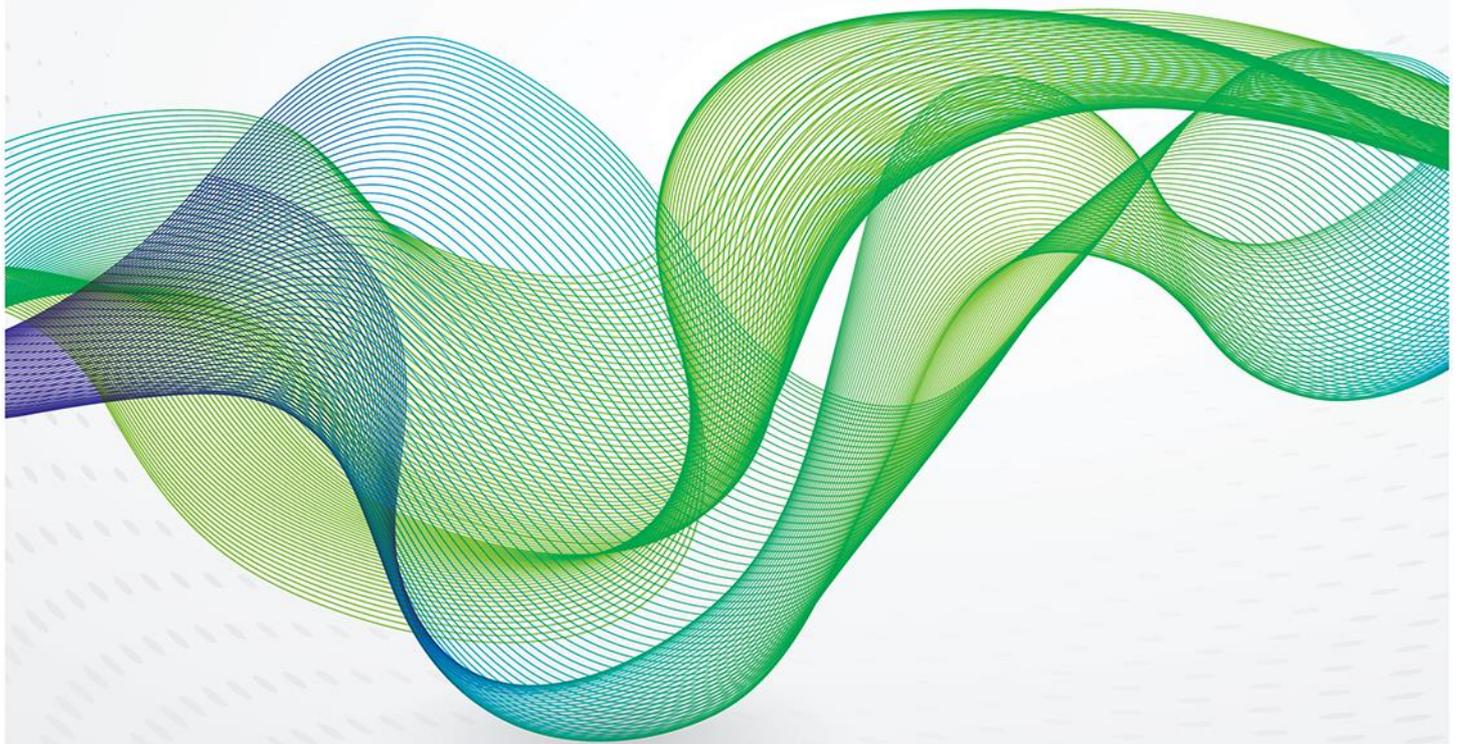


August 2022

# Asian Energy Markets Following the Russian Invasion of Ukraine



## Introduction

Russia's invasion of Ukraine continues to strongly impact international energy markets, posing severe challenges for energy importing countries. Much of the commentary and analysis has been focused on the consequences for, and reactions of, European nations and the European Union. Despite the fact that each region has its own specific dynamics, the global nature of energy markets means that the effects of the conflict in Ukraine are felt around the world, and Asia is no exception.

Most countries in Asia are net importers of fossil energy, either for all forms of fossil fuel or for at least one form. International prices of crude oil and LNG were already rising in the later months of 2021, but the war in Ukraine accentuated this rise. Russia has been changing its supply patterns and looking for alternative markets for its oil, gas, and coal exports in reaction to sanctions and bans, some of which have been driven by the private sector (often referred to as self-sanctioning). While Asian buyers have been picking up discounted cargoes of oil and coal, there have been new costs and complications as energy, food, and other supply chain flows are adapting to sanctions.

The response of the governments of energy-importing Asian nations has varied depending on geography, politics, and energy import needs. China and India are buying more discounted crude oil from Russia, with the potential to purchase more LNG being contingent on pricing and the physical ability to redirect flows. Meanwhile, Japan is following Europe by seeking to reduce its gas dependence on Russia, even though its plans will materialize only in the longer term. More generally, security of supply has risen in importance in the agenda of most Asian countries. Energy saving, fuel switching, and renewable energy are favoured actions. Nuclear power may also look more attractive, as is the case in Japan. But for some countries, the availability of competitively-priced alternative fuels is limited – given rising energy costs across the board – just as lead times for new renewables infrastructure is lengthy.

The immediate impact of these high energy prices and supply chain disruptions is seen in rising costs across many sectors – whose supply chains were barely recovering from the COVID-19 pandemic. The disruption of grain supplies from Ukraine and Russia has had particularly severe consequences for food prices, posing serious challenges for governments and peoples. Not only could this distract from the need to address climate change, but the growing frequency of extreme weather events may accentuate existing poverty and inequality.

These phenomena provide the context within which this commentary examines the impacts of Russia's invasion of Ukraine on Asian energy markets, focusing on the direct exposure of Asian countries to Russian energy exports, as well as on the direct and indirect impacts of the short-term price increases. The paper discusses the implications for, and responses of, India and China in greater depth and refers to select other Asian countries depending on their exposure to energy markets, impact on global markets, as well as the availability of data.

## 1. Asia's exposure to Russian oil, gas, and coal

Asian exposure to Russian fossil fuel exports differs significantly by country.<sup>1</sup> China and South Korea, for instance, are heavy importers of Russian crude, with India now emerging as a large buyer of discounted Russian oil cargoes and thermal coal. Asia as a whole does not rely heavily on Russian gas, with the exception of China and Japan which depend on Russia for around 10 per cent of their imports.

Meanwhile, Japan, South Korea, and Vietnam are large buyers of Russian coal. China has also increased its imports of Russian coal since 2021, when a self-imposed ban on coal imports from Australia and rising demand led to higher coal consumption.

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<sup>1</sup> This Comment discusses a select number of markets and countries, including China, Japan, South Korea, India, Pakistan, Bangladesh, and Sri Lanka, but it does not offer an exhaustive overview of all Asian countries.

Below is a snapshot of China, South Korea, Japan, and India's reliance on Russia for fossil fuels.

- China:
  - Russia was China's second-largest crude oil supplier after Saudi Arabia, accounting for around 15 per cent of the country's total crude supplies in 2021. Since Q2 2022, Russian oil exports to China have increased.
  - Russia was also China's third-largest gas supplier, supplying 5 per cent of China's total gas demand through LNG and pipeline gas, accounting for 9.4 per cent of China's total imports in 2021. Pipeline data releases by country have, however, been suspended in 2022.
  - In 2021, Russia was China's second-largest coal supplier, accounting for one-fifth of the country's coal imports, although Russia supplied the vast majority of China's anthracite coal, one-fifth of Chinese coking coal, and 14 per cent of its thermal coal imports.
- South Korea:
  - Russia was South Korea's fourth-largest crude oil supplier in 2021, after Saudi Arabia, the US, and Kuwait (accounting for 10 per cent of South Korea's imports).
  - Russia supplied just under 3 Mt of gas to South Korea in 2021, its sixth-largest supplier (or 6 per cent of total LNG imports).
  - Meanwhile, Russia accounted for 17.5 per cent of South Korea's coal imports in 2021, its second-largest supplier after Australia.
- Japan:
  - In 2021, Russia was Japan's second-largest coal supplier (after Australia), accounting for 13 per cent of imports.
  - Russia also supplied just under 4 per cent of Japanese crude and 9 per cent of its LNG imports.
- India:
  - Russia has historically been India's sixth-largest supplier of thermal coal, behind Indonesia, South Africa, Australia, the US, Mozambique and Colombia. It represented only a small fraction of overall imports (1.3 per cent in 2021). Yet imports have soared in 2022 and in July Russia surpassed the United States to become the third-largest thermal coal supplier to India<sup>2</sup>.
  - Similarly, Russia accounted for around 1 per cent of India's crude oil imports in 2021. By June 2022, Russia was supplying nearly a fifth of India's crude oil imports. India is the world's third largest oil importer at 5 million barrels per day. Russia supplied 950,000 of those daily barrels in June<sup>3</sup>.
  - India accounts for about 0.2 per cent Russia's natural gas exports through a 20-year deal with Gazprom to buy 2.5 million tonnes of LNG a year which started in 2018.

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<sup>2</sup> Das, Gourab, "Russia Topples US to Increase Coal Imports to India" Economic Times, August 4, 2022  
<https://economictimes.indiatimes.com/news/economy/foreign-trade/russia-topples-us-to-increase-coal-imports-to-india-china-dumps-hefty-amount-of-met-coke/articleshow/93342001.cms>

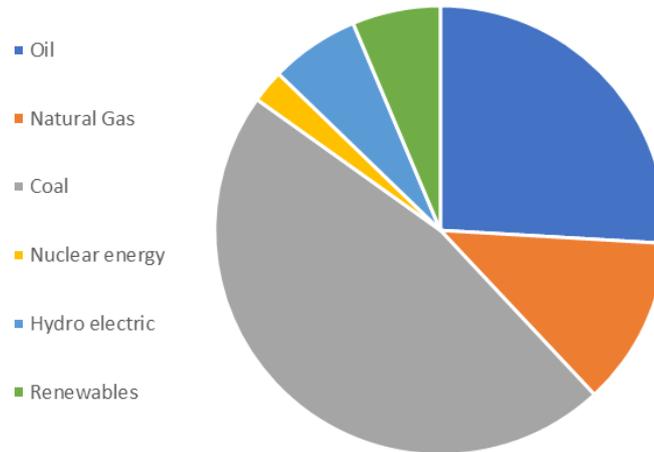
<sup>3</sup> Verma, Nidhi "Russia's share of India's June Oil Imports Surges to 950,000 bpd", Business Standard July 11, 2022  
[https://www.business-standard.com/article/markets/russia-s-share-of-india-s-june-oil-imports-surges-to-record-950-000-bpd-122071101335\\_1.html#:~:text=NEW%20DELHI%20\(Reuters\)%20%2D%20India's,provided%20by%20trade%20sources%20sh owed.](https://www.business-standard.com/article/markets/russia-s-share-of-india-s-june-oil-imports-surges-to-record-950-000-bpd-122071101335_1.html#:~:text=NEW%20DELHI%20(Reuters)%20%2D%20India's,provided%20by%20trade%20sources%20sh owed.)

## 2. Bidding up coal

### 2.1 High dependence on coal

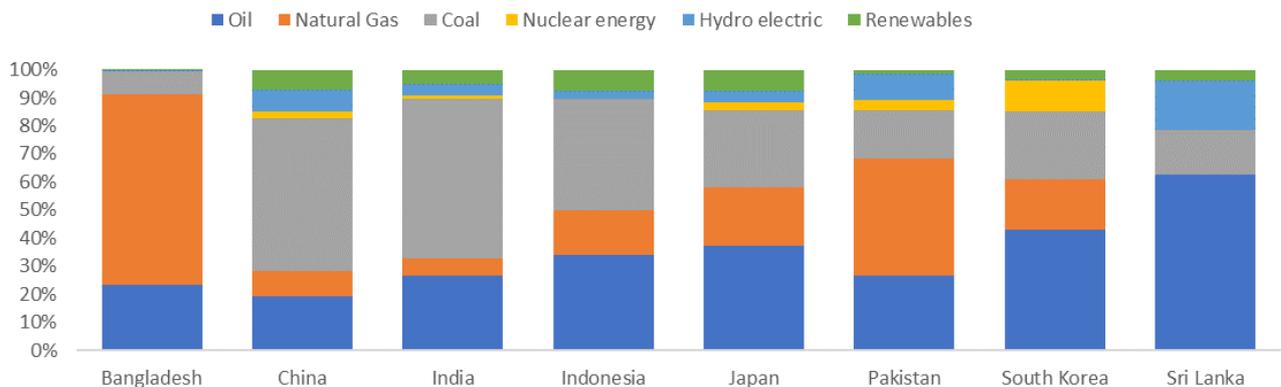
Asia relies on coal for close to 50 per cent of its primary energy consumption, with oil accounting for one quarter of supplies and gas for an additional 12 per cent (**Figure 1**). So, despite the variations in dependence by country (**Figure 2**), the region remains heavily exposed to coal.

**Figure 1: Asia<sup>4</sup> primary energy consumption by fuel (%)**



Source: BP Statistical Review, 2022

**Figure 2: Primary energy demand, select Asian countries (%)**



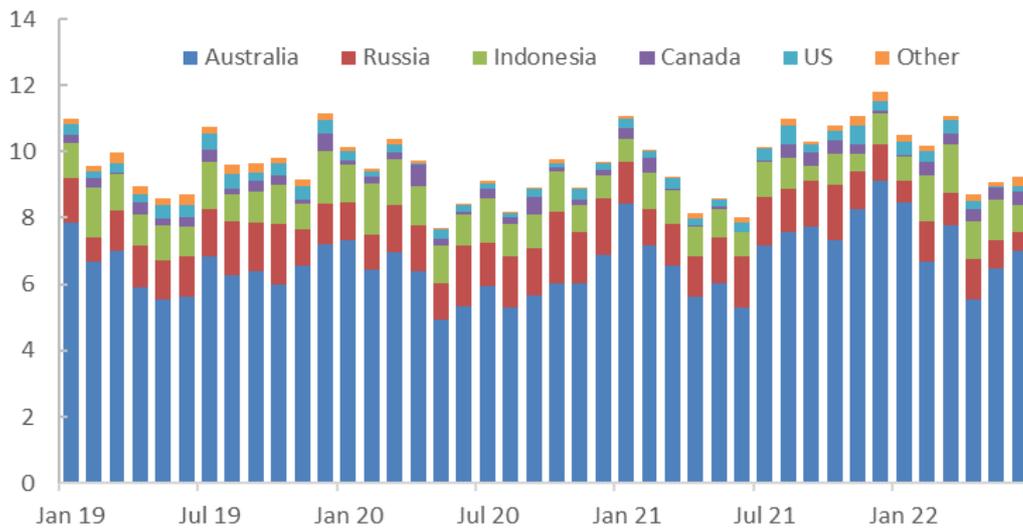
Source: BP Statistical Review, 2022

Following the EU's announcement in April 2022 that it would ban imports of Russian coal starting in August 2022, the Russian government announced it would redirect flows away from Europe. As the deadline of the EU Russian coal import sanctions looms, European buyers are rushing to secure inventories, fearing also that a further reduction in gas flows from Russia will lead to stronger coal demand.

<sup>4</sup> Asia as defined in BP Statistical Review: Australia, Bangladesh, China, China Hong Kong SAR, India, Indonesia, Japan, Malaysia, New Zealand, Pakistan, Philippines, Singapore, South Korea, Sri Lanka, Taiwan, Thailand, Vietnam, Other Asia Pacific.

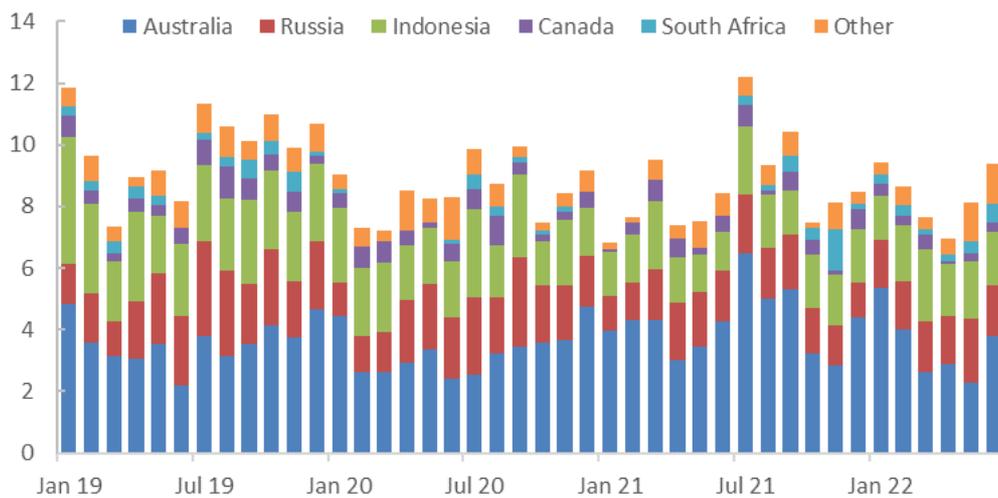
The Japanese government has also announced that it would reduce coal (and oil) imports from Russia gradually,<sup>5</sup> and even though coal imports in H1 2022 have risen, its supplies from Russia fell (**Figure**). Some South Korean utilities are also reportedly looking to steer clear of Russian coal<sup>6</sup> but overall, South Korean coal intake, including from Russia, increased in the first half of 2022 compared to H1 2021 levels (see **Figure 4**).

**Figure 3: Japanese coal imports, Mt**



Source: Argus

**Figure 4: South Korean coal imports, Mt**



Source: Argus

<sup>5</sup> Kiyoshi Takenaka, Chang-Ran Kim, 'Japan bans Russian coal imports, expels eight diplomats', Reuters, 8 April 2022, <https://www.reuters.com/world/asia-pacific/japan-considers-restrictions-coal-imports-russia-jiji-2022-04-07/>.

<sup>6</sup> Jera Co., Japan's top power producer, has stated that it would seek to secure alternative supplies to Russian coal; Shikoku Electric Power Co., a smaller Japanese utility, said it would not import from Russia for the time being. In South Korea, at least three coal-fired power plant operators, units of state-owned utility Korea Electric Power Corp., said they won't commit to future purchases after their existing contracts come to an end, according to 'North Asia Moves to Curb Russian Coal Imports After EU Ban', Bloomberg, 8 April 2022, <https://www.energyconnects.com/news/oil-and-gas/2022/april/north-asia-moves-to-curb-russian-coal-imports-after-eu-ban/>.

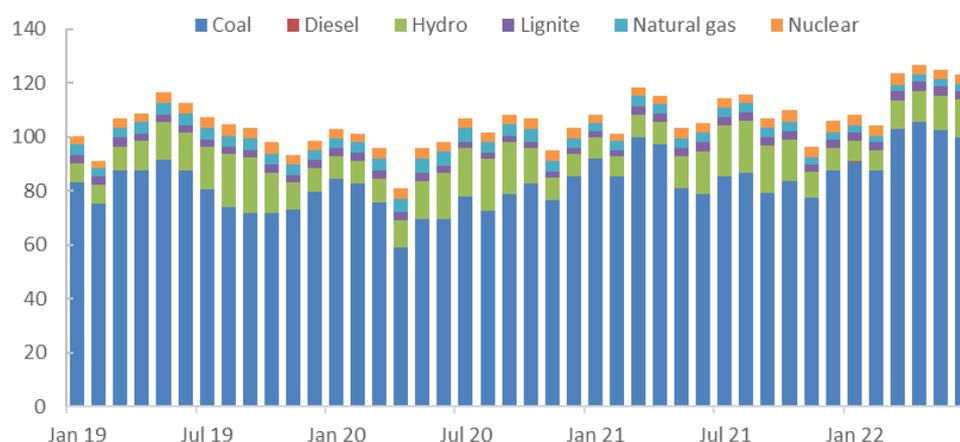
## 2.2 Short-term issues: higher cost of coal and affordability

As European (and some Asian) countries search for alternative-origin supplies, prices of South African and Australian thermal coal rose sharply, tightening the Asian coal market. And despite the availability of discounted Russian coal, prices are rising, partly also because financing challenges have complicated transactions. In India, even though buyers have reportedly been seeking discounted Russian coal, international banks' refusal to open letters of credit for these transactions has complicated these purchases<sup>7</sup>. However, the Reserve Bank of India on July 11th, 2022 allowed invoicing and payments for international trade in rupees, potentially facilitating greater bilateral business with Russia. 8. Discounted coal imports have already soared.

### 2.2.1 India: heatwave and blackouts

Nonetheless imports of coal, including Russian coal, have increased as **India** has been confronting an unprecedented heatwave since March 2022. This heatwave, combined with renewed economic activity after the pandemic, alongside a shortage of coal inventories at many Indian thermal generation plants – given policies to move away from coal – is leading to extended power outages. Even though these factors are unrelated to the Russian invasion of Ukraine, India's options for dealing with them have become far more expensive as a result of the invasion.

**Figure 5: India power generation, GWh**



Source: Argus

The spike in electricity demand has thus far been met through increased capacity utilization of thermal plants (**Figure 5**). While coal plant capacity utilization used to exceed 80 per cent just a decade ago, it has fallen to below 50 per cent in recent years. The current increase in generation demand requires more coal than is available through the domestically sourced coal allocations. The Indian government is therefore intent on importing coal – despite record high prices – in a bid to avoid punishing power blackouts and a negative shock for economic growth and employment.

<sup>7</sup> Indian coal consumers are reportedly refusing to work on prepayment terms, although some Indian buyers intend to use Indian banks or push transactions through third-party banks in Asia to proceed trades, or are considering using roubles or rupees for payments. One large Russian producer offered Indian consumers the option to pay for coal cargoes in yuan (see 'Russian Coal – Russia increases exports to India', Argus, 30 May 2022, <https://direct.argusmedia.com/newsandanalysis/article/2336532>).

<sup>8</sup> Das, Saikat "Petersburg Social Commercial Bank may be a focal point of India-Russia rupee trade" Economic Times, July 13, 2022 [https://economictimes.indiatimes.com/industry/banking/finance/banking/petersburg-social-commercial-bank-may-be-a-focal-point-of-india-russia-rupee-trade/articleshow/92858228.cms?utm\\_source=contentofinterest&utm\\_medium=text&utm\\_campaign=cppst](https://economictimes.indiatimes.com/industry/banking/finance/banking/petersburg-social-commercial-bank-may-be-a-focal-point-of-india-russia-rupee-trade/articleshow/92858228.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst)

Starting in May, thermal power plants and Indian States were asked by the central government to import coal quickly, in order to put an end to the recent blackouts,<sup>9</sup> but high global prices are making these imports unaffordable: Thermal power plants (both private Independent Power Producers and some government-owned plants) are financially strapped, since many of them have overdue payment claims on state-owned electricity distribution companies. Meanwhile, additional freight-handling logistics for transporting emergency extra quantities of domestic coal from coal-bearing regions by rail to thermal plants have not been available in time.

The current shortages have been exacerbated by the fact that India's primary coal producer, central government-owned Coal India Limited (CIL), has had few incentives to invest in additional capacity, in light of the government's plans to 'phase down' coal-fired generation, and the announcement of very aggressive renewable energy investment targets. In 2016, the Minister for Coal, Power and Renewable Energy announced that older coal plants would be closed, coal imports would fall to zero, and while coal was not going away from the Indian energy mix, its importance would substantially decrease relative to decarbonized sources of energy generation. Therefore, when the unusual and lengthy heatwave struck and electricity demand shot up, CIL was unable to increase coal output at short notice, leading to a vastly increased demand for coal imports.<sup>10</sup>

At the same time, the large investments in renewable energy which have been made over the past five years are not yet ready to provide grid-scale backup storage and dispatchable capacity/firm power. In the interim, around 14 GW of mothballed gas-fired power plant capacity that has been idle for at least five years, is now also being revived, and proposed for operation with very expensive gas.<sup>11</sup> Despite this, Indian LNG imports have fallen this year as global gas prices have surged.

## 2.2.2 China's coal comeback

**China** has seen growing appetite for coal, but its government remains intent on boosting domestic supplies and limiting imports. Moreover, the weak macroeconomic outlook subdued electricity demand in early Q2 2022, with a slight rebound in June (**Figure 6**).

The growing appeal of coal in China is driven in part by fuel switching, in light of higher gas prices following the Russian invasion of Ukraine, but it also predates the invasion. In the aftermath of the country's power shortage in autumn 2021, China's energy regulators introduced a mandate for domestic coal mines to ramp up production – facilitating this by approving more coal production capacity as long as they fulfil safety requirements – and looking to stabilize prices by intervening in coal market pricing. The energy market turmoil resulting from the Russian invasion of Ukraine is further highlighting the appeal of domestically produced coal for China, even though it complicates the country's net zero pledges.

In April, the State Council meeting said that China is set to increase coal production by 300 million tonnes in 2022.<sup>12</sup> The NDRC also put forward its official 'reasonable range' for thermal coal prices: between 570 and 770 RMB/tonne for Qinhuangdao mid–long-term coal contracts (5500 kcal). Those who sells coal at prices 50 per cent above the official price will be seen as violating the rules.<sup>13</sup>

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<sup>9</sup>Sudarshan Varadhan, 'Coal India to import for first time in years as power shortages loom', Reuters, 30 May 2022, <https://www.reuters.com/world/india/coal-india-import-coal-supply-states-document-2022-05-28/>.

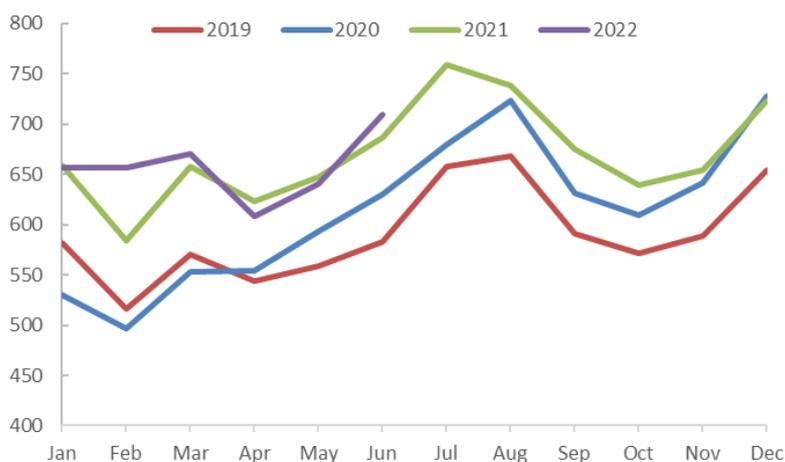
<sup>10</sup>'India heat wave: Axing coal imports proving to be a costly affair', S&P Global, 26 May 2022, <https://www.spglobal.com/commodityinsights/en/market-insights/blogs/coal/052522-india-heat-wave-coal-import-prices>.

<sup>11</sup>Of the country's 24 GW gas-fired capacity, 14 GW has been stranded for more than 10 years due to non-availability of gas, while the remaining plants are operating at very low capacity. See Singh, Sarita, '24,000 GW gas-based power plants lie underutilised', *The Economic Times* (indiatimes.com), 31 August 2021 at <https://economictimes.indiatimes.com/industry/energy/oil-gas/24000-gw-gas-based-plants-lie-underutilised/articleshow/85777893.cms?from=mdr>.

<sup>12</sup>"Li Keqiang presided over a State Council executive meeting to deploy measures to further improve agricultural output in the Spring" (Chinese), Xinhua, 20 April 2022, [http://www.gov.cn/xinwen/2022-04/20/content\\_5686323.htm](http://www.gov.cn/xinwen/2022-04/20/content_5686323.htm).

<sup>13</sup>"Announcement of the National Development and Reform Commission" (Chinese), 30 April 2022, [https://www.ndrc.gov.cn/xxgk/zcfb/qg/202204/t20220430\\_1324222.html](https://www.ndrc.gov.cn/xxgk/zcfb/qg/202204/t20220430_1324222.html).

**Figure 6: China power generation, TWh**



Source: National Bureau of Statistics

Despite China's desire for coal independence, imports still account for 10 per cent of its total supplies. And as the cost of non-Russian coal supply is rising, China's eastern provinces are finding less available stock in the seaborne market, leading the government to remove the coal import tariff from 1 May, in a bid to lift imports and reduce the fuel costs for some domestic consumers.

China's coal supply could still remain tight, especially if economic activity rebounds following the easing of COVID restrictions. Despite the push to ramp up domestic production, the shutdown of aging and inefficient capacities in recent years has led to a concentration of coal supply in three provinces, Shanxi, Shaanxi, and Inner Mongolia, meaning that the eastern and coastal provinces rely more heavily on the seaborne market. Limitations on domestic coal transportation infrastructure – which cannot be boosted quickly – further hinder supplies to coastal provinces. At the State Council executive meeting in late May,<sup>14</sup> Premier Li Keqiang re-emphasized energy security and urged the guaranteeing of coal production and the faster approval of coal mines capacity expansion. This will likely remain the policy tone throughout 2022, but discounted Russian coal could become an important supply source for China. Already in 2021, Russian coal flows to China increased as the country enforced a ban on Australian coal. The availability of discounted cargoes will be appealing to buyers in China.

### 2.2.3 Indonesia

Uncertainties surrounding the demand outlook are also impacting producers. **Indonesia**, the world's largest thermal coal exporter, is feeling the heat. In early March, Indonesia's Energy and Mineral Resources Ministry raised its March coal reference price (HBA) to USD203.69/t, up 8.1 per cent month on month, on expectations of higher coal demand driven by the crisis. The monthly price assessment, which reflects coal for loading free on board at Indonesian ports, represented a more than two-fold increase from March 2021, when prices were at USD84.49/t. Later in March, the energy ministry mulled over a proposal to raise the domestic market obligation (DMO) for coal from 25 per cent to 30 per cent of total production, in anticipation of rising domestic demand.<sup>15</sup> Following further escalation of the crisis, in early April, Indonesia hiked the April coal reference price by 42 per cent m/m to USD288.40/t. But in light of softening demand in China, the Indonesian energy ministry set the May coal price 4.4 per cent lower m/m, at USD275.64/t, although this is still significantly higher than the previous year's level.<sup>16</sup> But

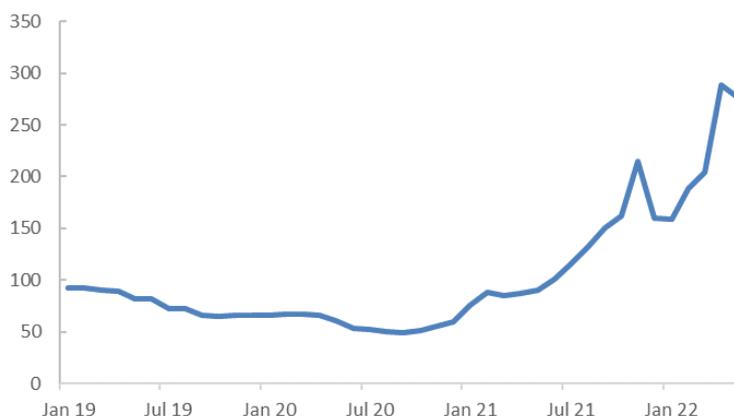
<sup>14</sup> "Li Keqiang presided over a State Council executive meeting to further deploy a packet of measures to stabilize the economy, strive to put the economy back on track and ensure that it operates within a reasonable range" (Chinese), Xinhua, 23 May 2022, [http://www.news.cn/politics/leaders/2022-05/23/c\\_1128677373.htm](http://www.news.cn/politics/leaders/2022-05/23/c_1128677373.htm)

<sup>15</sup> Divya Karyza, 'Indonesia mulls raising coal DMO to 30%', *The Jakarta Post*, 28 March 2022, <https://www.thejakartapost.com/business/2022/03/28/govt-mulls-raising-coal-dmo-to-30.html>.

<sup>16</sup> Pritish Raj, Anita Nugraha 'Indonesia sets May HBA thermal coal price at \$275.64/mt, down \$12.76/mt on month', S&P Global, 9 May 2022, <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/coal/051922-indonesia-sets-may-hba-thermal-coal-price-at-27564mt-down-1276mt-on-month>.

this trend reversed again when, on 6 June, the ministry raised the June reference price to a new record high of USD323.91/t, citing robust demand from India.<sup>17</sup> With demand from China set to recover as the COVID restrictions ease, and ongoing demand in India, coal prices are likely to remain elevated, especially if European demand remains strong through 2022 and early 2023.

**Figure 7: Indonesia coal reference price, f.o.b., USD/t**



Source: Refinitiv

## 2.2.4 Other South Asian countries

Volatility and a sharp increase in prices have meant that a number of South Asian countries, including **Pakistan**, can no longer afford to import coal for their power plants. In Pakistan, roughly one-fifth of total power generation is offline, leading to power outages to households. With fuel and power subsidies also in place, the financial burden on the government is rising sharply.<sup>18</sup> In light of the financial strain, Pakistan's LNG imports were also down slightly in the year-to-May, a fact that has exacerbated the situation in the power sector. The lower import level stems both from the unaffordability of gas at the current higher prices, and also from the cancellation of contracted cargoes by a supplier. As the cargo was contracted at much lower oil-indexed prices, the sellers reportedly opted to sell it at spot prices.

In **Bangladesh**, a similar story is unfolding as the surging cost of LNG and coal imports are compounded by domestic gas supply shortages. Even before the Russian invasion of Ukraine, the rising costs of imported fossil fuels led the Bangladesh Power Development Board to propose a huge bulk power tariff increase of up to 64 per cent to cover growing cash shortfalls.<sup>19</sup>

The additional increases in the cost of fossil fuel imports are also exacerbating the economic crisis in **Sri Lanka**, which is now suffering from rolling blackouts and street protests. Coal imports have become unaffordable and the country does not have the foreign exchange needed for the maintenance of its coal-fired power plants.<sup>20</sup> This crisis resulted in the departure overseas of the President on 12 July 2022.

## 2.2.5 Tightening global coal markets and mixed economic outlooks

In sum, changes in global coal trade flows and concerns about future availability have tightened global coal markets. Even though some discounted Russian coal is available in Asia, there are rising transaction costs associated with importing it. Meanwhile, rising coal demand in Europe is further

<sup>17</sup> 'Indonesia Jun HBA thermal coal price up 17.51% from May, hitting new high', [sxcoal.com](http://www.sxcoal.com/news/4653712/info/en), 6 June 2022, <http://www.sxcoal.com/news/4653712/info/en>.

<sup>18</sup> Faseeh Mangi, 'Cash-Strapped Pakistan Cuts Power to Households on Fuel Shortage', Bloomberg, 18 April 2022, <https://www.bloomberg.com/news/articles/2022-04-18/cash-strapped-pakistan-cuts-power-to-households-on-fuel-shortage>.

<sup>19</sup> Simon Nicholas, 'High coal prices – the other side of the coin', Institute for Energy Economics and Financial Analysis, 31 May 2022, <https://ieefa.org/articles/high-coal-prices-other-side-coin>.

<sup>20</sup> Ibid.

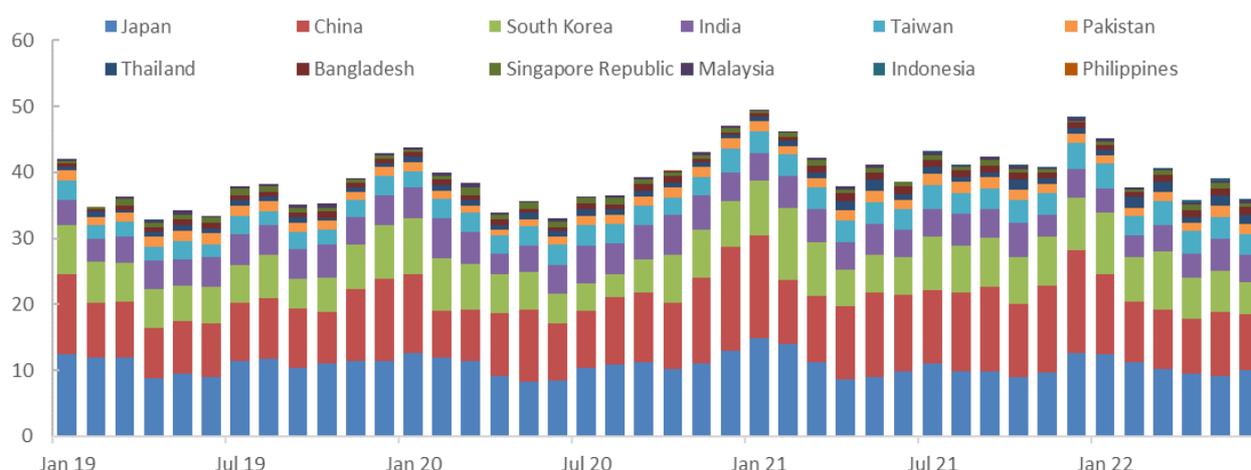
pushing up prices. And in the context of rising energy and food costs, a number of emerging Asian economies – such as Pakistan, Bangladesh, and Sri Lanka – are struggling to import at all.

The macroeconomic context matters greatly too. In India, demand has been supported by an ongoing heatwave from March to June, and the post-COVID recovery. Even during the current monsoon, electricity demand is growing at over 5 per cent and With blackouts and severe power shortages, the government has no option but to import coal. Meanwhile in China, economic activity has been muted due to the lacklustre economic outlook. The issue of affordability, together with the macroeconomic context, suggest very different outcomes among countries but for now, China, India, and South Korea are emerging as the most likely destinations for Russian coal, with steep discounts of over USD200/t.<sup>21</sup> Other South East and South Asian countries, however, are at risk of increased energy poverty.

### 3. A tight LNG market, and limited appetite in Asia

Higher coal prices have impacted imports in some Asian countries but, equally, high LNG prices have also weighed as substitution from coal to gas has become very costly. Moreover, EU countries are still taking spot LNG cargoes from Russia and no sanctions have yet been placed on Russian LNG. So, in order to attract spot LNG, Asian buyers would need to outbid European buyers. As such, in the first six months of the year, Asian LNG imports fell by 8 per cent, driven in large part by weak demand in China, where LNG arrivals have been down by 22 per cent y/y (or 12 bcm), according to Customs data.

**Figure 8: Asian LNG imports, bcm**



Source: Kpler

#### 3.1 Impacts on Asian LNG imports

India’s LNG imports were down by 3.5 bcm y/y between January and June, or 13 per cent, in response to the high LNG spot prices. While GAIL India has signed several long term contracts with Russia, in 2022 gas supplies from Russia are not performing well. The Singapore unit of SEFE Marketing & Trading Ltd (formerly Gazprom Marketing & Trading Ltd) has skipped eight LNG shipments to GAIL since late May, leading to a supply deficit. The gas utility is making efforts to bring forward other cargoes that are scheduled for 2023 delivery to this year and also buy LNG from the US. A supply shortfall could squeeze availability of the fuel for major users such as petrochemical plants, oil refineries, steel mills and fertilizer makers. GAIL has already lowered production at one of its petrochemical plants to divert gas for other customers<sup>22</sup>.

<sup>21</sup> ‘Russian Coal: Asian discounts for Russian coal drop’, Argus, 27 June 2022.

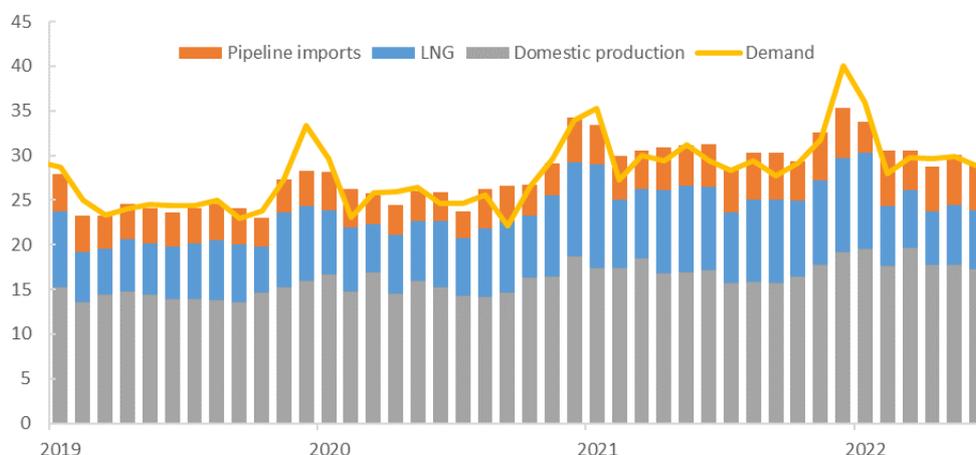
<sup>22</sup> Livemint/Bloomberg, “GAIL India Scampers for LNG as ex-Gazprom Unit Falters on Supplies” 04 August 2022 <https://www.livemint.com/industry/energy/gail-india-scampers-for-lng-as-ex-gazprom-unit-falters-on-supplies-11659626982853.html>

Domestic and LNG import prices have skyrocketed even though gas is administratively priced according to a formula. This is coming at a time when the government is trying to double the share of gas in the country's energy mix and is undertaking multi-billion-dollar investments in building 'One Nation, One Gas Grid', as well as setting up R-LNG infrastructure. These investments and plans to increase the share of gas in the energy mix could now be derailed.

Indeed, in 2017, during dialogues with the US, India announced its intention to include 'cheap imported gas' in its energy mix. The increased availability of gas would support a higher penetration rate for gas in city gas distribution, thereby also helping to meet the country's air pollution reduction targets. City gas distribution includes Compressed Natural Gas (CNG) in transport and Piped Natural Gas (PNG) for household cooking. PNG in urban areas would eliminate polluting biomass fuels that are still used in many urban households. At the same time, switching urban households to PNG would free up the LPG cylinders for clean cooking in rural areas, which in turn would also help with combatting deforestation in rural areas, where firewood is still used for cooking. These were some of the rationales for the national gas strategy, but implementation of these plans could now be delayed given rising gas costs and the government's growing fiscal burden.

In China, meanwhile, the high LNG prices have deterred imports, but the weak macroeconomic outlook has also played an important role in subduing gas consumption (Figure 9).

**Figure 9: China gas supplies, bcm**



Source: China Customs, NBS, NDRC

While implied gas demand in H1 2022 has been flat, LNG flows have plummeted while domestic supplies and pipeline flows have risen. The zero-COVID policy has weighed on economic activity and the government's ambitious programme of infrastructure investments is still struggling to start up. Chinese fixed asset investment in infrastructure shrank in real terms in January–May and there is little indication that it rebounded significantly in June or will do so in the coming months. The country's main construction seasons are April–June and September–November, but much of China was in lockdown during the first of these, while the onset of the rainy season may impede construction projects in July–August.

That said, the government is tweaking the implementation measures associated with its zero-COVID policy, hoping to boost economic activity and revive growth in the second half of the year. It is still highly unlikely that the economy will grow by anywhere near 5.5 per cent this year, but an uptick is likely. This could lead to more gas imports, especially if the hot weather persists through the summer, and if the winter is particularly cold; however, LNG imports are still likely to fall short of 2021 levels and will only recover in 2023 if, and as, the economy recovers.

At the same time, China's decision makers are focusing on summer power demand and looking to ensure supplies for the peak power season. The country's top leaders have been asking provincial governments and energy companies to keep electricity supply and prices stable this summer, but have highlighted that doing so will require relying on coal. As discussed above, higher coal demand will also

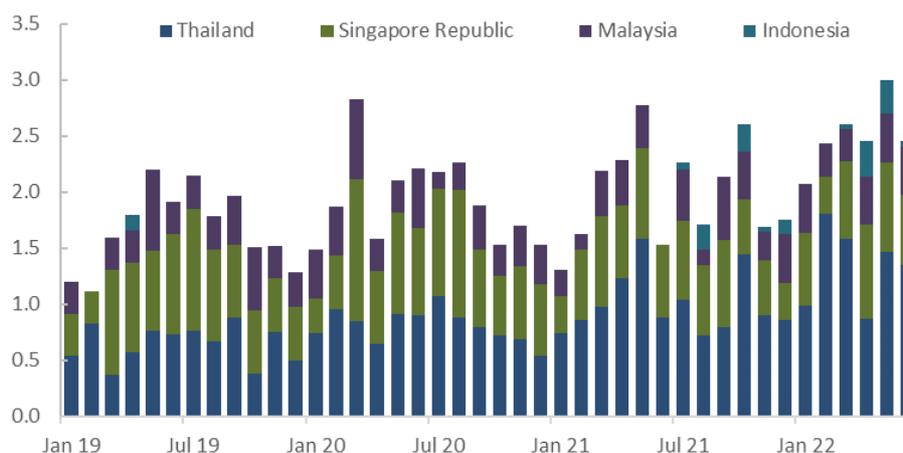
require more imports, which in turn will keep coal markets tight. Moreover, the government may also be concerned that higher coal prices will lead once again to power outages as was the case in 2021. Even though the government has reformed the power pricing mechanism, power prices can only fluctuate within a certain range, so if coal prices rise too far, generators could shut for maintenance again in order to avoid losing money. As a result, the government has already pledged that it would keep the price of coal down by expanding domestic output, improving transportation networks for coal (although zero-COVID is making this challenging), offering fiscal support to areas where coal inventories fall too low and, if all else fails, using direct intervention in coal prices.

Finally, **Pakistan**, which was hoping to secure discounted supplies from Russia, has also been deterred by high spot prices (and the limited availability of discounted LNG). In the year-to-June, LNG imports have fallen by 9 per cent y/y, with no LNG flows from Russia, according to Kpler data. In a recent interview, the Minister of State of Petroleum announced that:

*'since supply from Russia is suspended due to the war with Ukraine, European countries are also buying gas from everywhere it's available. As a result, LNG, which was priced at \$4 two-and-a-half years ago, is no longer available for even \$40. So, Russia's war [with Ukraine] created a real crisis. We don't have enough energy right now. The gas is not available and we can't afford such expensive gas. So what we are doing is arranging alternates. The recent increase in production, imports of coal and furnace oil is part of the same strategy'.<sup>23</sup>*

Across **ASEAN** LNG consuming countries, imports increased in the year-to-May by 25 per cent compared to 2021 levels. The increase has been especially strong in Thailand, due to a drop in pipeline imports from Myanmar on the back of the security situation in Myanmar. The strong performance may, in part, reflect the fact that most LNG imports into the region are at oil-indexed prices and the exposure to spot prices is more limited than in other Asian countries and in Europe. However, Thailand is now beginning to struggle with the high spot prices they are being faced with to top up their shortfall in supplies from Myanmar, so the growth might ease somewhat in the second half of the year.

**Figure 10: ASEAN LNG importers, bcm**



Source: Kpler

### 3.2 The role of gas in Asia's transition

The rising cost of fuels, together with inflationary pressure, will weigh on the macroeconomic outlook of many emerging Asian countries. With the prospect of higher gas prices for a sustained period, will gas be a viable part of the energy transition in Asia?

<sup>23</sup> Apoorva Kaul, 'Pakistan's Energy Crisis To Worsen As Country Struggles To Obtain LNG Amid War: Report', Republic World, 27 June 2022, <https://www.republicworld.com/world-news/rest-of-the-world-news/pakistans-energy-crisis-to-worsen-as-country-struggles-to-obtain-lng-amid-war-report-articleshow.html>.

### 3.2.1 The global LNG scene

Before assessing the role of gas in Asia, it is important to look at the global context, and the availability of LNG in the coming years. Global LNG supplies had begun to rise significantly this year as the well-documented supply constraints from 2021 began to unwind and new US trains came on at Sabine Pass (Train 6) and Calcasieu Pass. At the beginning of 2022, OIES estimated a 40 bcm (or 7 per cent) increase in available export capacity, but the fire at the Freeport terminal in the US and the slightly slower ramp up of supplies from other plants, means that a 5 per cent increase, or roughly 26 bcm, is more likely. In the context of the soaring demand in Europe, as Russian pipeline flows continue to decline, this loss of supply has firmed up prices even more.

Available LNG export capacity is set to rise further in 2023 as the Freeport plant returns, the full year effects of the US plants coming on in 2022 are enjoyed, and more new plants come on – Coral FLNG in Mozambique, Tangguh Train 3 in Indonesia and, possibly, Tortue FLNG in Senegal/Mauritania. However, with very low flows of Russian pipeline gas into Europe continuing, Europe will be seeking even more LNG, assuming the new regasification capacity, especially in the Netherlands and Germany, comes on in a timely fashion.

As a consequence, spot prices in Europe and Asia seem likely to remain very high for the next three to four years – well above USD30 per MMBtu – until the large wave of additional LNG supply comes on in the 2025 to 2028 period. This tentative price outlook also assumes that Russian pipeline flows to the EU countries continue at contract take-or-pay levels, which is around 200 mcmcmd. The recent curtailments of flows along Nordstream 1 and on the Ukraine routes have taken Russia pipeline imports to almost half these levels. A continuation of flows at these much lower levels, or even a complete curtailment, would lead to even higher prices and the rationing of gas supplies, and possibly some permanent demand destruction. That demand destruction could occur both in Europe and in Asia.

### 3.2.2 Is gas still a transition fuel in Asia?

The higher prices of USD30 per MMBtu or above, sustained for a number of years, may well jeopardize the previously anticipated growth in demand for LNG in Asian markets, especially in the new emerging LNG markets. This rise in LNG demand was, in part, predicated on the replacement of coal-fired power with gas, but the economics of doing this, which were already marginal without a serious carbon price, now look unsustainable. Even in Europe, gas-fired power is increasingly being displaced by coal, as coal plants that were supposed to be phased out are being kept in service. This is in spite of the potentially devastating consequences for carbon emissions. In an energy supply emergency, it seems that security of supply outweighs the climate consequences. At sustained high prices, many Asian countries will be hard pressed to phase out coal in favour of gas.

Even in China, where policy mandates to switch from coal to gas have led to demand increases despite high prices, gas demand growth could weaken. As the Chinese economy begins to recover from the zero-COVID policy, gas demand is certainly likely to rise slightly.<sup>24</sup> Weather-related demand could lead to spot purchases, even at a high cost. But while China's gas demand is still set to grow dramatically as it seeks to phase out coal (over time) and ramp up renewables capacity, the share of gas in the energy mix could err on the lower side of estimates.<sup>25</sup> Put differently, whether the share of gas reaches 15 per cent of the energy mix by 2030 or peaks at closer to 12–13 per cent – which in turn means an increment of 200 or 300 bcm of demand by 2030 – is an open question, especially as Beijing is now looking to coal to provide flexible capacity in the power sector.

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<sup>24</sup> Michal Meidan, 'China's diminished appetite for imported oil and gas: is the price not right?', OIES Comment, May 2022, <https://www.oxfordenergy.org/publications/chinas-diminished-appetite-for-imported-oil-and-gas-is-the-price-not-right/>.

<sup>25</sup> For a discussion of some of these estimates see, Oxford Energy Forum – The 2021 energy crisis: Implications for China's energy market and policies – Issue 131, <https://www.oxfordenergy.org/publications/oxford-energy-forum-the-2021-energy-crisis-implications-for-chinas-energy-market-and-policies/>.

While these high costs would suggest a shift to renewables, the lead times on new renewables projects are long – offshore wind farms currently take an average of nine years globally from lease to full commissioning<sup>26</sup> – and will not be able to solve the near-term energy crisis.

India may be further incentivized to increase focus on its renewables roll-out and domestic coal developments to squeeze out imports, much like China is doing in order to boost its energy security. Indeed, even reliance on imported coal now comes with a higher risk factor. Meanwhile, for coal-producing countries, boosting additional supplies in the near term could create carbon lock-in, even as they look to accelerate their low-carbon transitions. Pakistan is also looking to focus on domestic coal, alongside hydropower while in 2021, Bangladesh cancelled plans for 10 power plants that would have been fuelled by imported coal.

Policies remain in flux, and the extent to which the turmoil in global energy markets following the Russian invasion of Ukraine will support a shift to renewables or a consolidation of coal remains unclear. But the short-term impact may be to curb economic activity and therefore limit energy demand across the board. The challenge for many governments will be compounded by rising food costs.

#### **4. Food security and rising inflationary pressure could become persistent challenges for developing Asian economies**

In India, shortages of subsidized fertilizer for farmers – due to skyrocketing prices of the imported ingredients necessary for its production – threaten to lower the yield of future crops given the resulting cutbacks in fertilizer use. Crop yields are already shrinking due to climate change, specifically the unaccustomed heat wave in 2022, which has withered most of the standing crop. This is also why the Indian government was forced to withdraw its initial offer to increase its own wheat exports to make up for the shortfall from Russia and Ukraine.

Without the usual fertilizer ingredients, and with unpredictable climate adversity, the impact of reduced crop yields will be even greater and will usher in a concern about India's food security starting from next year. Russia is the second-largest producer of potash, which is used in the production of Di-ammonium phosphate (DAP). DAP prices have surged, and nitrogen fertilizers have jumped in price to USD700 from USD560 per ton in a matter of days. Media reports indicate that a ministerial delegation from India was in Russia immediately before the Ukraine invasion, negotiating the supply of one million tonnes a year each of di-ammonium phosphate (DAP) and potash, and of about 800,000 tonnes a year of a mix of nitrogen, phosphorus, potassium (NPK).<sup>27</sup> It is hard to know when payment mechanisms (such as SWIFT) and the final currency of pricing (dollars, roubles, rupees) will stabilize, but shipments to India are bound to be delayed while this is worked out. The implication is that Indian farmers are faced with chemical fertilizer shortages at critical times in the planting and growing cycle.

So, while the energy-related challenges are significant, rising levels of inflation, in particular food inflation, are leading to unaffordability of food for a majority of low and middle-income people. As a result, the biggest impact of the war for India will most likely be on food security, as both Russia and Ukraine are among the biggest players in the global agricultural sector.<sup>28</sup>

This is occurring in the face of both persistently high levels of unemployment in India following COVID-19, and already stretched household incomes as private sector hiring levels are not back to pre-pandemic levels. Most families have fewer members working than they did pre-2020, and with fewer salaries maintaining the household food budget, there is hardship when food prices surge. The surge in fuel prices directly affects the prices of food items, especially perishable ones, due to the rise in logistics costs. Together, food items and petroleum products account for one-third of the wholesale

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<sup>26</sup> Keiron Greenhalgh, 'Offshore wind, climate goals at risk without quicker permitting: GWEC', 4 July 2022, S&P Global, <https://cleanenergynews.ihsmarkit.com/research-analysis/offshore-wind-climate-goals-at-risk-without-quicker-permitting.html>.

<sup>27</sup> Singh, Indra Shekhar, 'How the Russia-Ukraine Crisis Could Affect Food Prices in India', *The Wire*, March 2022 <https://thewire.in/agriculture/how-the-russia-ukraine-crisis-could-effect-food-prices-in-india>.

<sup>28</sup> Pereira, A 'How will the Ukraine War Impact India's Agricultural Sector?', *Statecraft*, March 2022 <https://www.statecraft.co.in/article/how-will-the-ukraine-war-impact-india-s-agricultural-sector>.



inflation, and food items alone constitute more than one-third (39.1 per cent) of the retail inflation.<sup>29</sup> Other South Asian economies are likely to face similar challenges.

In response to the food security risks described above, the Indian government sought to conclude the above-mentioned fertilizer import deal that was being negotiated prior to the invasion of Ukraine. By late April 2022, India successfully revived its fertilizer trade with Russia and between April and June, it imported 7.74 million tons of Russian fertilizer. These volumes represent about two-thirds of all its fertilizer imports from Russia in 2021, making the country India's top supplier, according to the Cabinet to India's Parliament.<sup>30</sup>

## 5. Greater appetite for oil, and product exports

The weakening economic outlook and global inflationary pressures are also set to weigh on Asian oil demand, as foreign demand and industrial activity fall. Domestic savings are starting to shrink on high retail prices, while fuel subsidies continue to burden fiscal balances and GDP growth. For 2022, our oil demand forecast for emerging Asia is downgraded y/y by 410,000 b/d since Russia's invasion of Ukraine. This decline accounts for around 40 per cent of the total 1 mb/d downgrade of our global demand outlook, from 3.2 mb/d to 2.2 mb/d.<sup>31</sup>

The deterioration of the demand outlook for emerging Asia is, however, largely driven by downward revisions in Chinese demand – due to the strict zero-COVID policy lockdowns – accounting for around 60 per cent of the total revisions. This downward pressure is likely confined to H1 2022 as demand is expected to pick up in H2, led by the cautious reopening of the Chinese economy and as the policy stimulus takes effect. But the drag in H2 will likely be sustained outside China in other Asian countries mainly India, Indonesia, and Pakistan, due to the direct negative impact of persistent price pressures and protracted supply chain bottlenecks on manufacturing and consumer activity.

Nearly half of the expected demand losses will impact industrial fuel use as high input costs restrict industrial activity (–40 per cent); followed by the demand for road fuels (particularly diesel and gasoline) due to high retail prices (–25 per cent); as well as fuels for residential and commercial use (–15 per cent); and jet fuel (–14 per cent). Risks to the demand outlook are tilted to the downside and the risk of even larger demand responses to high oil prices and slower economic growth increases in 2023 with another 420,000 b/d of EM (Emerging Market) Asia demand growth at risk.

While Asian buyers, especially China and India, will continue to buy discounted Russian crude, the appetite for imports remains intrinsically linked to the economic outlook.

### 5.1 India: buying more, exporting more

In India, starting in Q2 2020, the government had been funding its additional COVID-related expenses through very high taxes on petrol and diesel. The Indian government was sourcing low-cost crude oil and taxing it heavily, using the 'spread' to replace its own vanished customary tax revenues that had previously come from the country's profitable industrial activity. The high petrol tax strategy continued throughout the second half of 2021, even as oil prices rose. However, when oil prices spiked after the Russian invasion, the Indian government's high petrol and diesel tax strategy became increasingly untenable, and politically unpopular. It was also seen as fuelling inflation by increasing the transportation costs of all products. In response, recently, the central government has announced a small decrease (7 per cent) in its petroleum and diesel taxes and is calling on Indian states to do the same.<sup>32</sup>

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<sup>29</sup> Ibid.

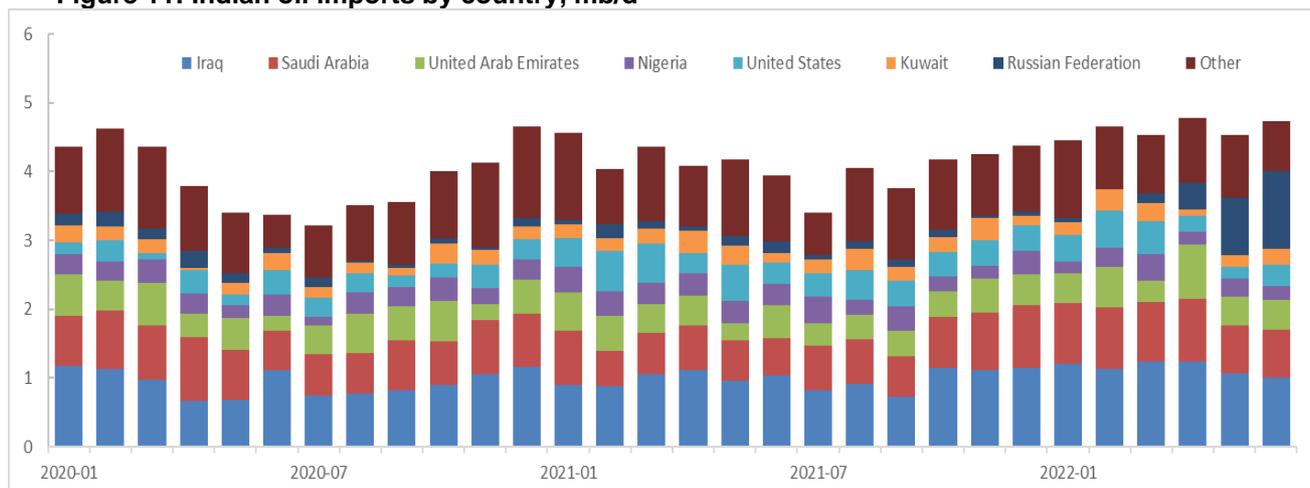
<sup>30</sup> Masih, Niha "India Turns to Russian Fertilizer, Showing Challenge of Isolating Moscow" *The Washington Post*, August 4, 2022 <https://www.washingtonpost.com/world/2022/08/04/india-russia-fertilizer-oil-imports/>

<sup>31</sup> Impacts are derived by comparing our latest oil demand forecast as of June 2022 to our pre-war baseline projections in February. The reader is referred to the OIES Oil Monthly series available at: <https://www.oxfordenergy.org/publication-topic/oil-monthly/>.

<sup>32</sup> 'In big relief for consumers, Centre cuts fuel tax to pre-Covid level,' *The Times of India*, 21 May 2022, [http://timesofindia.indiatimes.com/articleshow/91714623.cms?utm\\_source=contentofinterest&utm\\_medium=text&utm\\_campaign](http://timesofindia.indiatimes.com/articleshow/91714623.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign)

Meanwhile, India's high economic dependency on oil imports has led to India becoming the primary destination of sanctioned and heavily discounted Russian crude, despite pressure from the US to 'stop accelerating or increasing imports of Russian energy'.<sup>33</sup> According to Kpler data, India's imports of Russian crude rose to a record high 840,000 b/d in May 2022 from less than 100,000 b/d in February and 103,000 b/d on average in 2021, and are set to exceed 1 mb/d in June.

**Figure 11: Indian oil imports by country, mb/d**



Source: Kpler

India has taken a significant amount of discounted Urals in May, exceeding 700,000 b/d from 67,000 b/d in March, displacing Iraq's Basrah Medium and Heavy as the top imported grades. In March–May the percentage share of Russian imports to total crude imports in India rose to 10 per cent from 1 per cent in January–February, displacing mainly US imports that nearly halved to 6 per cent from 10 per cent of the total, and to a lesser extent – albeit important – imports from the Middle East and West Africa (WAF). In fact, US and WAF crude has now shifted from Asia to Europe, filling the Russian supply gap.

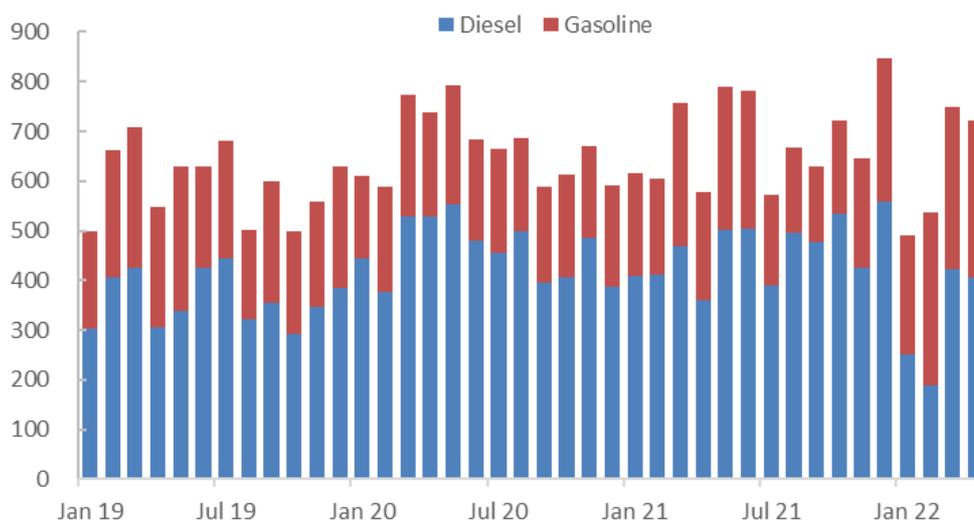
That said, Indian buyers' strategies are diverging. Privately-owned refiners such as Reliance and Nayara are reportedly snapping up discounted Russian crude and using this feedstock to produce and export products that are now shorter in the global market as Russian exports fall. While private refiners' margins are soaring, the export rush is also creating a domestic shortage, with consumers turning to state-owned marketing companies' retail outlets. Indeed, India's exports of gasoline and diesel rose in March.

But India's buying spree of Russian crude is nearing a ceiling as refiners are operating near, or at, maximum capacity, with demand in both domestic and export markets determining whether such high volumes of Russian imports can be maintained beyond the very near term. Moreover, even as private refiners are buying more discounted Russian barrels, state-owned refiners are still importing based on their term commitments. With G-7 governments now looking to introduce a price cap on Russian crude, it might prove politically challenging for India to raise its imports significantly. That said, it seems unlikely that India, and even less so China, would agree to a price cap on Russian imports.

<sup>n=cppst</sup>. Every state adds its own taxes to the central government taxes, which is why there is no uniform petrol and diesel price throughout the country. Oil and gas and electricity are in the small remaining list of items that do not fall under the common Goods and Services Tax (GST) regime.

<sup>33</sup> *The New York Times*, 'Biden Urges Modi Not to Increase India's Reliance on Russian Oil and Gas', 11 April 2022. <https://www.nytimes.com/2022/04/11/us/politics/biden-modi-india-russia-oil.html>.

**Figure 12: India diesel and gasoline exports, kb/d**



Source: Kpler

## 5.2 China

China's crude imports have slowed due to the weak macroeconomic environment, but inflows of Russian grades have increased, mainly to independent refiners but also to the state-owned majors. A gradual increase in imports is likely over the next few months as Beijing looks to revitalize growth, and given that the government allocated an additional 1 mb/d of crude import quotas to non-state refiners in early July, in large part as a form of stimulus.

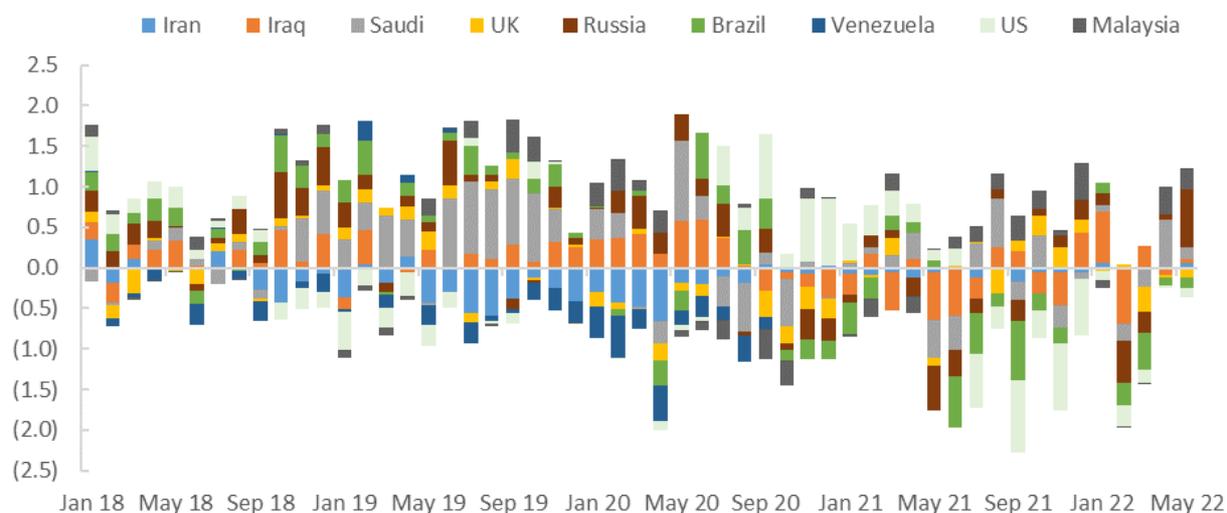
While refiners will look to benefit from discounted Russian crudes, there are limits to the potential increase. The new mega-refiners Rongsheng and Hengli have now received additional import quotas, but they typically buy Middle Eastern crudes. When they return from maintenance at the end of July, they will likely raise runs. Meanwhile, the Shandong independent refiners, which have been purchasing Urals, could raise runs slightly now that they too have received additional quotas. But their run rates have been hovering at around 55 per cent,<sup>34</sup> and they have been running diluted bitumen as feedstock.<sup>35</sup> So, even though local governments are looking to bolster growth, and new refining unit starts will support higher runs, demand in China is set to rebound slowly and product stocks are still high. As refiners have not been given the green light to export products, their ability to import more crude and further raise runs will be limited.

That said, as part of the government's infrastructure boost, as much as 80 mb of additional crude storage tanks could be built, supporting purchases mainly of discounted – and probably sanctioned – crude.

<sup>34</sup> According to Argus estimates, "China issues mid-year crude import quota boost", 1 July 2022, <https://direct.argusmedia.com/newsandanalysis/article/2347104>.

<sup>35</sup> In the past, sanctioned crudes including Venezuelan grades have been imported as diluted bitumen. It is therefore unclear if the independent refiners are actually importing diluted bitumen or re-classifying crude as diluted bitumen. This also allows them to gain a tax rebate on the consumption tax levied on their output.

**Figure 13: China crude imports (select countries), y/y change, mb/d**



Source: China Customs

## Conclusion

The volatility in global energy markets following the Russian invasion of Ukraine has impacted Asian importers in different ways, depending on their energy mix and fiscal health. This comment has focused heavily on China and India, discussing other Asian economies in lesser depth. But a number of overarching conclusions can be drawn.

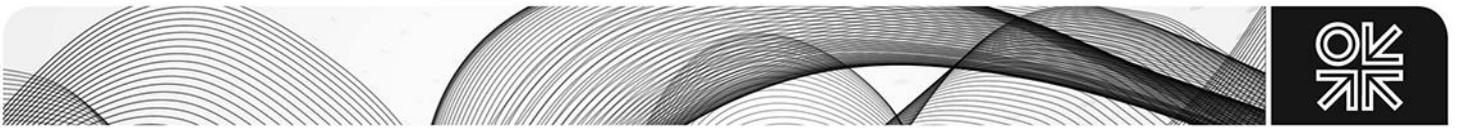
First, while global markets have been focused on Europe and the supply dynamics there, the unintended consequences of energy sanctions on Ukraine are weighing heavily on many developing Asian economies. Indeed, despite the fact that some Asian economies remain less integrated globally, energy markets are interdependent and Asia is being exposed to the Russian invasion of Ukraine through high prices and reconfiguration of trade flows (mainly for coal and gas).

With more non-Russian coal flowing to Europe, the Asian coal market has tightened, even with lacklustre demand from China. Meanwhile Europe's pull on LNG, as Russian pipeline flows decline, has led to higher spot prices and to some sellers redirecting cargoes from Asia to Europe. The rising costs of coal and spot LNG have had the most significant impact on emerging Asian economies including Pakistan, Bangladesh, and Sri Lanka, who are now facing the prospects of weak economies and energy poverty.

Second, the volatility in global markets following the Russian invasion of Ukraine has reinforced (and complicated) existing trends. In India, the effects of a long heatwave, combined with a strong post-COVID macroeconomic recovery and reduced investments in coal, have been exacerbated by complicated energy logistics and trade flows, as well as by higher prices. Meanwhile, in China, the zero-COVID policy has dampened economic activity and weighed on import demand, a trend that could slowly reverse and work to tighten coal, LNG, and oil markets.

Emerging Asian countries are struggling to afford fossil fuel imports and this, in turn, is raising inflationary expectations given also-rising food inflation. The macroeconomic outlook in these countries was challenged by the COVID pandemic, with high prices now exacerbating these challenges. Any expected rebound in economic activity will likely be marred by soaring costs. This, in turn, has implications for commodity markets, given the importance of Asian demand. Put simply, a weaker macroeconomic outlook also suggests weaker energy demand.

Third, not all countries are equally exposed: developed Asian economies including Japan, South Korea, Singapore and, to a certain degree, China are less exposed to high spot LNG prices as they have many oil-indexed contracts, or are better placed to deal with the challenges of affordability. A number of countries including China, India and, to a certain degree, South Korea and Pakistan are benefiting from



discounted Russian hydrocarbons. That said, even though some countries are benefiting from discounted barrels, these benefits do not outweigh the political and social risks related to the affordability problem in the region.

Fourth, the Russian invasion of Ukraine and the sanctions imposed on Russia elevate the issues of energy security and development, and also expose potential geopolitical tensions as countries grapple with pressures from the West to cooperate on sanctions. Meanwhile, Russia is increasingly looking East as its commercial prospects in the West deteriorate. It remains unclear, however, if there are clear cut benefits from the current situation.

Concerns about energy security had been rising steadily on the policy agenda in China, with these latest events further highlighting the problem, and in the short term pointing to coal as the solution. That said, for many governments, energy security concerns have become more pressing, but the solutions proposed for dealing with them remain in flux as governments grapple with constantly changing realities and the growing threat of food inflation and social consternation. And since global LNG markets now seem likely to remain tight until the mid-2020s, high LNG prices could undermine emerging Asian countries' efforts to transition from coal to gas. Whether they opt for renewables or coal remains to be seen, but the long lead times on renewables projects and the perceived reliability of coal could lead them to remain on carbon-intensive pathways.