

Argus White Paper:

**India, China and southeast Asia drive global thermal coal trade higher**



*Demand for thermal coal rose sharply in 2018, driven by India, China and southeast Asia, and balanced by strong growth in Indonesian exports. Most producing countries plan to increase exports in 2019, but policy shifts and rising nuclear availability in northeast Asia could slow the rate of demand growth this year.*

**China and southeast Asia lead rise in Pacific trade**

Strong demand growth in China and southeast Asia last year was met by a steep rise in Indonesian exports, as seaborne thermal coal trade expanded sharply in Asia-Pacific. But policy shifts and higher nuclear availability could stem the rise in 2019.

China and southeast Asia imported 16.4mn t and 11.3mn t more thermal coal than in 2017, respectively, offsetting a narrow decline in flows to Japan, South Korea and Taiwan and lifting east Asian coal demand to around 610mn t from 584mn t in 2017.

Global seaborne thermal coal trade			mn t
	2018	2017	2014-16 avg.
<b>Supply</b>			
Indonesia	428.8	389.5	380.5
Australia	208.1	200.4	201.8
Russia	147.5	139.6	122.7
Colombia	77.9	83.9	81.2
South Africa	73.5	76.6	72.9
US	49.6	38.6	25.5
<b>Demand</b>			
Northeast Asia	298.4	300.2	277.0
China	207.8	191.4	169.3
India	175.9	153.3	157.3
EU/Turkey	147.9	151.0	159.5
Southeast Asia	104.0	92.7	63.3

Indonesian exports rose sharply and played the leading role in balancing demand growth in east Asia, while Australian exports capitalised on rising Chinese import demand, but grew only modestly. The world's two biggest coal exporters shipped a combined 637mn t in 2018, up from 590mn t the year before.

Global prices have started this year on a weak note so far. Comparatively strong prices in the seaborne market in recent years have boosted supply-side investment, posing some downside risk to global prices, while signs of weaker economic growth in China and little prospect of a sharp recovery in demand elsewhere in northeast Asia are also possible headwinds this year.

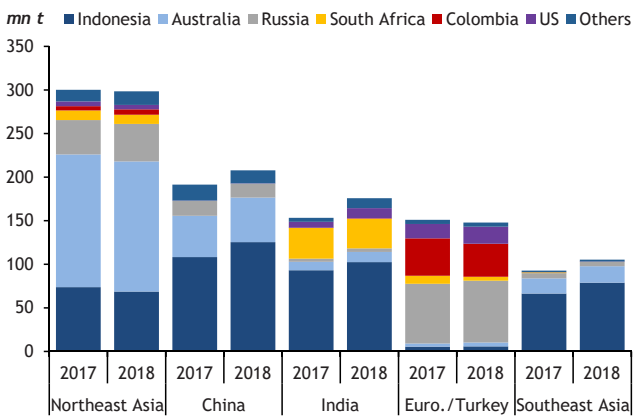
**China**

Firm power demand boosted Chinese thermal coal imports by more than 16mn t year on year in 2018, with receipts reaching a five-year high of 208mn t.

This growth was underpinned by a strong rise in lignite and sub-bituminous coal receipts, which grew by a combined 19.6mn t and accounted for 45pc and 18pc of total imports, respectively. Bituminous coal made up a little more than a third of China's 2018 intake, but imports were 3mn t lower than a year earlier.

Indonesia continued to account for the majority of China's coal imports, extending its share of the supply mix to 60pc last year from 57pc in 2017. The country supplied 93pc of China's lignite imports and 77pc of its sub-bituminous coal requirements in 2018. Australia maintained around a 25pc share of Chinese thermal coal imports last year, accounting for 51mn t of the annual total, and provided two-thirds of China's total bituminous coal receipts.

Global thermal coal importers mn t



Chinese demand for seaborne coal was supported by strong thermal power generation last year. Thermal generation — the vast majority of which is coal-fired — rose year on year in every month of 2018 and annual output was 7pc higher than in 2017 at 4,900TWh.

The growth in China’s imports was most pronounced in the first eight months of 2018, but receipts fell sharply in the final quarter and reached a historic low in December. This was driven by restrictions at ports as customs authorities sought to slow the pace of receipts in order to limit the annual growth in reported imports.

Imports jumped to a five-year high of more than 25mn t in January as port congestion at the end of 2018 was alleviated at the start of this year. Chinese imports could continue to be firm early in 2019 as customs authorities clear a backlog of arrivals. But fading macroeconomic momentum, concerns surrounding global trade disputes and a gradual shift towards an increase in gas-fired power generation could all potentially weigh on the extent of China’s demand growth for seaborne coal this year.

China is expected to increase thermal coal imports in 2019, according to the *Argus Seaborne Thermal Coal Outlook*, although this is likely to be the result of more favourable pricing owing to greater supply-side pressure in the region.

**Indonesia**

Indonesian thermal coal exports jumped sharply in 2018, satisfying a significant proportion of global demand growth driven by India, China and southeast Asia. A total of 429mn t of thermal coal was shipped from Indonesia in 2018, up from 390mn t in 2017, customs data show.

Exports grew at an impressive rate throughout last year but were particularly strong in the fourth quarter, after the government approved a 100mn t increase to its annual coal produc-

**Argus Data and Downloads**

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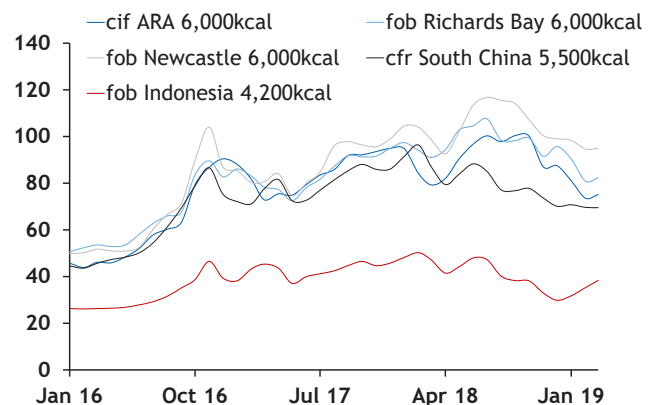
tion target in an effort to boost exports and raise foreign currency reserves. Indonesian coal production was ultimately 87mn t higher year on year at 548mn t, according to the latest government figures.

As a result, Indonesia’s exports were increasing around the time that China was beginning to impose restrictions on imports, creating pressure on low-grade seaborne coal prices. Indonesian GAR 4,200kcal and 5,000kcal prices fell steadily from July, declining to lows of \$28.73/t and \$46.67/t, respectively, in December.

The Indonesian government has set a lower annual production target of around 480mn t for 2019 — of which 120mn t is earmarked for the domestic market. This implies that around 360mn t will be available for export, around 69mn t lower than last year. But exports could still grow, with demand in India and southeast Asia likely to remain firm even if Chinese growth slows.

The rise in Indonesian thermal coal exports in 2018 was driven mainly by sub-bituminous shipments, which accounted for around 61pc of total supply to the seaborne market last year. India was the biggest recipient of Indonesian sub-bituminous coal in 2018, taking nearly 103mn t, or 39pc, of the total. Lignite exports — nearly all of which were shipped to China — rose by 20mn t and accounted for more than a fifth of the total. Bituminous coal exports bound mainly for Japan, South Korea, China and Taiwan fell by nearly 30mn t year on year to around 79mn t.

Global thermal coal prices \$/t



## Northeast Asia

Recovering nuclear power generation in Japan and restrictions on coal-fired capacity in South Korea contributed to a narrow reduction in imports to northeast Asia in 2018, with Taiwanese receipts flat year on year.

A total of 114mn t and 116mn t, respectively, of thermal coal were imported by Japan and South Korea in 2018, down by 1mn t each from a year earlier. Taiwanese imports were unchanged at close to 69mn t.

The trio of northeast Asian states make up the biggest global demand hub for seaborne thermal coal and draw heavily on high-grade Australian material. But the share of Australian coal in the supply mix dipped in 2018, as South Korea in particular increased its imports from competing origins, including Russia, North America and Colombia.

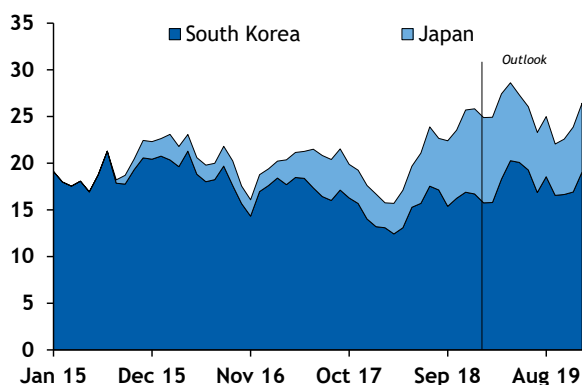
Australian coal accounted for nearly 154mn t of northeast Asian supply in 2018, down from 156mn t a year earlier, with its share of the total slipping by nearly one percentage point to 50pc. Imports from Indonesia fell by 5mn t to less than 69mn t, while Russian and Canadian supply both rose by more than 3mn t and Colombian supply was 1.4mn t higher.

Thermal power generation in Japan fell year on year amid stronger nuclear and renewable output. Japan had nine operational nuclear reactors by the end of the year, having restarted four reactors in 2018 and two in 2017, and annual output climbed by 69pc to 49.3TWh. This cut thermal — coal, gas and oil-fired — generation to 64.4TWh in December, from 72.1TWh a year earlier, while annual output fell by 25TWh year on year to 712TWh. Gas and coal account for around 56pc and 40pc of Japanese thermal generation, respectively.

South Korea, in contrast, suffered a drop in nuclear availability in 2018 as a result of increased maintenance and safety checks following an earthquake in 2016. Disruption was

### Nuclear generation and outlook

GW



particularly severe in the first quarter and output fell by 12pc in 2018 from a year earlier, but this failed to support coal-fired generation, which was limited to a 1pc year-on-year increase by capacity restrictions across the coal-fired fleet. Instead, gas-fired plants increased output to fill the generation gap, prompting a steep rise in LNG imports.

Coal-fired output preserved its share of the Taiwanese generation mix in 2018 as oil demand bore the brunt of a thermal reduction caused by a 25pc year-on-year rise in nuclear output.

The prospects for a significant increase in northeast Asian demand for seaborne thermal coal imports in 2019 are limited. Japan is unlikely to reactivate any more nuclear units this year after recently delaying works at three plants, but the incremental additions to operational capacity last year should be enough to result in nuclear power generation continuing to increase year on year. Mandatory maintenance across the nuclear fleet will reduce availability gradually from April to August, which may support demand for thermal generation during the peak cooling months, even if annual output declines overall.

Nuclear maintenance in South Korea is scheduled to be far less disruptive this year, which will weigh on thermal generation, while in Taiwan, coal is now more susceptible to any increases in nuclear output with oil-fired generation largely displaced from the mix.

Northeast Asian LNG prices have fallen sharply from the highs they reached last summer, and gas could compete more strongly for a share of the thermal generation mix in the region this year. This is particularly true in South Korea, as the government will from April raise consumption taxes on coal and lower the levies on LNG, further supporting the potential for coal-to-gas fuel switching this summer.

But coal demand in Japan and South Korea began 2019 on a firm note, with thermal coal imports increasing year on year in January. With global high-grade coal prices falling, buyers may have been tempted into the market more by favourable prices than out of necessity.

## Australia

Australian thermal coal exports increased by around 8mn t in 2018 from a year earlier, to 208mn t, with China accounting for all of the growth and offsetting declines in other northeast Asian markets.

Nearly 50mn t of Australian coal was exported to China last year, accounting for nearly a quarter of the total — up from just over a fifth in 2017. Japan remained the biggest export market for Australian coal, but shipments fell by around 1mn t to just shy of 81mn t.

Overall consumption in northeast Asia weakened slightly in 2018, but demand for Australian coal was compounded by comparatively firm NAR 6,000kcal fob Newcastle prices, which prompted some buyers to look to Russian, Colombian and North American coal.

Australian exports are forecast to rise in 2019 as new mines come on line, according to the *Argus Seaborne Thermal Coal Outlook*, presenting some downside risk to prices amid an uncertain demand outlook for high-grade coal in northeast Asia. The Argus NAR 6,000kcal fob Newcastle assessment has fallen by more than \$25/t since reaching a peak in July and by nearly \$6/t since the end of 2018.

## Southeast Asia

Coal demand in southeast Asia grew by more than 11mn t in 2018 and the outlook into the next decade remains firm, with new power plants due on line in Vietnam and the Philippines.

The region imported 104mn t in 2018 against 93mn t a year earlier. Malaysia was the biggest importer in the region at 34mn t, followed by Thailand at a record-high 25mn t and the Philippines and Vietnam with 21mn t apiece.

The southeast Asian supply mix is dominated by Indonesia, which accounted for 77mn t, or nearly three-quarters, of imports in 2018, up from 66mn t a year earlier. Australia accounted for a further 19mn t of supply to southeast Asia last year, up from 17mn t in 2017.

## Indian demand growth offsets European decline

Robust growth in coal-fired power generation in India and lingering domestic constraints supported the country's demand for seaborne coal in 2018 and was the leading driver of global import growth last year. Rising demand in India is likely to be key for some of the world's biggest suppliers including South Africa, Indonesia and Australia, all of which could increase exports in 2019.

The country's annual increase in seaborne receipts accounted for nearly half of the overall growth in imports across five of the world's biggest demand hubs analysed by Argus — China, the rest of northeast Asia, India, Europe and Turkey, and southeast Asia.

India also accounted for all of the growth in import demand outside of east Asia, as European demand waned on reduced coal-fired generation and Turkish consumption fell on weaker industrial activity.

Key European suppliers Russia and the US both increased exports to the region, despite weaker demand. Colombian exports were disrupted by domestic supply issues and fell sharply to Europe, offsetting the gains of other suppliers.

## India

India accounted for the biggest proportion of global thermal coal demand growth in 2018, increasing imports by around 23mn t on the year to 176mn t. The country's receipts were supported by strong growth in coal-fired power generation and domestic supply constraints.

Indian power generation has grown by 4.5pc/yr over the past two calendar years, and coal-fired output has maintained a 79pc share of the mix in that time. As a result, coal-fired generation rose by more than 5pc on the year in 2018 to 987TWh. The annual increase of 49.5TWh is equivalent to 23.3mn t of 4,800 kcal/kg coal burn in 38pc efficiency coal-fired power plants.

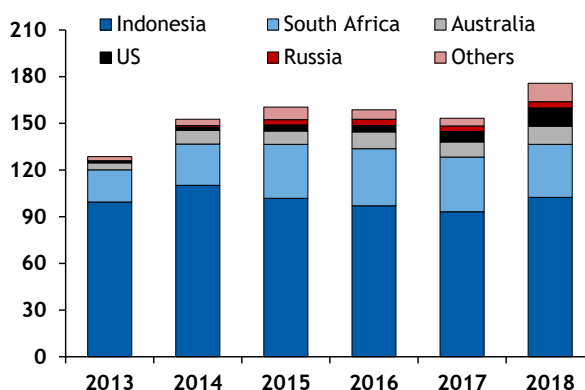
Rapid economic growth in India has been a boon for seaborne coal suppliers, as rising domestic production has failed to keep pace with the country's appetite for coal.

State-controlled producer Coal India (CIL) has stopped citing state-set monthly targets since last year, after consistently missing output goals. The company would have to produce 124mn t in March — more than double the February rate — to achieve a revised production target of 652mn t for the 2018-19 year, running from April-March.

Output during April-February, the first 11 months of the 2018-19 fiscal year, rose by 6.6pc from a year earlier to 528mn t. Total Indian coal demand, including thermal and coking coal, is expected to be 985mn t in 2018-19, according to industry forecasts. CIL is also reviewing its goal of producing 1bn t in 2019-20 and may push this target out to 2025-26, which would increase the country's reliance on imports over the period.

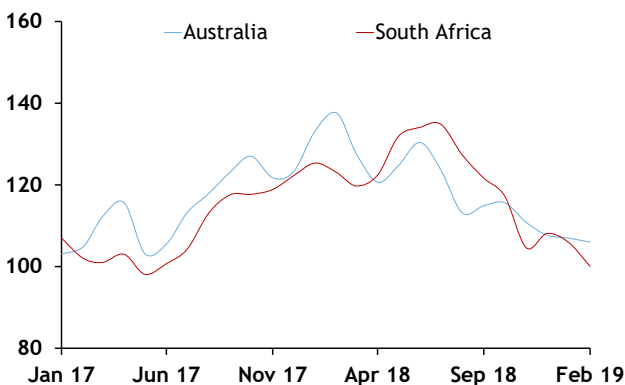
Sub-bituminous coal accounted for a majority 156mn t share of Indian imports last year, with Indonesia the primary supplier of this grade. Indonesia accounted for more than 94mn t of India's sub-bituminous receipts last year and 102mn t of the

Indian thermal coal imports mn t



## India-delivered 5,500kcal coal prices

\$/t



country's total thermal coal imports, up from 89mn t and 93mn t, respectively, in 2017. South Africa was the second-biggest supplier to India with 34mn t, which was broadly flat compared with a year earlier. Imports of US and Australian coal rose by 5mn t and 2mn t on the year, respectively, to 11.7mn t apiece.

### South Africa

Total thermal coal exports from South Africa's Richards Bay Coal Terminal (RBCT) fell by 3mn t on the year to 73.5mn t in 2018 and also fell short of the 77mn t target. The terminal has kept its target unchanged at 77mn t for 2019, but shipments fell on the year in January.

South Africa shipped nearly half of its thermal coal to India in 2018, with volumes sliding slightly on the year to 35.3mn t. Indian interest stagnated in the third quarter as South African spot prices climbed and competition from Australian and Indonesian coals intensified.

More competitive prices and improved transport have sustained Indian enquiries for first-quarter 2019 South African cargoes, but the prospects for renewed South African export growth in the Indian market will be determined by its price advantage compared with coal from other origins. The competitiveness of Australian NAR 5,500 kcal/kg cargoes for delivery to India last year probably squeezed out some South African supply, and the same could be true in 2019 if Chinese demand is weaker than expected, prompting Australian sellers to look west.

South African shipments to northeast Asia recorded the biggest decline of more than 2mn t, but increased exports to Pakistan last year helped limit overall falls. RBCT sent 9.4mn t to Pakistan in 2018, up by around 800,000t from 2017. Demand from Pakistan for South African coal should hold steady this year, with a third seaborne coal-based power plant expected to come on line in August.

## Europe and Turkey

Weaker coal-fired power generation across western European markets reduced thermal coal imports into the EU in 2018, while Turkish receipts fell amid waning demand from the industrial sector.

Net imports among EU member states fell by 1.5mn t on the year to 115.5mn t, according to provisional Eurostat data, and Turkish imports fell for the first time in at least four years to 32.3mn t, around 1.7mn t lower than in 2017.

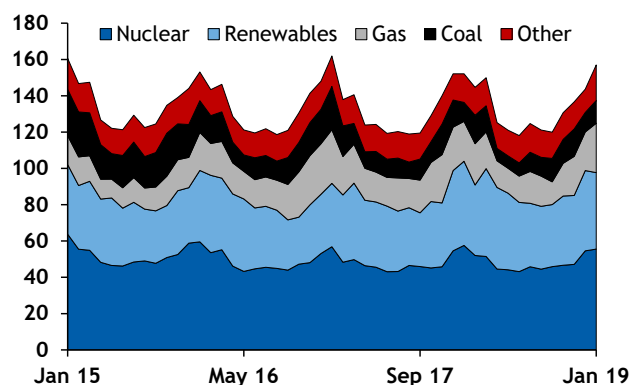
Generation data show that coal-fired output across Germany, Spain, the UK and France fell by nearly 14pc in 2018 to a total of 135.2TWh. The 22TWh drop in output is equivalent to 7.5mn t of NAR 5,700 kcal/kg coal burn in 40pc-efficient plants.

Fossil fuels were squeezed by recovering nuclear output and strong growth from renewable sources in 2018. Aggregate nuclear generation rose by 1pc on the year to 577TWh as output in France recovered to a three-year high of 392TWh and offset declines in the other three markets. Renewable generation increased by 50TWh on the year to 483TWh, with France and Spain each accounting for around a third of the overall increase.

The decline in coal burn in 2018 was largely driven by Spain, where reliance on coal had increased sharply in 2017 in response to particularly weak renewable output. Spanish coal burn slipped to 37.3TWh in 2018, from 45.2TWh a year earlier, while renewable output grew by 15.5TWh to 101.4TWh. Growth in renewable output also weighed on coal burn in Germany, the UK and France last year.

As a result, thermal coal imports to the four countries and through the key Dutch transshipment hub fell by a combined 5.8mn t on the year to at least a seven-year low of 72.4mn t, although direct imports to the UK and Germany recorded small increases.

## Aggregate power generation: DE, ES, UK, FR TWh



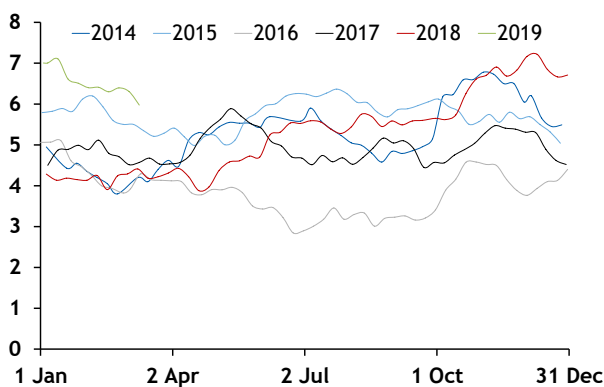
But the overall decline in EU-wide imports was dampened by a surge in import demand from Poland, which increased receipts by 6.5mn t, mostly from Russia, in 2018 to a probable record high of 15.3mn t. Polish imports were supported by weaker output from domestic mines, which was compounded by sustained demand from utilities to maintain plant coal stocks at mandatory levels.

Key suppliers Russia and the US extended their presence in Europe, despite weaker overall demand. Imports of Russian coal grew by 4.5mn t — thanks in large part to the stronger Polish demand — to at least a seven-year high of 58.9mn t. Receipts of US coal rose by 2.8mn t on the year to a four-year high of 19.2mn t in 2018, as exporters took advantage of firm prices in the global seaborne market and were able to capture some of the share previously accounted for by Colombian coal. Receipts of Colombian and South African material fell by 6.2mn t and 3.6mn t, respectively, to 19.7mn t and 4.1mn t.

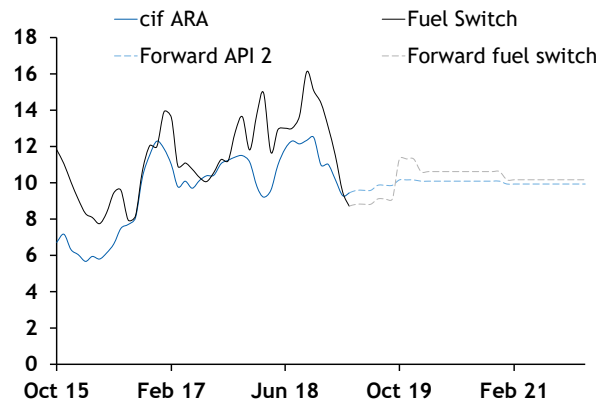
The demand outlook for coal in Europe looks weak early in 2019. Net imports to the EU actually rose on the year in the second half of 2018 as recovering clean dark spreads supported demand for seaborne coal ahead of the winter. But low river levels in Germany during the third quarter hampered inland coal transit and helped to back-up stocks at the Amsterdam-Rotterdam-Antwerp (ARA) hub to an unprecedented high.

Stocks have slipped to a five-month low in early March, but remain well above the seasonal average following steady imports and comparatively weak winter demand. This has helped to pressure cif ARA physical prices, which have fallen by more than 10pc since the start of the year and touched as low as \$70.68/t in the first half of February. In addition, the unseasonably mild winter weather and a glut of LNG has weighed heavily on European gas prices, raising the prospect of increased competition within the thermal fuel mix this year. German summer gas prices are currently low enough to allow 55pc efficient gas-fired plants to displace 40pc efficient coal-fired units in the months ahead.

## ARA port coal stocks mn t



## German coal-gas fuel switch (40:55) €/MWh



Turkish coal imports declined for the first time in at least four years in 2018, as waning industrial demand countered rising coal burn for power. Import growth prospects are limited this year, with no planned capacity additions to Turkey's coal-fired fleet and as the country's economy is expected to slow.

Imports of Russian coal — preferred by the Turkish cement industry — registered the biggest year-on-year fall of all origins. Russian receipts fell by 2.1mn t year on year to 11.1mn t, while South African deliveries declined by 600,000t to 1.6mn t. Elsewhere, coal receipts from Colombia rose by 1.2mn t year on year to a record high of 18.1mn t, in line with an expansion of Turkey's coal-fired fleet and strong utilisation of existing plants.

Turkey's installed coal-fired capacity rose to 8.8GW with the addition of the 1.3GW Cenal plant in late 2017. And the country's coal-fired fleet operated at a historic high load of 81pc last year, as state-owned gas company Botas started to pass on increases in its import costs to gas-fired power plants in August. This was followed by a steep increase in coal-fired generation in the following months, with the utilisation ratio at coal-fired plants rising to as high as 91pc in November.

Coal continues to command a price advantage over gas for thermal generation in Turkey and demand looks likely to hold steady in 2019, even with 4GW of renewable capacity expected to be added this year.

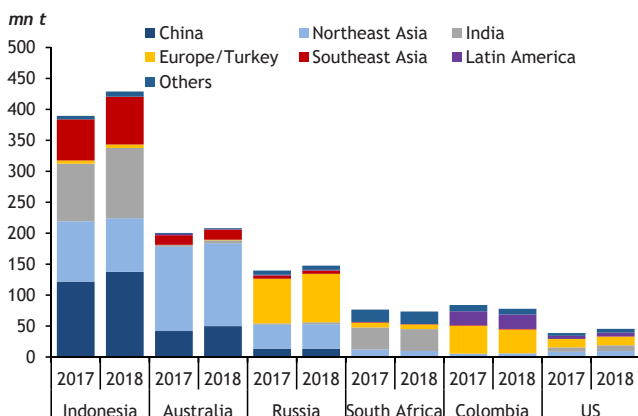
## Russia

Russian shipments of bituminous coal rose by nearly 8mn t on the year to close to 14.8mn t in 2018.

The growth was driven mainly by a 6mn t increase in exports to Europe. Much of the increase was down to stronger demand from Poland — which took 4.8mn t more Russian coal last year — although the Netherlands and the UK also increased their take, by 1.1mn t and 800,000t, respectively. UK demand growth may have been a one-off, with consumption falling gradually as a result of the country's coal phase-out plans.

## Global thermal coal exporters

mn t



Russian and US coal — which utilities blend to create a feedstock for power plants in northwest Europe — benefited from a drop in Colombian supply and firm prices in the seaborne market, including in Europe, last year.

Recent and planned expansions of Russian export capacity are likely to support export growth of around 10mn t/yr in the next few years, according to the *Argus Seaborne Thermal Coal Outlook*. And with demand in Europe slipping, exporters will probably have to increase their presence in Asia-Pacific markets to find buyers.

But Russian exports of bituminous coal to China were flat on the year at around 13mn t, as fob prices for 5,500 kcal/kg Russian coal became less competitive against Indonesian and Australian equivalents. Flows to the rest of northeast Asia were up by 800,000t to 39mn t, with exports to India up by nearly 1mn t to just over 3mn t.

### Colombia and the US

Swing exports from the US grew strongly in 2018 to capture firm global prices, but are expected to recede a little this year. Colombian exports fell to a four-year low as inclement weather hampered production, although shipments could recover in 2019 if conditions allow for a recovery in output.

US exports rose by more than 10mn t on the year to around 50mn t in 2018, with a 3mn t increase in shipments to India driving the growth. Exports to northeast Asia, Europe and Turkey combined, and Latin America rose by 1.9mn t, 1.6mn t and 1.4mn t, respectively.

Domestic production of all types of coal in the US fell by around 18mn t on the year in 2018, but was surpassed by a 22mn t decline in domestic power-sector demand, increasing the surplus available for the seaborne market. Rising global prices throughout the first nine months of the year encouraged strong exports in 2018, but declines more recently have begun to squeeze margins and reduce the incentive for producers to ship coal to the seaborne market.

Discounted US high-sulphur coal has priced into Europe as a complement to Russian coal, which utilities favour for blending. But weak physical cif ARA prices this year have significantly reduced this arbitrage and could be a headwind to exports as the year progresses. The US EIA forecasts total thermal coal exports to slip to 43.3mn t this year and 38.6mn t in 2020.

Colombian exporters' ability to take advantage of rising prices was limited by supply issues last year, as exports fell by 6mn t on the year to less than 78mn t. Exporters targeted premium markets last year, with flows to Turkey and Latin America gaining by around 1mn t apiece and shipments to northeast Asia rising by around 800,000t. Europe accounted for most of the overall downturn in exports, as Colombian suppliers ceded share in the Atlantic basin to Russia and the US.

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