitical tension. The good news for Beijing is that China's official GDP growth in Q1 24 came in at 5.3%, exceeding expectations. This suggests that the government's bet on "new productive forces" (i.e. industries of the future) is paying off. Growth in the "New Three Industries"—electric vehicles, batteries and solar panels—is rising strongly, supporting both economic expansion and energy consumption. Sales of new energy vehicles (NEVs, including hybrids and electric vehicles) are growing rapidly and contributing to the electrification of the Chinese economy. It is also one of the factors that drove power consumption in Q1 24. In April, NEV sales eclipsed internal combustion engine (ICE) vehicles for the first time even as a price war rages between automakers in China. Costs are falling rapidly. This is helping NEV adoption but Chinese auto- and battery-makers are feeling the pinch as are refiners: we estimate that the EV fleet to date has displaced some 300 kb/d of gasoline consumption.

The not-so-good news for Beijing is that falling prices mean that despite higher exports, revenues from sales are lower. And geopolitically, China's overcapacity is a growing source of tension with the US and EU. Still, supply chains are so deeply intertwined that imposing duties on EVs made in China could end up hurting Western firms too. Elon Musk's warm reception in Beijing highlights the depth of challenge for countries seeking to reduce reliance on China. President Xi's trip through Europe highlights the complexity for European nations of de-risking supply chains while looking to accelerate the energy transition. Chinese officials continue to promote exports and overseas investments both for the sake of the Chinese economy and also to be firmly embedded in global supply chains.

The supply-demand mismatch

Industrial overcapacity in China also leaves open questions about domestic demand. Supplies of many products and components are rising, but is demand following suit? The real estate sector remains weak, as are retail sales. Depressed diesel and chemical margins suggest not all is rosy. Diesel demand could recover as road freight grows, while gasoline demand picked up in early May during the Labour Day holiday. Still, product stocks have been building. The second batch of export quotas, issued on 7 May, will now allow refiners to export more, even if the export arb seems closed. The next few months will indicate where demand and sentiment are heading. With the Communist Party's third Plenum now scheduled for July, there might be some new thinking on how to invigorate the private sector and consumer spending.

Renewables on the rise, is coal on the back foot?

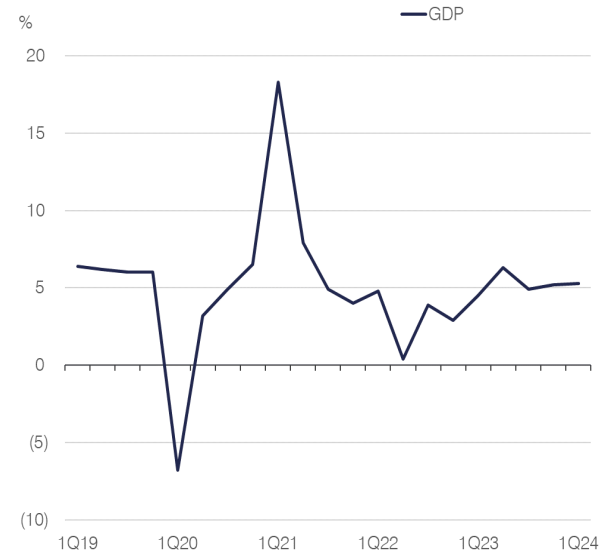
The second main trend to emerge from the data is renewable's rise and coal's (temporary) demise. Large additions of renewable capacity are leading to a greater share of non-fossil fuels in power generation. And the policy framework remains supportive: the National Energy Administrations' guidance for the year looks to encourage even more renewables—even though growth rates may not eclipse 2023 records. China's Energy Law, which is now in the final stages of approval after nearly twenty years, enshrines the country's decarbonisation. Laying the groundwork for more renewables in the system, the State Council approved in April the long-awaited policy document shifting from dual control targets on energy consumption to dual control of emissions. The move will, in theory, incentivise renewable consumption and tie economic development even more closely to green development.

But coal's demise is not imminent. The government's plans to build up 300 Mt of reserves will spur production. Concerns about power outages this summer, combined with low hydro levels and an acceptance that renewable overcapacity will result in curtailment could see coal come back for an another (and not last) hurrah. Already government data point to renewable curtailment exceeding 5% in many provinces in February. At the margins, this is good news for gas. Production and imports have been rising and will remain strong because of demand from key industries. Lower prices also mean that gas in power will gain ground this year.

Macro

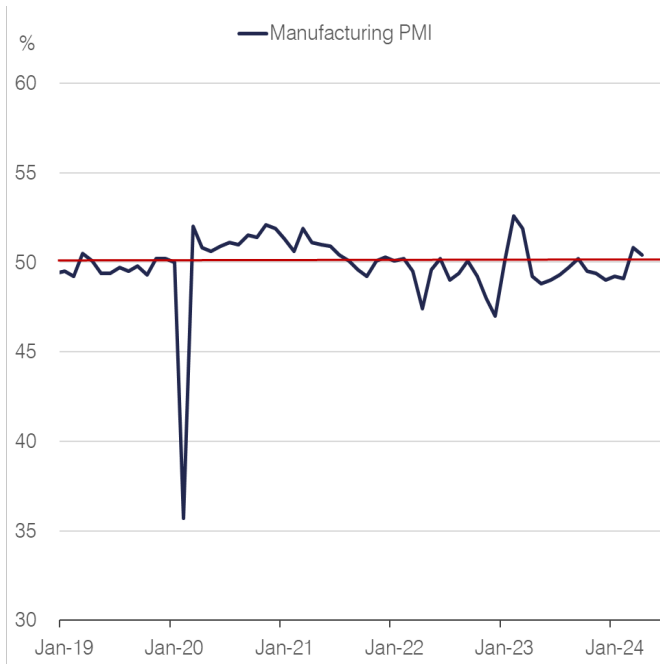
- Official Q1 GDP data came in at a strong 5.3% growth, driven by industrial activity.
- PMIs have rebounded but the real estate sector remains weak. These data points (notwithstanding Q1 Lunar New Year distortion) suggest that government policies are delivering.
- Continuity is likely for now, with limited appetite for more aggressive stimulus. Targeted measures will continue but spurring consumption will require new thinking.
- It remains to be seen if industrial output can be sustained beyond Q2 24, especially as overcapacity dominates Western politicians' concerns.
- Q2 24 data will be important to watch and the third plenum, now finally announced for July, will be an important signpost of policy direction.

China GDP growth, y/y, %



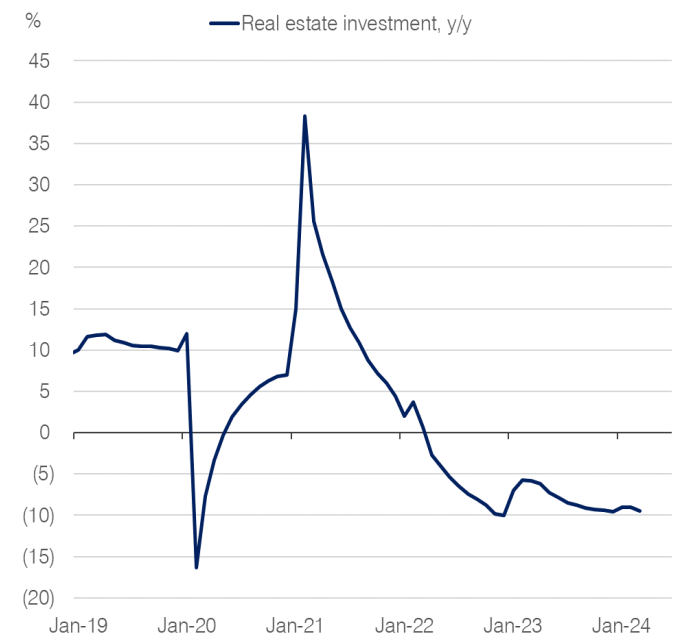
Source: NBS, OIES

Manufacturing PMI



Source: NBS, OIES

Real estate investment, y/y change



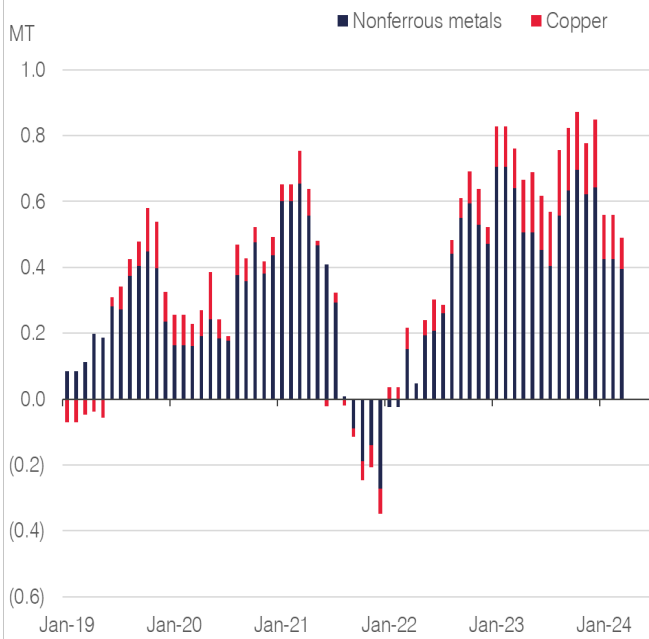
Source: NBS, OIES

Macro

Industrial activity: A mixed bag

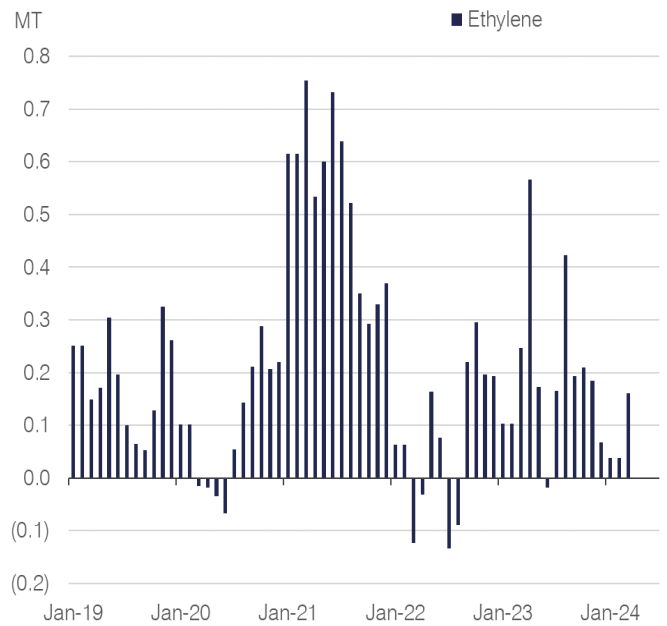
Output in gas-consuming industries such as non-ferrous metals weakened, but ethylene recovered strongly in March. Meanwhile iron ore production was strong, and highway freight (indicative of diesel demand) rose. Policy continuity points to more of the same, although weak chemical margins could start to bite.

Non-ferrous metal and copper production, y/y change



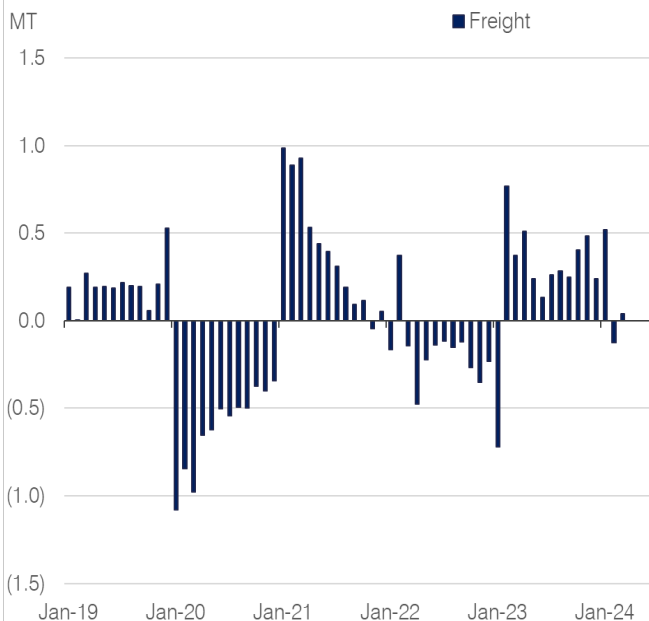
Source: NBS, OIES

Ethylene production, y/y change



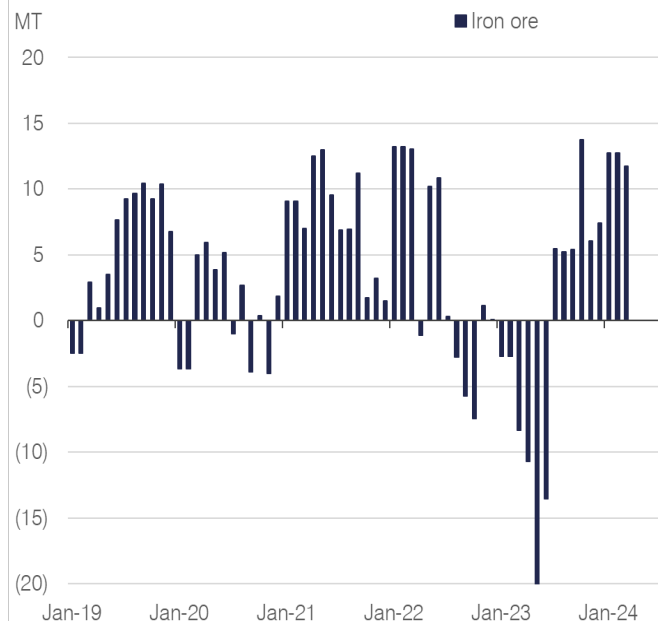
Source: NBS, OIES

Highway freight, y/y change



Source: NBS, OIES

Iron ore production, y/y change

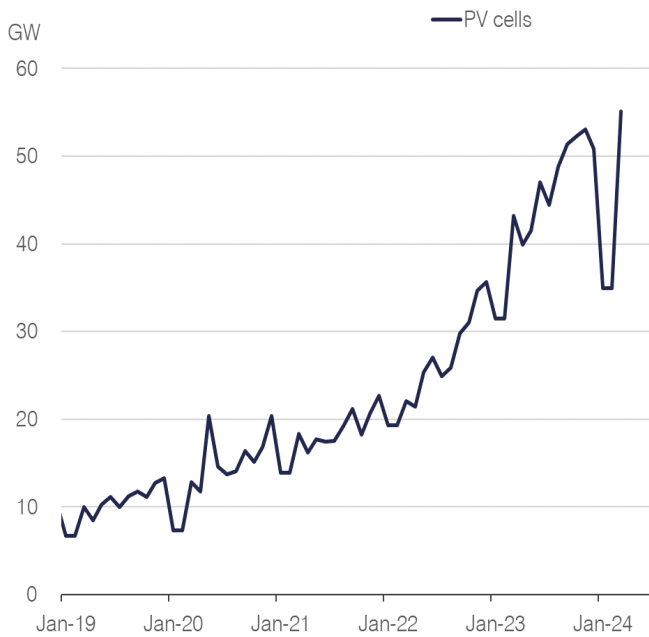


Source: NBS, OIES

Growth in the “New Three” continues

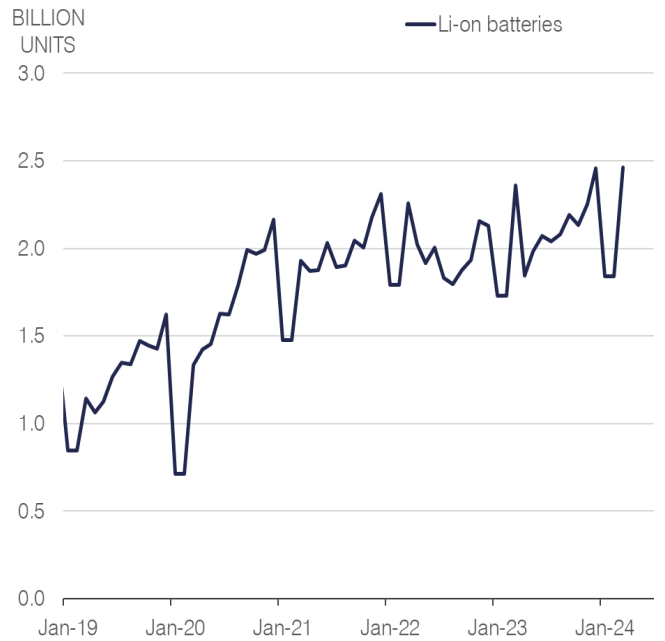
After a dip during the Lunar New Year, output from the “New Three” industries (EVs, lithium-ion batteries and solar panels) is rising again. EV sales and exports also growing strongly, in line with the government’s focus on “new productive forces”.

Output of PV cells, GW



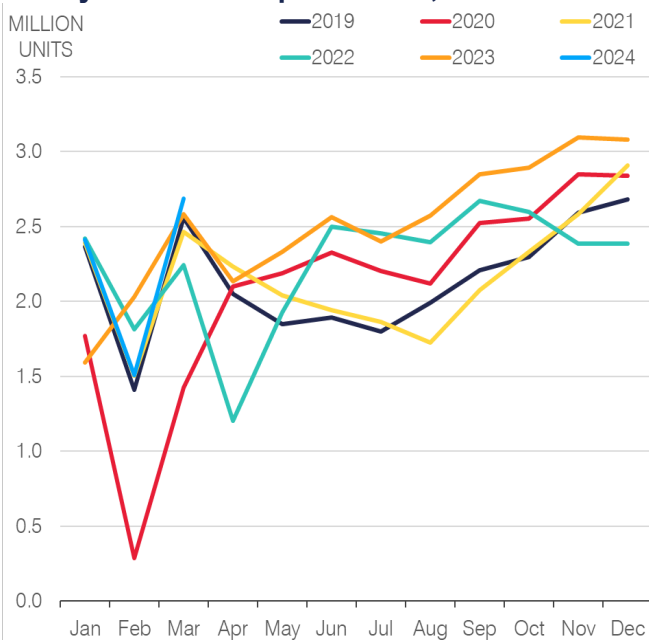
Source: NBS, OIES

Production of Li-ion batteries, billion units



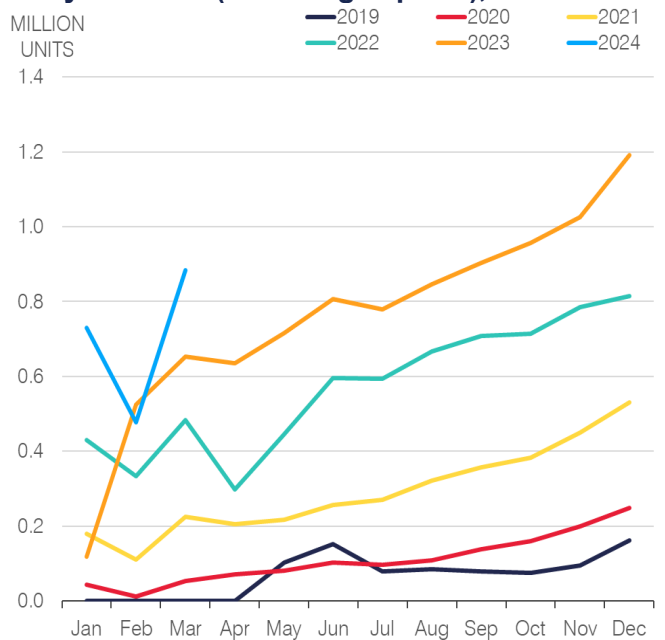
Source: NBS, OIES

Monthly total vehicle production, millions



Source: CAAM, OIES

Monthly EV sales (including exports), millions



Source: CAAM, OIES

Energy fundamentals

- Q1 24 GDP growth was also reflected in energy demand: Power generation rose strongly in the period, continuing the trend seen in late 2023.
- Industry was a key driver of power consumption with sectors including chemicals, minerals and metal smelting leading growth. These sectors also support gas demand.
- Household demand also rose, reflecting the cold winter weather as well as increased EV charging. Heatwaves could spell another surge of demand in the South this summer.
- Renewables in March supplied most of the incremental power demand growth, although over the course of Q1 24, they accounted for one-third of new power demand, with thermal accounting for roughly two-thirds.
- The weakness in coal production was offset by higher imports, but implied coal demand was still lower y/y in Q1 24. That trend may reverse given expectations of a tight power market over the summer, the drought in Yunnan province and indications that renewable curtailment is starting to bite.
- Solar installations in particular could slow due to overheated markets and the problem of midday solar curtailment.
- Expectations of tight power markets could benefit gas. Demand is already surging amid lower spot LNG prices and rising industrial activity. The appeal of LNG switching in transport may be abating as diesel prices began falling in late April, but ex-factory LNG prices are rising.
- Crude flows have softened, and while product demand was strong in Q1 24, weak margins and softening gasoline demand could weigh on oil in the coming quarter. Refiners have now received another batch of product export quotas which will allow them to reduce stocks. However, maintenance will limit any growth in runs.

Energy fundamentals dashboard

%, y/y growth

	Mar-24	1Q24
Power generation	4%	8%
Implied coal demand	-4%	-3%
Gas demand	11%	11%
Oil product demand	4%	8%

Imports

Coal	22%	14%
Gas	21%	21%
Oil	4%	1%

Production

Coal	-4%	-4%
Gas	6%	5%
Oil	1%	1%
Wind generation	23%	16%
Solar generation	28%	31%

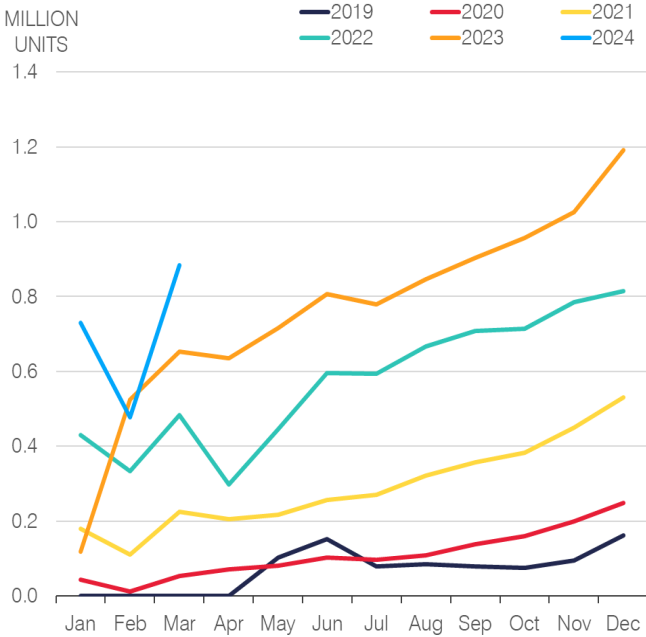
Source: OIES

Coal

Implied coal demand fell in Q1 24 but rebound likely

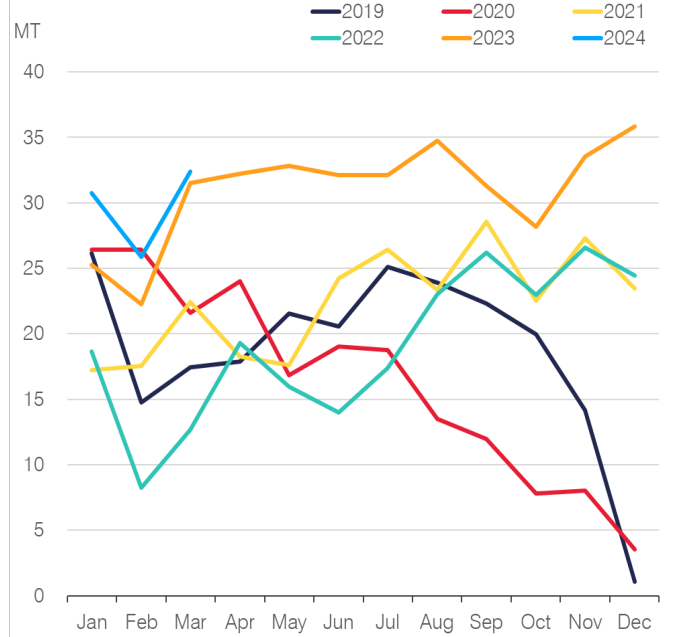
Coal production recovered in March after safety inspections weighed on output in Jan-Feb. Implied demand in Q1 24 was still lower y/y but coal output and use is set to recover in the coming months, especially as the government finalised plans for a coal capacity reserve equivalent to 15% of annual output.

Coal production, Mt



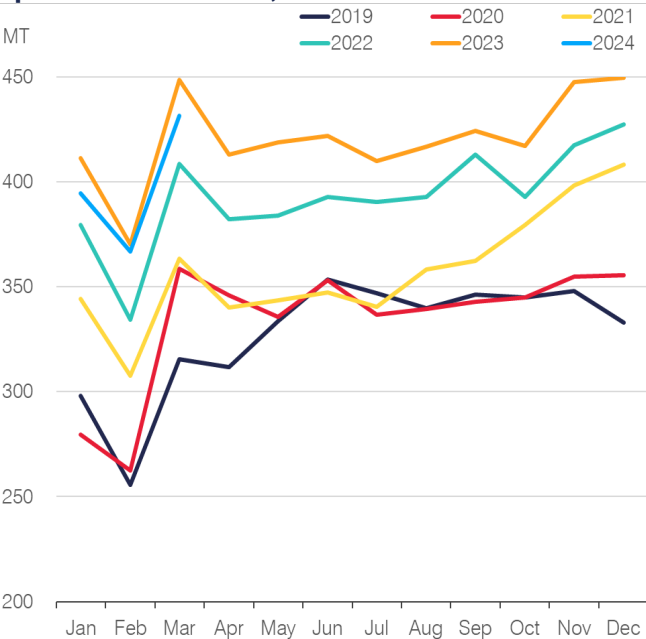
Source: NBS, OIES

Coal imports, Mt



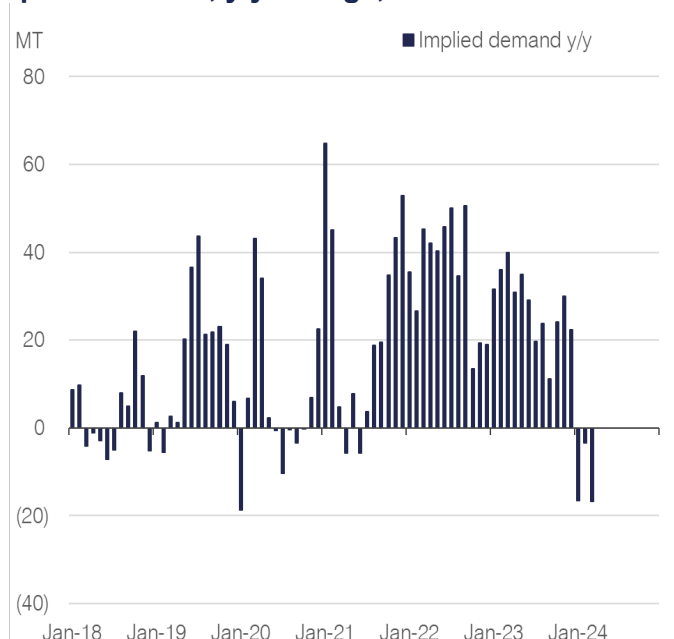
Source: GAC, OIES

Implied coal demand, Mt



Source: NBS, GAC, OIES

Implied demand, y/y change, Mt



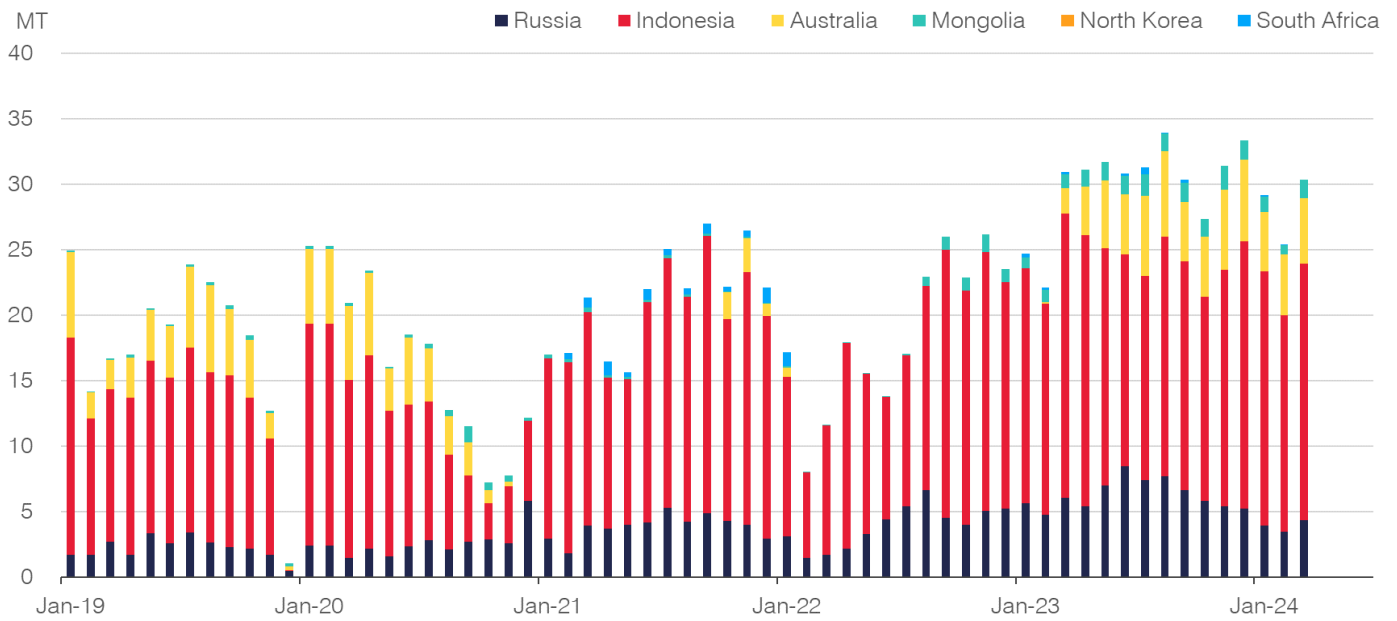
Source: NBS, GAC, OIES

Coal

Russian and Indonesian coal lose out

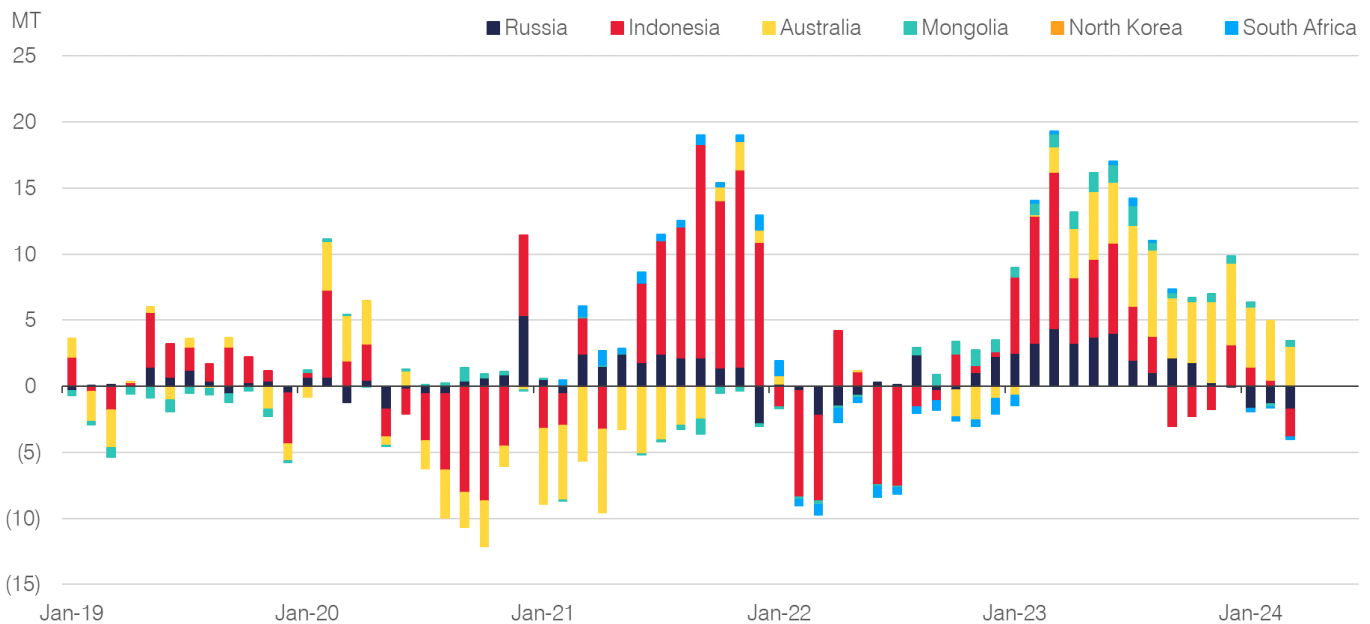
Russian and Indonesian coal imports rose y/y and from Jan-Feb levels, but Australian coal saw the biggest gains. Chinese banks and buyers seem to be growing cautious about Russian imports.

Coal imports by country, Mt



Source: GAC, OIES

Coal imports by country, y/y change

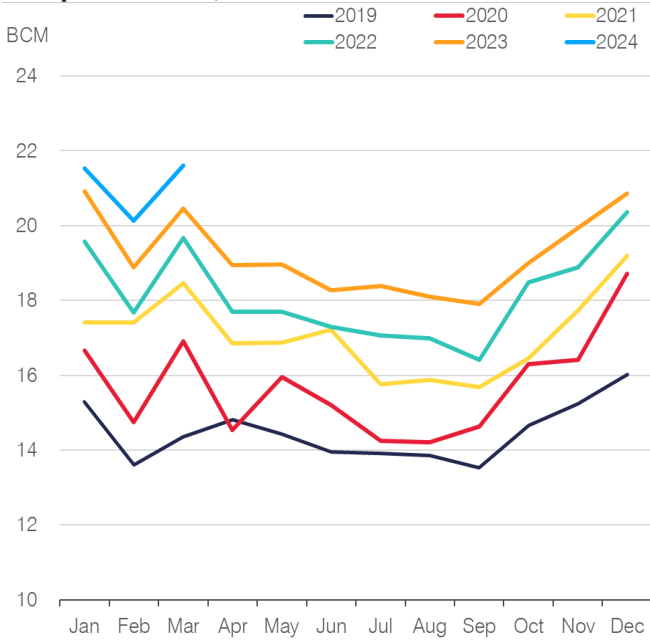


Source: GAC, OIES

Gas demand rising in industry and power, supported by lower prices

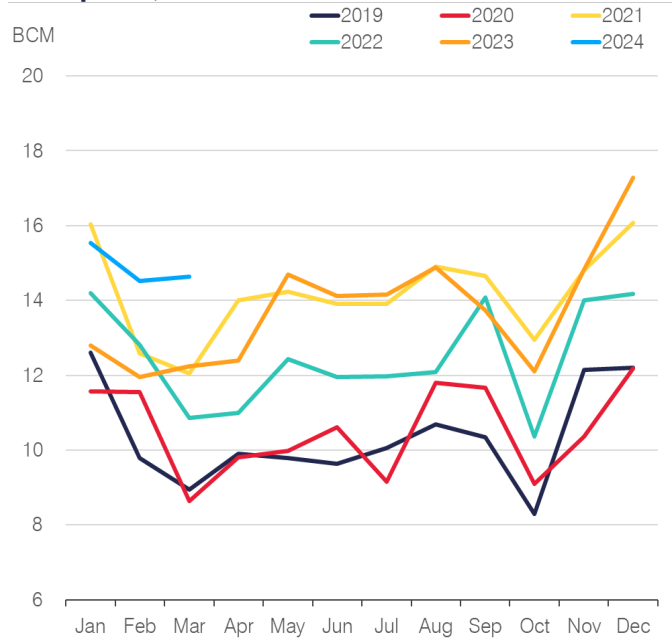
Gas was strong across the board: production rose, mainly from conventional and unconventional basins in Sichuan provinces. LNG imports accounted for over one-third of implied demand growth.

Gas production, bcm



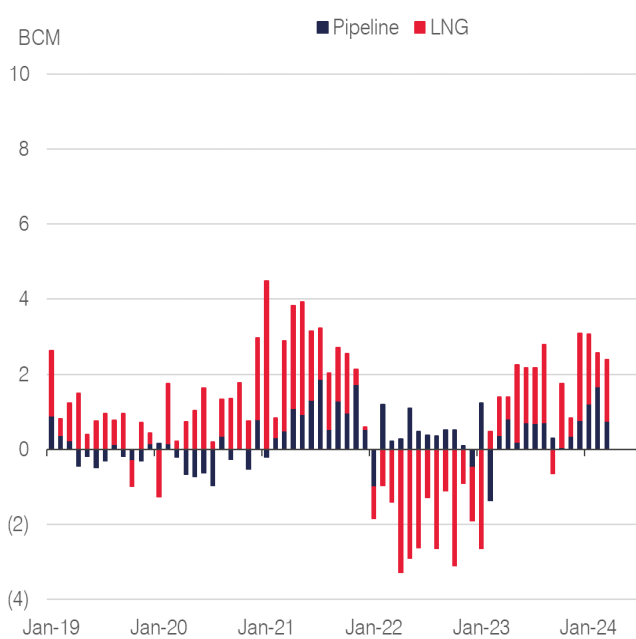
Source: NBS, OIES

Net imports, bcm



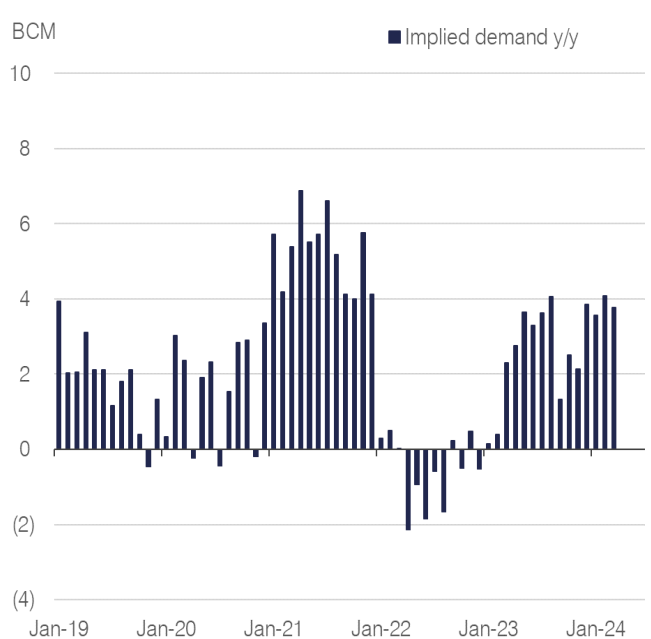
Source: GAC, OIES

Pipeline and LNG imports, y/y change



Source: NBS, Argus, OIES

Implied demand, y/y change, Mt

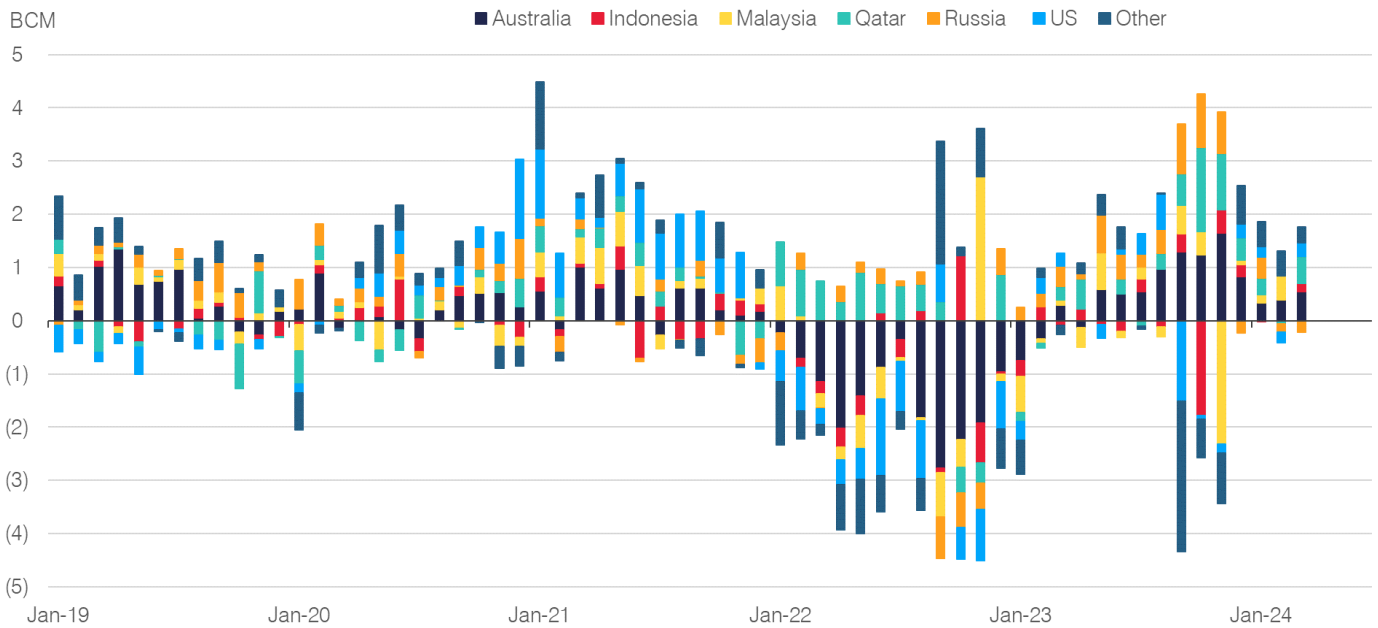


Source: NBS, GAC, Argus, OIES

Qatari LNG gaining ground, Russian pipeline gas still going strong

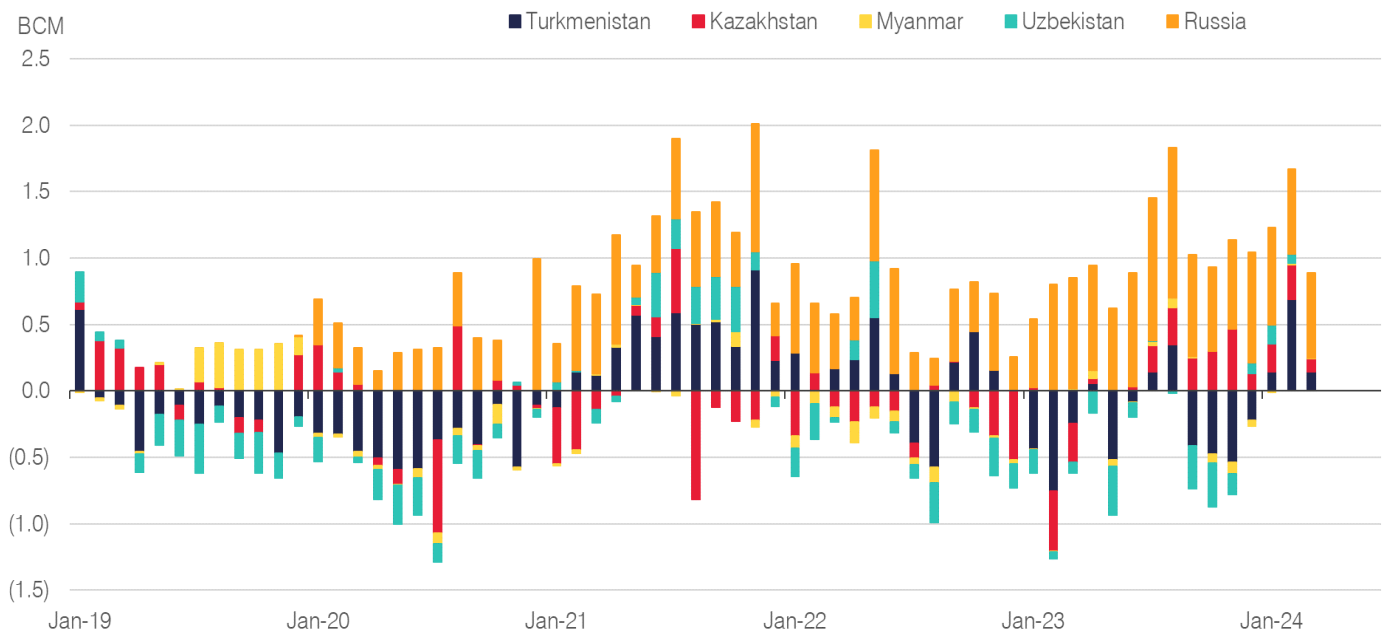
LNG import costs averaged \$10.4/MMBtu in March, falling by \$1/MMBtu from Feb. LNG was, on average \$3 higher than pipelines at the border. Factoring in transport costs, Russian pipeline flows remain competitive but Central Asian gas could be deferred in favour of lower cost LNG.

LNG imports by country, y/y change



Source: Argus, GAC, OIES

Pipeline imports by country (estimates from 2022)

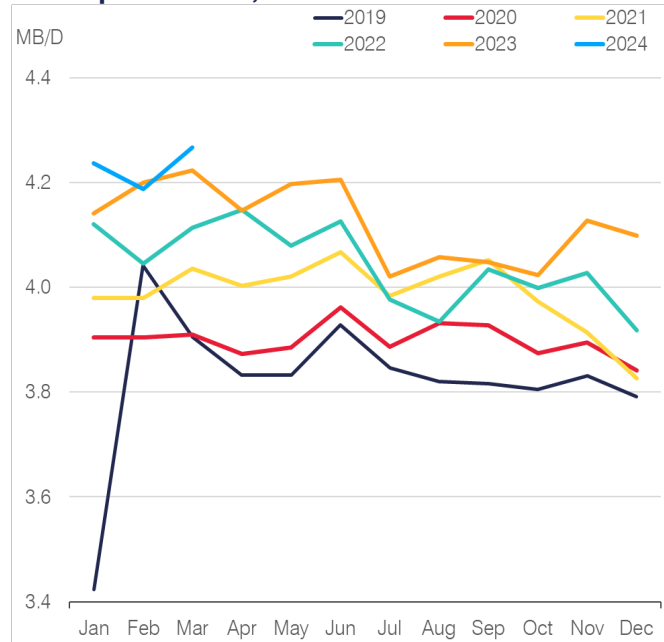


Notes: Import volumes are estimated since China stopped publication in Aug 2022. Source: Argus, GAC, OIES

Crude buying to slow as stocks built ahead of turnarounds

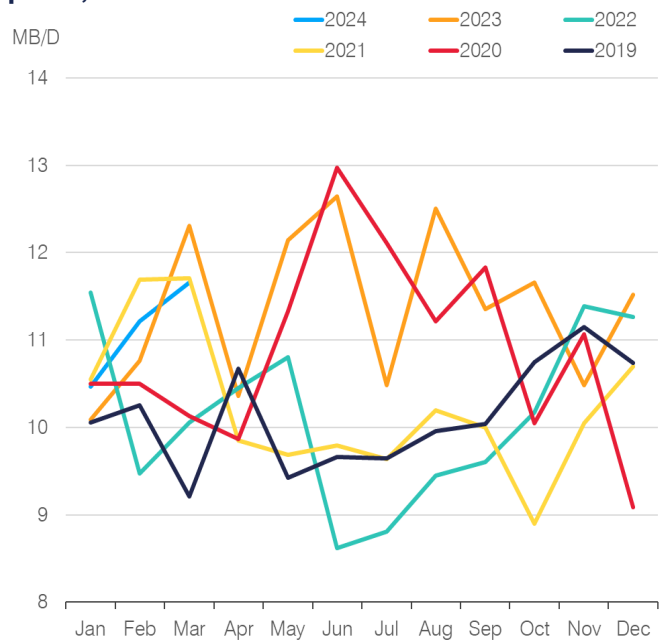
Imports inched up m/m as refiners secured crude ahead of refinery maintenance. Production continues to rise strongly and stocks are building. Buying may be muted until later this summer when Yulong refinery starts up.

Crude production, mb/d



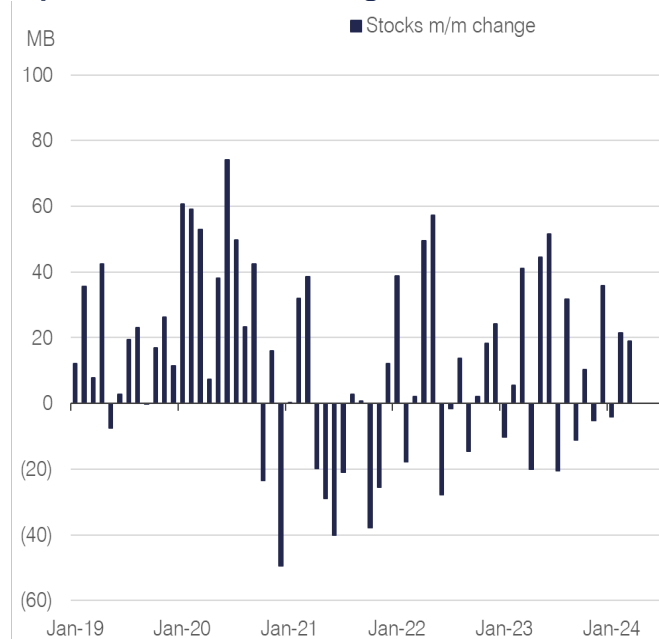
Source: NBS, OIES

Imports, mb/d



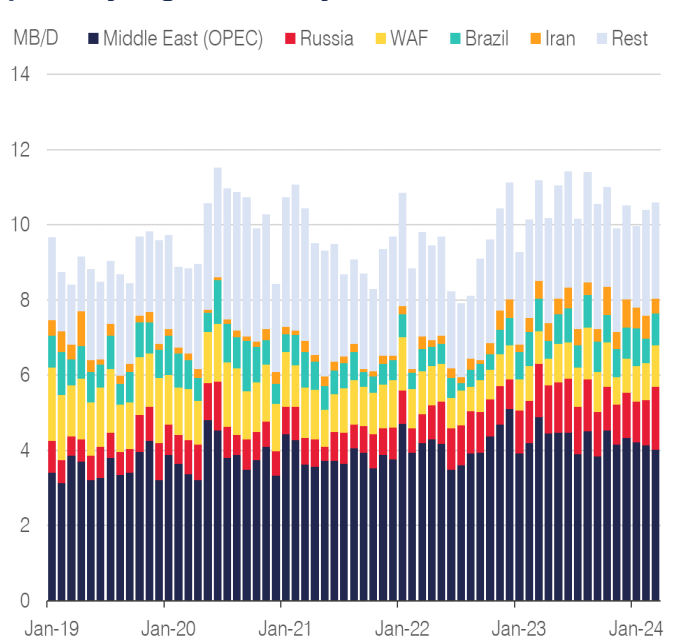
Source: GAC, OIES

Implied stocks, m/m change, mb



Source: NBS, Argus, OIES

Imports by region/country, mb/d

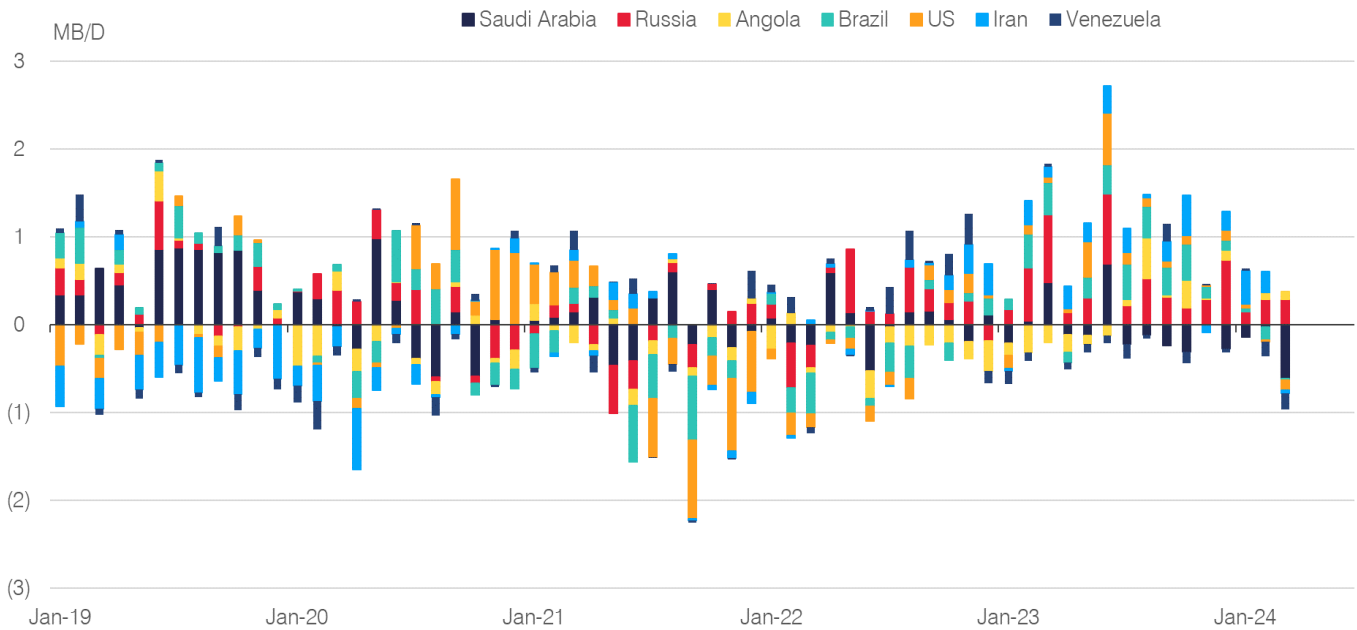


Source: GAC, Argus, OIES

Sanctioned crudes lose lustre amid softer product demand

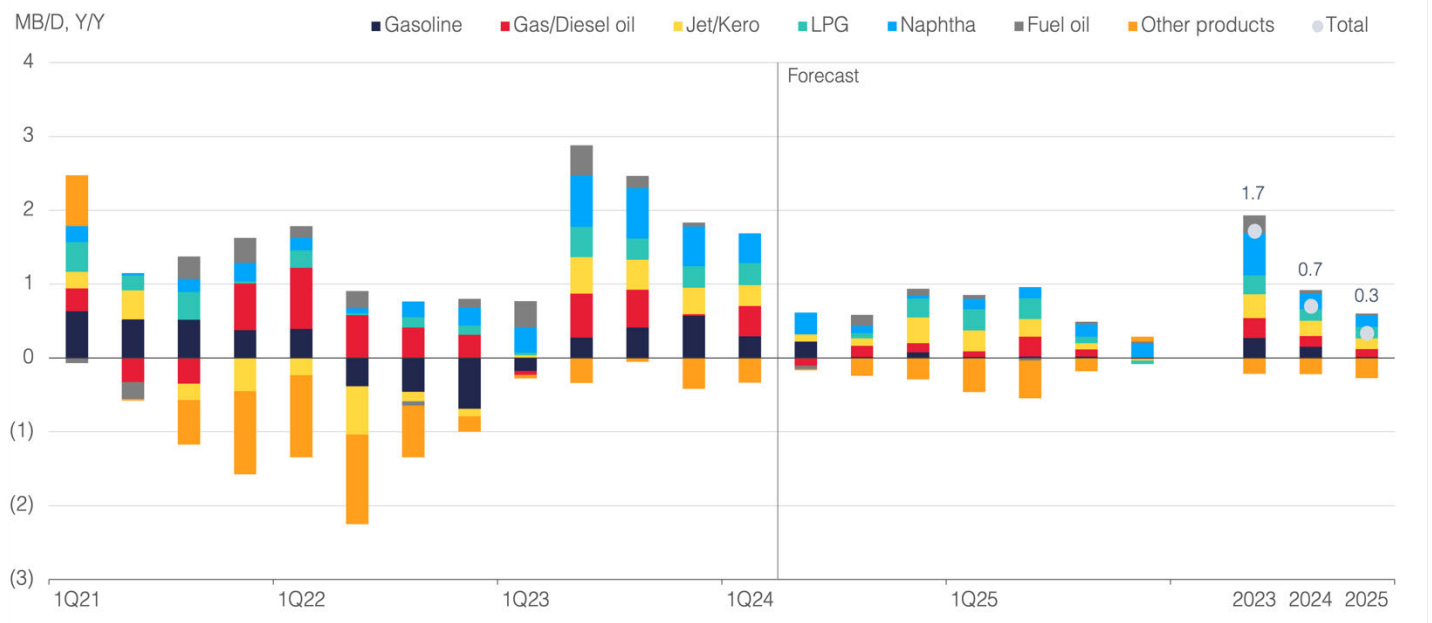
The y/y reduction in imports has weighed on Middle Eastern crudes amid murmurings of growing reluctance to take sanctioned crudes. Chinese buyers could still prefer Atlantic basin crudes over Middle Eastern grades on price. Diesel demand remains the biggest uncertainty.

Crude imports by select country, y/y change, mb/d



Notes: Iran and Venezuela volumes based on Kpler. Source: GAC, Kpler, OIES

Product demand, y/y change, mb/d

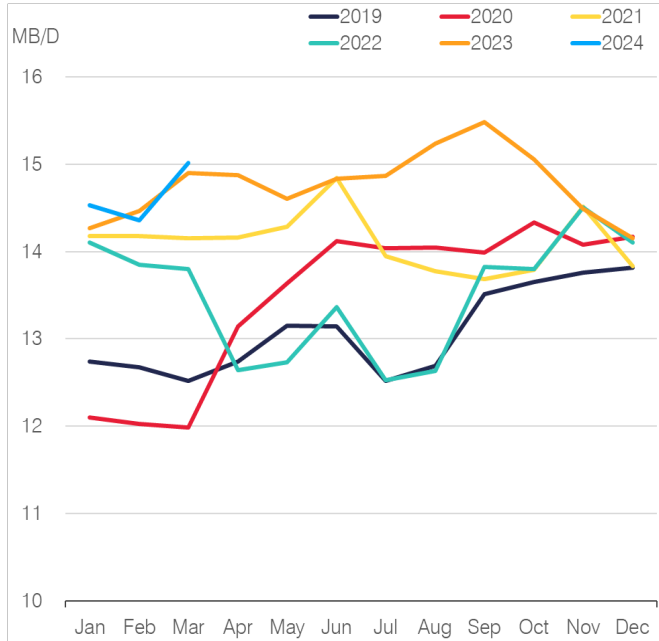


Source: NBS, GAC, IEA, OIES forecast

Product exports picking up on weak margins and higher quotas

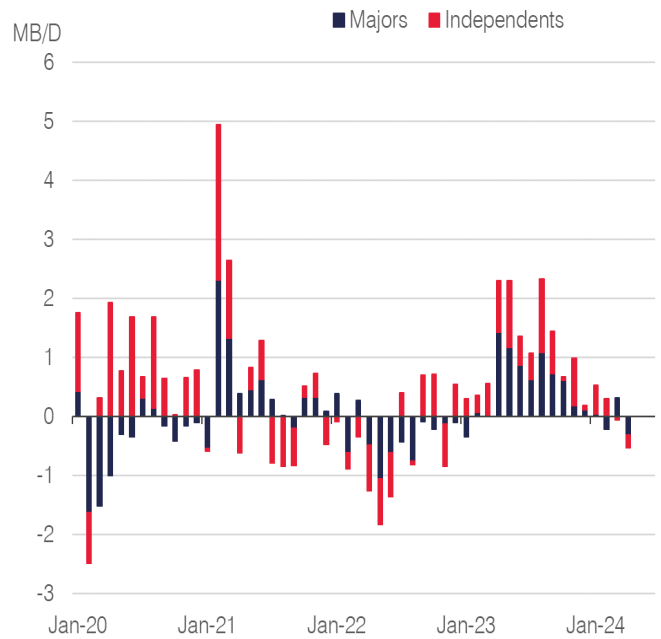
Runs have risen ahead of maintenance with a focus on diesel. But weak demand led to depressed margins and higher exports. In Jan-April, refiners exported an estimated 13 Mt, leaving another 6 Mt in this first batch. The second award in May will maintain export flows through the summer, even if the arb seems closed.

Runs



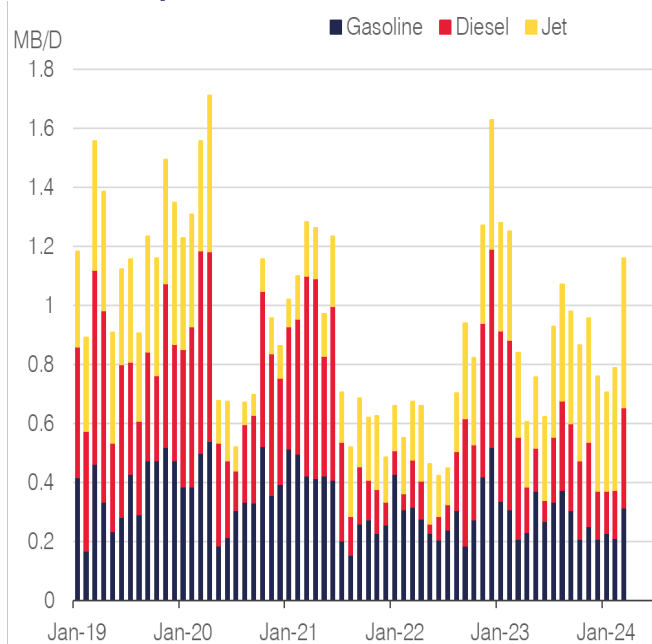
Source: NBS, OIES

Runs by SOEs vs independents, y/y change



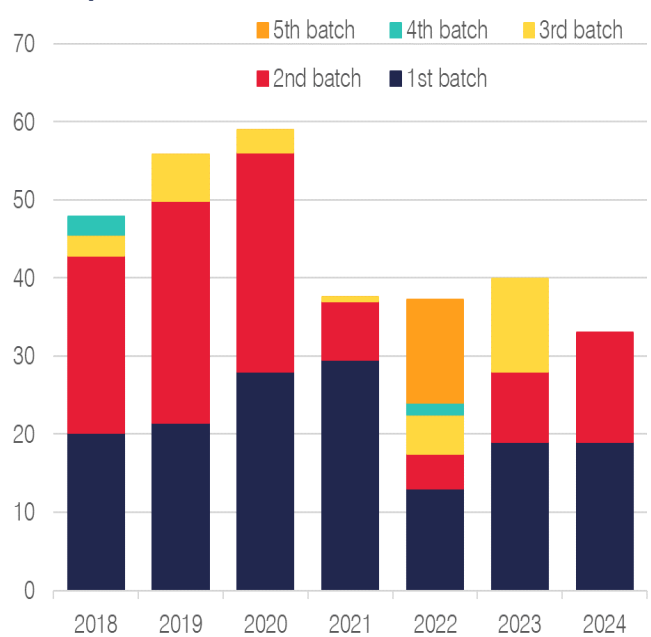
Source: NBS, Argus, OIES

Product exports



Source: GAC, OIES

Product quotas, Mt

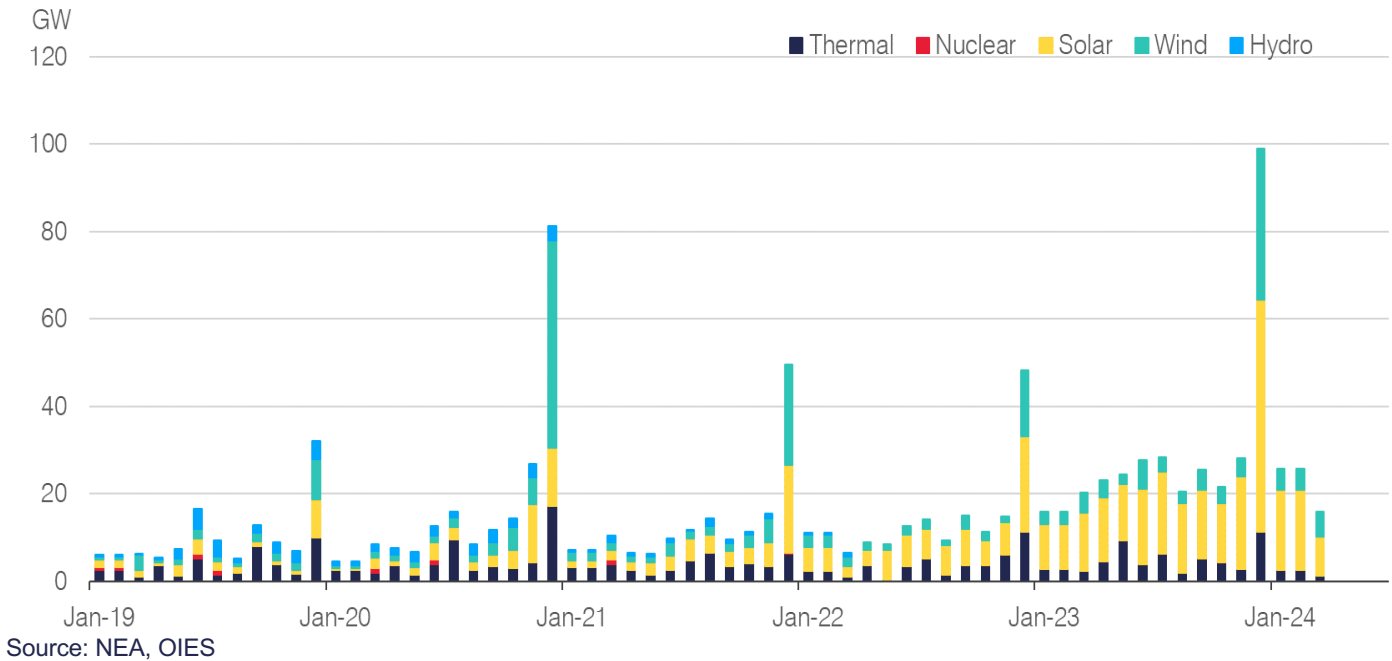


Source: MOFCOM, OIES

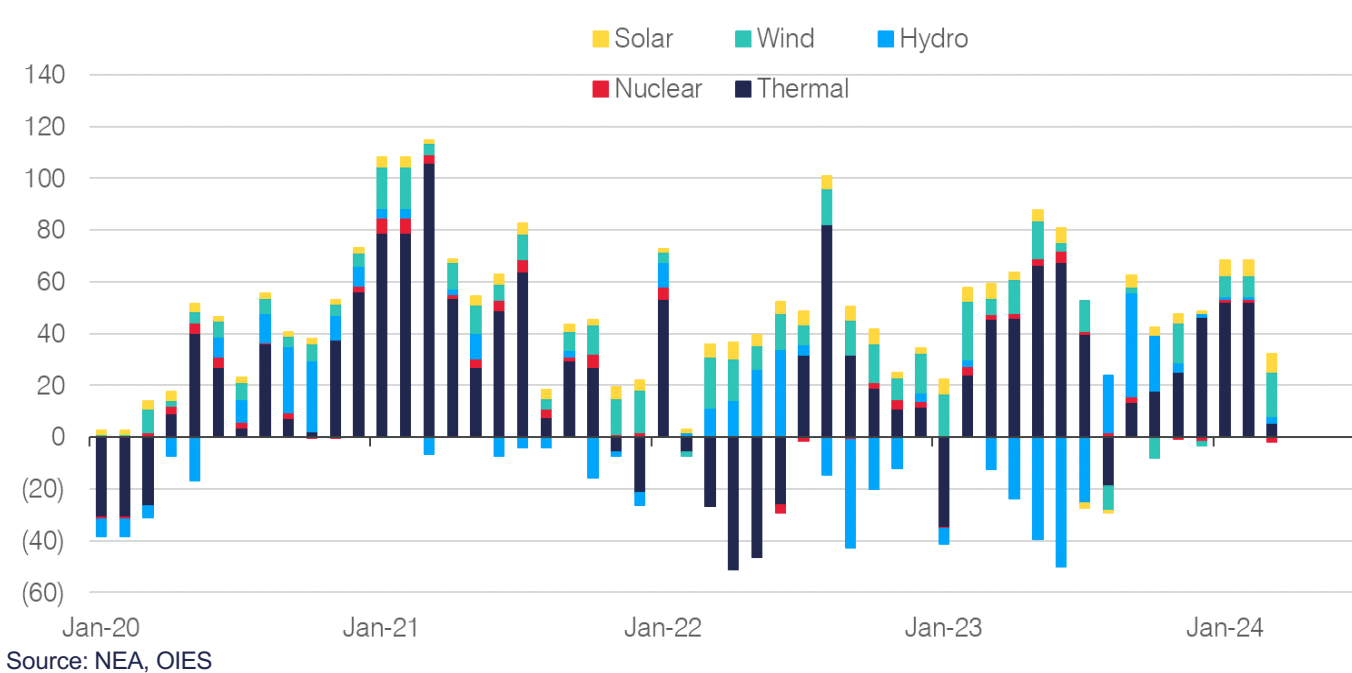
Renewables on the rise

Wind and solar capacity additions were stronger than average in Q1 24 even though they tend to taper off after year-end installation rushes. But March declines in solar suggest midday solar curtailment may be starting to bite.

Capacity additions by source, GW



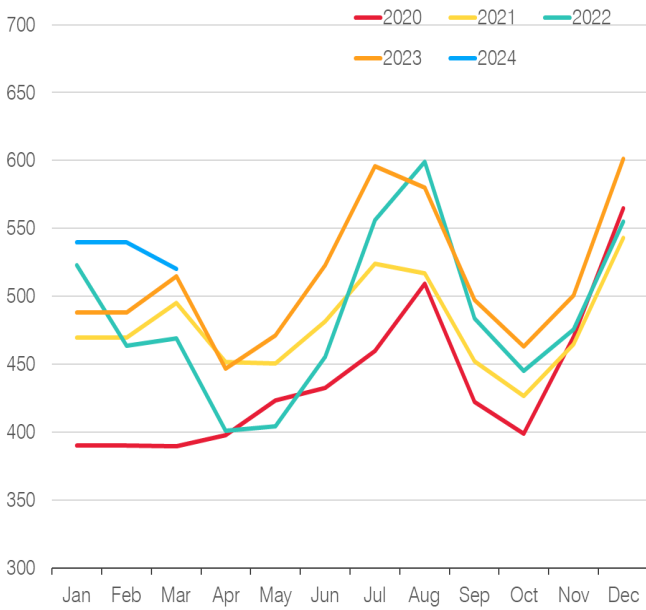
Electricity generation by source, y/y change, TWh



Hydro weakness could support thermal generation

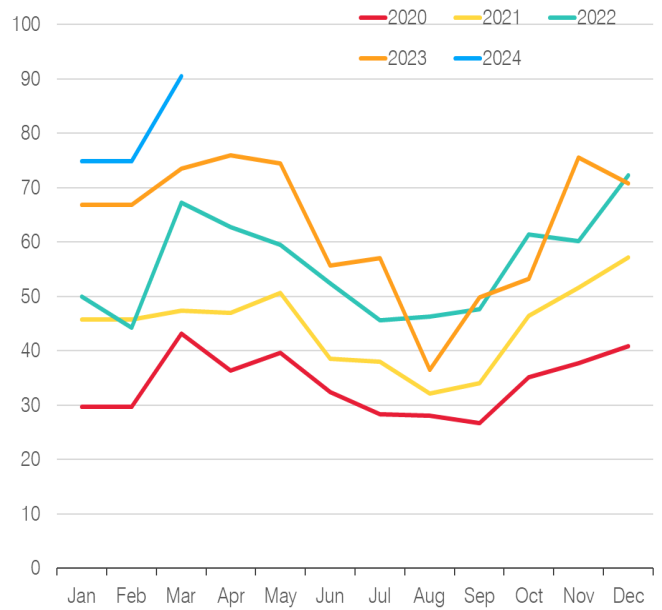
Renewable generation accounted for most of the growth in March. Actual growth was likely higher as this data omits distributed renewables. But low spot gas prices, concerns about power outages and government tolerance for curtailment could favour thermal in the coming months.

Thermal generation, TWh



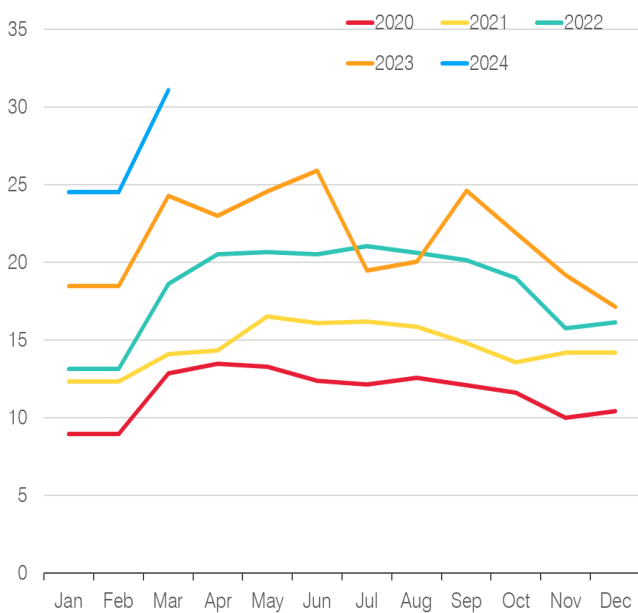
Source: NBS, OIES

Wind power generation, TWh



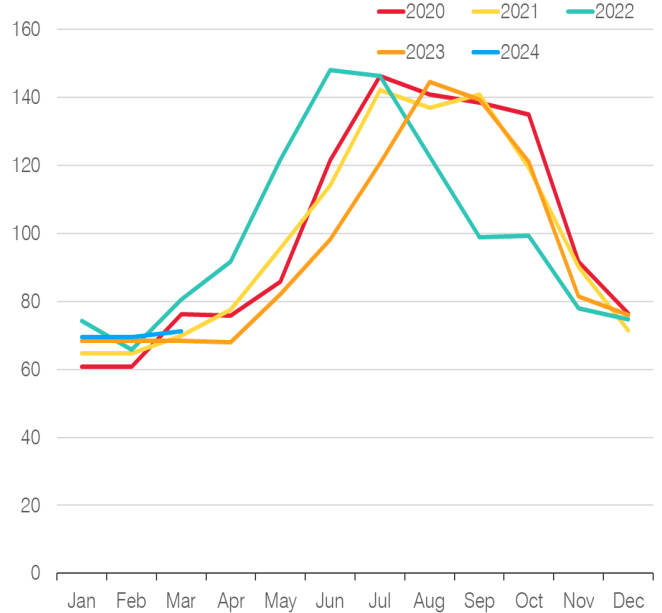
Source: NBS, OIES

Solar generation, TWh



Source: NBS, OIES

Hydro generation, TWh



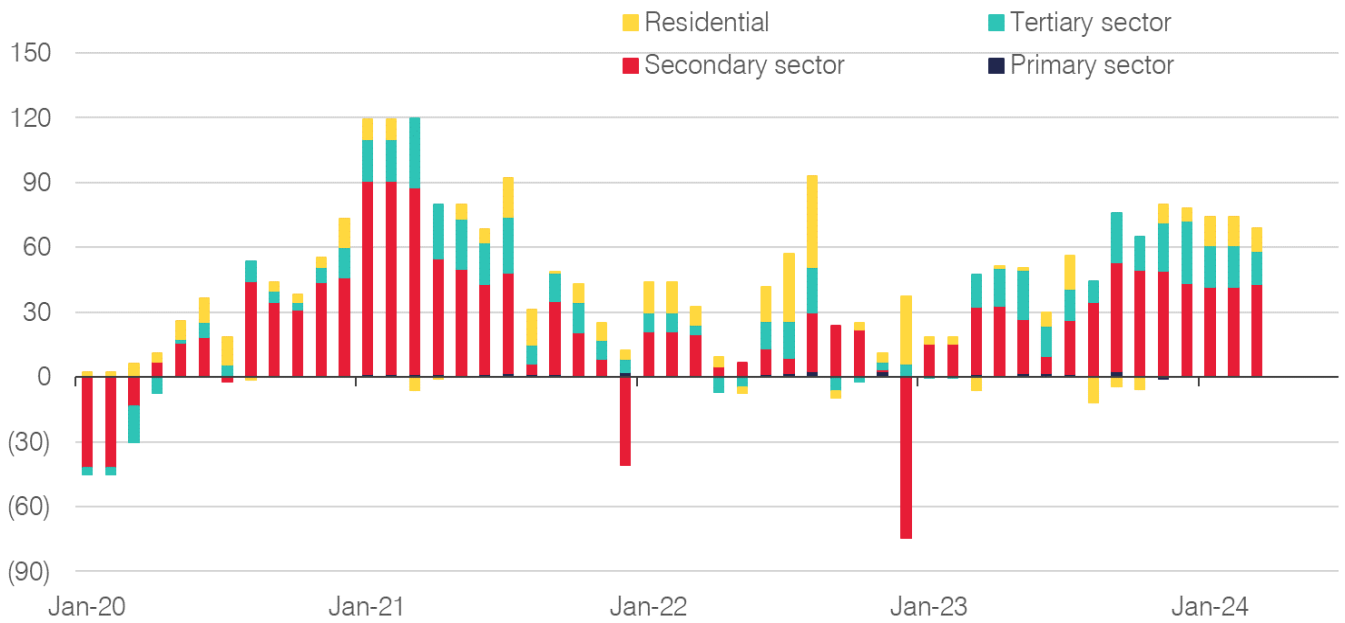
Source: NBS, OIES

Power

Power demand points to industrial strength and electrification

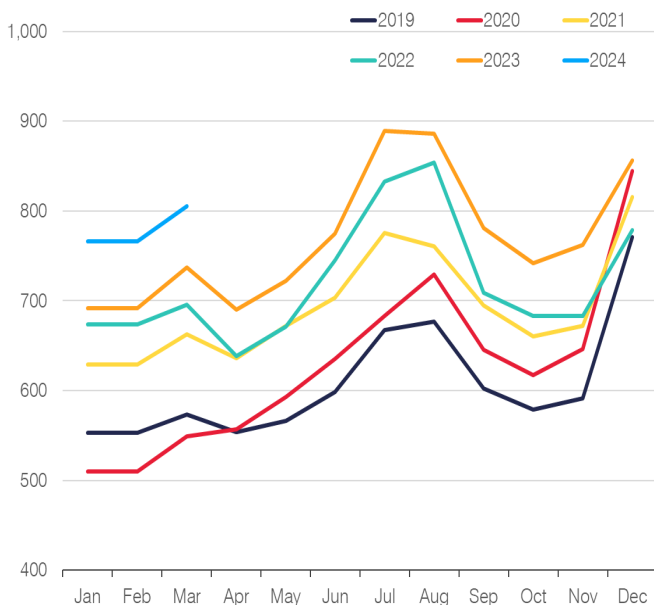
Power demand rose strongly in Q1 24, driven by industrial activity. Tertiary sector power use is also expanding rapidly, representing a combination of EV charging and the broader electrification trend.

Electricity demand by sector, y/y change, TWh



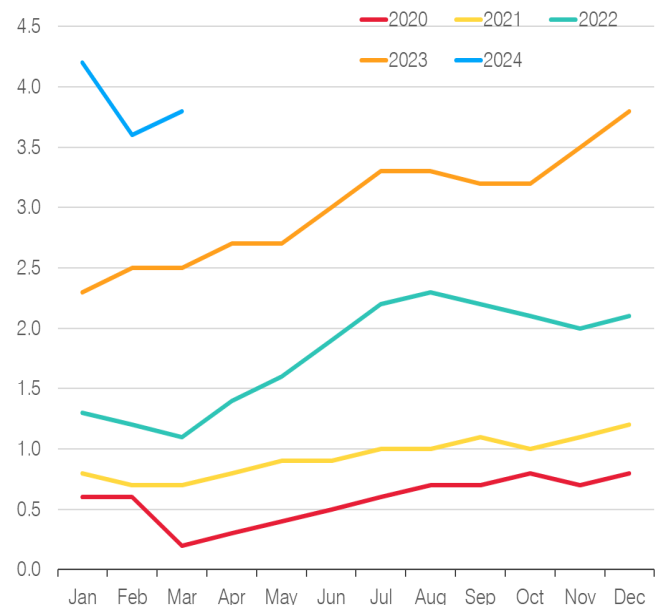
Source: NEA, OIES

Power demand growth, y/y, TWh



Source: NEA, OIES

Total public charging electricity consumption, bn KWh

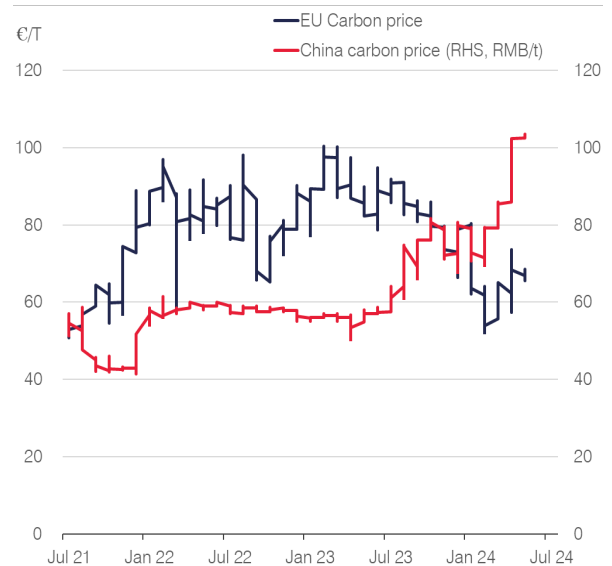


Source: EVCIPA, OIES

Prices

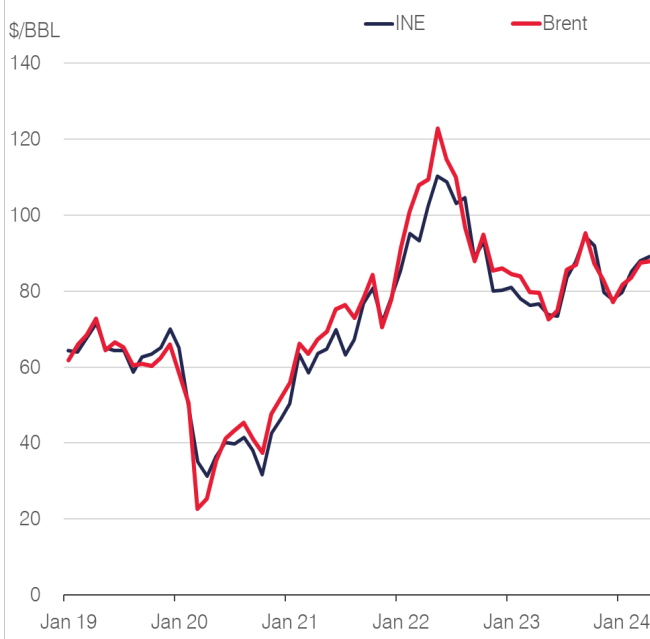
- China's national carbon price (CEA allowance) hit a new record of 100 RMB/t in late April as new regulations and tighter penalties for non-compliance boosted buying interest. But with very low market liquidity there are risks of a squeeze with some sellers looking to offload hoarded allowances before the limits on banking kick in.
- The carbon price is still not being passed through to power prices due to slow progress in power market liberalization. But should prices rise further, power generators will push back against a further tightening of benchmarks.
- Gas pipeline prices at the border are still competitive with term contracts, but some buyers are likely to defer pipelines in favour of spot LNG.
- Meanwhile, the Shanghai crude contract continues to mirror ICE Brent.

Carbon prices



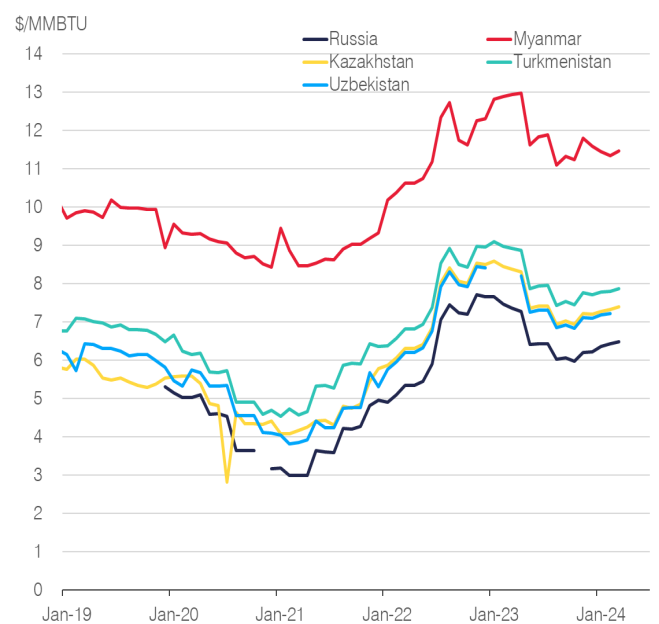
Source: LSEG, OIES

Shanghai crude contract, ICE Brent, \$/bbl



Source: INE, LSEG, OIES

Pipeline prices, \$/MMBTU



Note: Prices are OIES estimates based on Argus, GAC data
Source: OIES



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