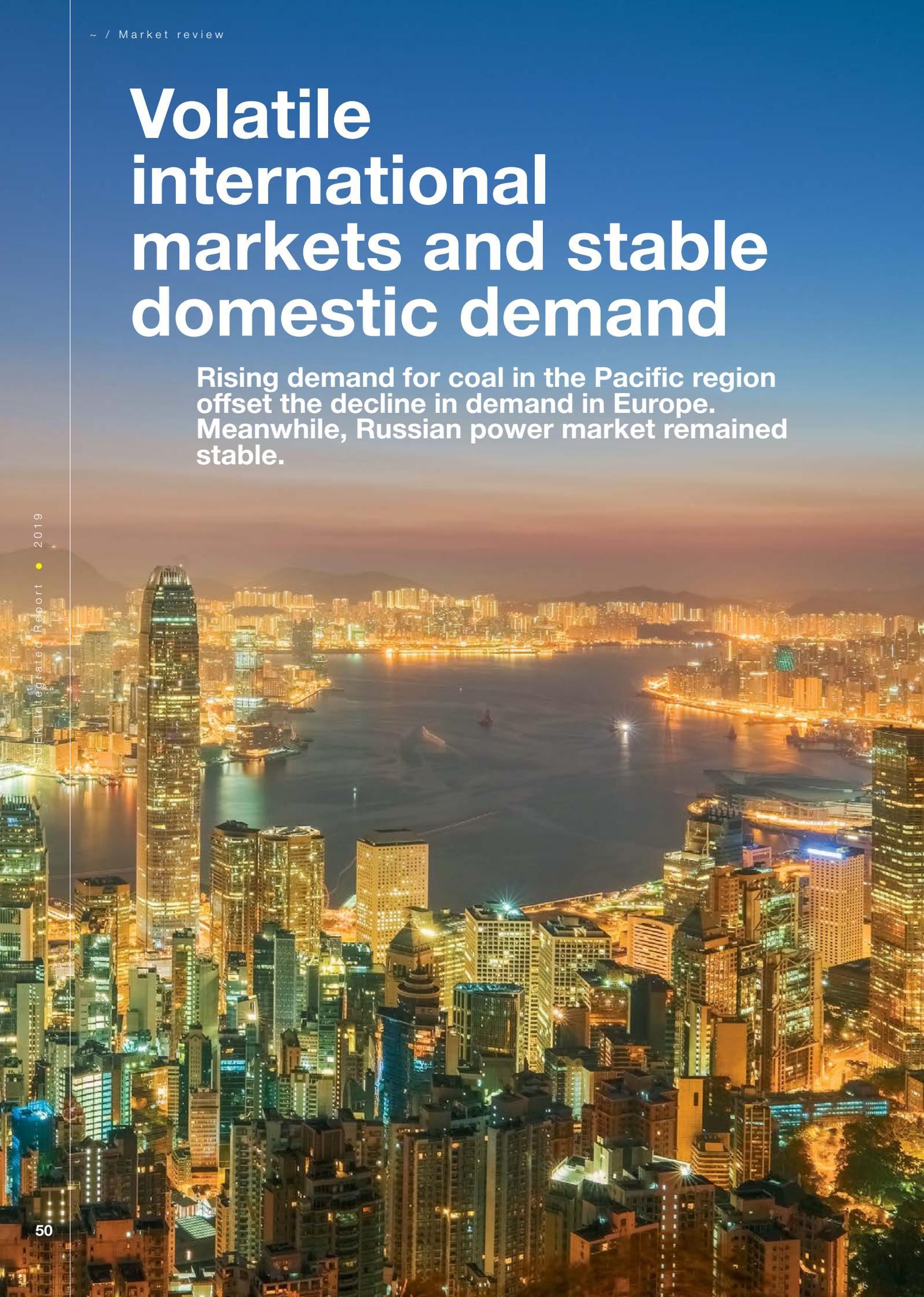


Volatile international markets and stable domestic demand

Rising demand for coal in the Pacific region offset the decline in demand in Europe. Meanwhile, Russian power market remained stable.



▲ International coal market

2019 was a year of significant volatility in the seaborne coal market. However, overall volumes remained broadly the same year on year, growing by less than 1%, to 975 Mt. The Atlantic market declined by approximately 30 Mt, mainly reflecting consumers switching from coal to gas and mild weather. Meanwhile, demand in the Pacific market rose by approximately 38 Mt driven by China, Vietnam and Indian imports. European coal prices touched lows that caused significant increases in flows from typically western supplies towards the East.

Asia Pacific Market

In 2019, demand from the Asia Pacific market for thermal coal imports rose 5% year-on-year, to 836 Mt.

China increased thermal (and lignite) coal imports by 5%, or 11 Mt, to 218 Mt, despite the impact of the US – China trade war on the Chinese economy. 2018 import backlogs led to weak imports at the beginning of the year. However, stricter domestic mining safety controls in Q2 tightened supply and boosted the import market. At the same time, reforms to the supply-side, which have driven the market since 2016, ended, and domestic output started to increase rapidly by the middle of the year. With market data signalling the coal import ceiling was set to breach, importers increased their intake during Q3, anticipating a potential import ban from the government. This ban ‘unofficially’ materialised at the end of the year. It should be noted that Chinese import control measures targeting Australian coal as a result of geopolitical issues boosted demand for Indonesian coal.

Indian imports increased by 12 Mt to 169 Mt during the year, reflecting subdued domestic production, with the uplift occurring largely in the first half of the year. Coal imports started the year strong as electricity generation grew by 5.5% during H1. However, the market dynamics

changed during the second half of the year as electricity demand dropped by 3% year on year. On top of this, the prolonged Indian monsoon during Q3 increased hydro generation, which, coupled with slowing power demand, meant that coal-based electricity generation declined in the second half of the year. Electricity generation from thermal coal, which increased by 4% in H1, had declined by 7% by the end of H2. Market commentators believe that in the absence of structural reforms India will continue to underperform its economic potential and struggle to achieve GDP growth of 6% in the year ending March 2020, a drop from last year’s 6.8%. If correct, this will impact Indian industry and power demand. However, in the mid-term, if reforms are achieved, the potential of the Indian market is significant.

Vietnam almost doubled its thermal coal imports to 31 Mt. A combination of factors drove this increase, including the commissioning of two new coal-fired power plants and a double-digit drop in hydro generation, also uncompetitive domestic coal production was constrained, all at a time of increased industrial demand.

Imports from **North-East Asia (Japan, South Korea and Taiwan)** reduced by 4% (or 11 Mt) to 282 Mt, with the biggest drop coming from South Korea (down by 7 Mt) which has started a campaign against fine dust pollution. About a quarter

of South Korea’s oldest coal capacity is earmarked for closure during winter while all other coal-fired plants will be capped at 80% utilisation, this follows restrictions enforced during spring and the April 2019 tax reforms, which raised the import duty on coal by 27% and reduced it on LNG by 74%. If blackouts are avoided at peak demand, seasonal coal curtailments may become a permanent feature. Meanwhile, by 2024 South Korea plans to add a net total of 4.7 GW to its coal-fired power capacity. In Taiwan, despite coal imports being relatively stable during 2019, the government has also triggered policies to counter air pollution that may translate in potentially lower demand in 2020 – by 2 Mt compared to 2019. In Japan, thermal power generation fell by 5% as a result of weaker demand, a sharp recovery in nuclear generation during H1 and steady growth in renewable output, this represented a 3% decrease (4 Mt) to 125 Mt in coal imports during 2019. For 2020 lower nuclear generation is expected as some plants are expected to shutdown, thus, imports are expected to increase.

On the supply side, despite the drop in US exports to the Pacific by 30% from 27 to 19 Mt, another 14 Mt was diverted from western ports towards Asia (9 Mt from Colombia and 5 Mt from Russia) that follows the increased exports from Far East Russian ports, Australia, Indonesia and South Africa.

Atlantic Market

In 2019, demand for imported coal in the Atlantic market dropped by 30 Mt (down 18% year on year) to 137 Mt. However, all of this reduction reflected lower European imports, with demand from North African and American countries remaining roughly stable.

European coal demand declined by 32% to 66 Mt. The long-awaited LNG supply excess became a reality and the Asian LNG demand, historically present, was not there to absorb supply. European LNG demand slowed due to a combination of weather, the economy and increasing supplies of other energy sources including nuclear. In the absence of significant growth in gas demand to support supply, LNG vessels flooded Europe, which was already coping with record-high volumes of gas piped from Russia and Norway. In addition, carbon emissions pricing trended upwards during the first half of the year, stabilising at around €25/t during the second half of the year.

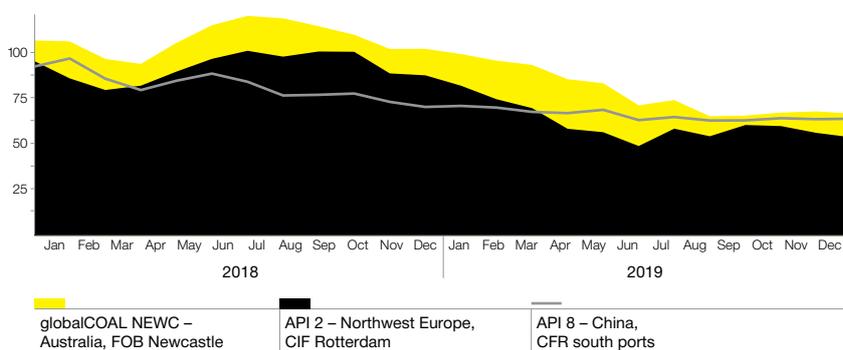
All in all, very low gas prices and high emissions prices created the perfect storm for aggressive coal-to-gas switching. Prolonged mild and windy winters, which play well to renewable power generation, could see a prolonged and accelerated shift away from thermal power generation. Spain, Portugal and Germany have made aggressive moves to advance their switch from coal to gas power. Furthermore, UK coal imports continue to decrease, with current demand restricted purely to industrial use.

On the supply side, Colombia and the USA reduced exports to the Atlantic market by 8 and 7 Mt respectively. South African supply to the Atlantic contracted by 7.5 Mt, and its exports to Europe are now minimal.

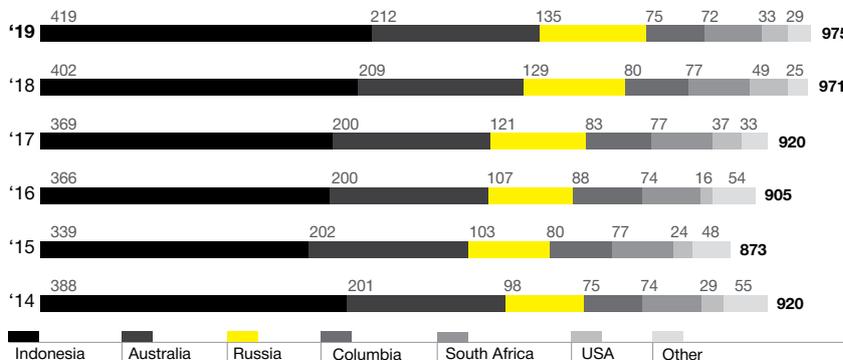
The US has reduced thermal coal exports by 15 Mt and, given current

trends, the decline should continue during 2020. US coal producers operate with very challenging market dynamics. The domestic market is witnessing significant coal displacement due to an abundance of low-cost gas and a depressed international gas market.

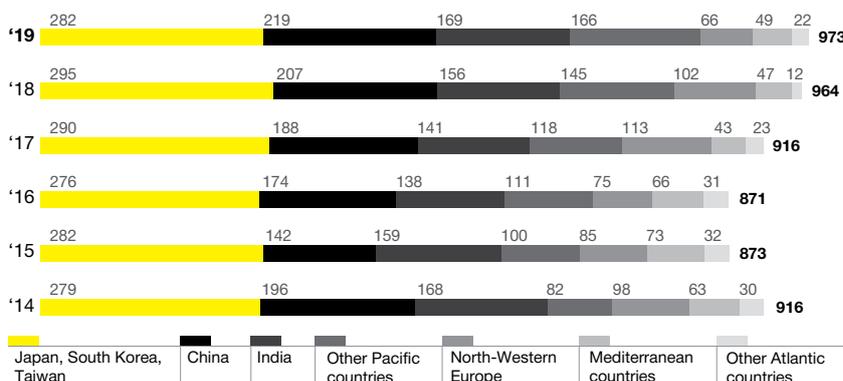
Thermal coal price indices, \$ per tonne



Thermal coal seaborne exports, Mt



Thermal coal seaborne imports, Mt



Source: SUEK estimates.

Russian coal market

In 2019, domestic deliveries of Russian thermal coal decreased, while high-quality Russian coal remained competitive and exports to key markets increased.

Production

In 2019, Russian thermal coal production remained stable at 342.5 Mt¹. The share of hard thermal coal amounted to 76% (260.3 Mt) of total production volumes. A large proportion of high-quality Russian coal is supplied to the international market.

Brown coal production increased by 1% compared to 2018, to 82 Mt. Brown coal is mainly supplied to the Russian market, in particular to power plants and public utilities.

Russian market supplies

In 2019, thermal coal supplies to the domestic market fell by 5% to 127 Mt. Power generating companies received 84 Mt of coal, including 54 Mt of brown coal and 30 Mt of hard coal, a 2% below 2019. Demand for coal from generating companies was impacted due to record electricity generation at Siberian hydroelectric power plants, relating to high river water levels. Thermal coal supplies to public utilities fell by 6% year-on-year, to 21 Mt, reflecting the relatively warm 2018–2019 winter and the late start to the 2019–2020 heating season.

Thermal coal imports decreased by 4% compared to 2018, to 23 Mt, due to lower demand from Russian thermal power plants and public utilities. Kazakhstan remained the largest supplier of thermal coal to Russia.

Export supplies

In 2019, Russian companies ramped up thermal coal exports by 2% to 190 Mt. An increase in shipments to the East by 8 Mt to 91 Mt offset the drop in shipments to the West by 4 Mt².

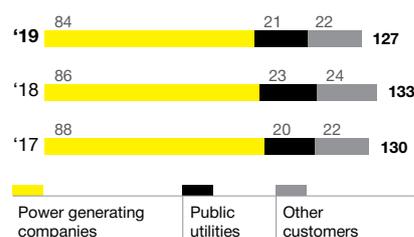
The key driver behind the decline in thermal coal exports to the West was weaker Polish demand for coal due to warm weather; therefore, shipments through rail border crossings fell by 5 Mt to 20 Mt. At the same time, deliveries to western seaports grew by 1 Mt, reaching 79 Mt. In 2019, the main destinations for Russian seaborne thermal coal exports to the Atlantic market were the Netherlands, Turkey, Germany, Morocco and Italy. In addition, coal shipments from western ports to Asian markets, to India, South Korea, Malaysia and Vietnam, almost doubled.

Eastbound deliveries in 2019 were again hindered by railway infrastructure constraints and intensive development of the Eastern Polygon. Nevertheless, shipments of thermal coal to ports in the East of the country increased by 7 Mt to 82 Mt, which boosted seaborne exports of Russian coal to China, Vietnam, India and Japan. Supplies of thermal coal to China through rail border crossings increased significantly, by 1 Mt to 9.4 Mt.

Russian thermal coal supplies to the international market, Mt



Thermal coal supplies to the Russian market, Mt



Sources: Statistical data from Russian government agencies, SUEK estimates.

¹ Sources: Statistical data from Russian government agencies, SUEK estimates.

² Including PCI coal.

⚡ Russian energy market

Electricity market

According to the System Operator of Russia's Unified Energy System, in 2019 electricity generation in Russia increased by 0.9% year-on-year to 1,080 TWh. This was due to higher electricity consumption in some months, with lower temperatures compared to 2018, and increased export of electricity from Russia.

In Siberia's Consolidated Energy System (Price Zone 2), demand for electricity rose by 0.5% from the previous year, to 211.0 TWh, due to more intense electricity consumption by aluminium smelters and lower air temperatures in some months. In the European part of Russia and the Urals (Price Zone 1) energy consumption decreased by 0.5% year-on-year to 807.6 TWh due to a cool summer and warm start of winter.

Electricity generation by Siberian thermal power plants decreased by 3% year-on-year, to 100.4 TWh, mainly in view of higher electricity generation at Siberian hydroelectric power plants (up 6.3% from 2018). In the Irkutsk region, high river water levels led to record levels in the reservoirs of the Angarsk hydroelectric power plants. Water reserves in the reservoirs of the Yenisei hydroelectric power

plants were minimal in 1H 2019 due to a light spring flood in the Krasnoyarsk region and a lack of precipitation, but recovered to average multi-year levels by mid-July. Despite the decline in power generation by hydropower plants in 1H 2019, these factors increased their load for the full year.

The market price on electricity (day-ahead market, DAM) in Siberia remained flat year-on-year. This was because a price increase in the European part of Russia and the Urals compensated for a drop in price due to higher hydrogeneration, especially during network restriction periods.

The DAM electricity price in the European part of Russia and the Urals increased by 3% year-on-year. The key factors that influenced the change included:

- An increase in electricity exports from the European part and the Urals (by more than twice, or on average by 1 GWh) in the first five months of 2019, mainly to the energy systems of the Baltic countries (Estonia, Lithuania, Latvia), Ukraine, Belarus and to Finland's energy system (because of a significant reduction in Scandinavian water resources,

a cut in the cross-border tariff duty by the Finnish electricity transmission operator, Fingrid, and growth in CO₂ emission quota prices)

- Rising prices in suppliers' orders in connection with a higher minimum level of wholesale gas tariffs (+3.4%) year-on-year
- A decrease in hydrogeneration following a decline in reserves of the Volga-Kama region.

In turn, changes in the planned output of nuclear power plants in January-August 2019, which exceeded 2018 values, including due to commissioning of a new power unit at the Rostov NPP, limited further price growth.

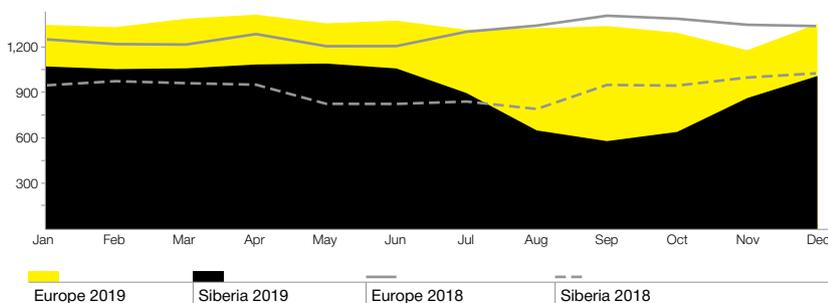
211 TWh

electricity consumption in Siberia in 2019

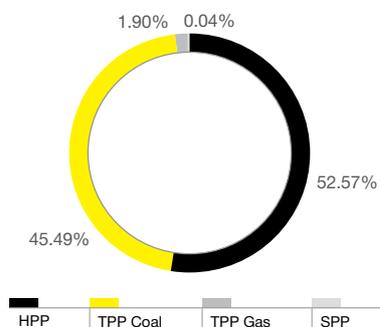
45%

of electricity in Siberia is generated from coal

Russian electricity market prices 2019/2018, RUB/MWh



Siberia's electricity generation by plant and fuel types



Sources: Statistical data from Russian government agencies, SUEK estimates.

Power capacity market

In 2019, power capacity sales in Siberia rose 0.5% year-on-year, to 42.9 GW. The competitive price for capacity sales in Siberia in the reporting period was 213,705 roubles/MW/month, which is 7% higher than in 2018. This was driven by:

- Higher demand for capacity in 2019 year-on-year during the competitive capacity take-off (CCT)
- Factoring indexing the price based on CCT outcome

In 2019, power capacity sales in the European part of Russia and the Urals amounted to 146 GW, a 1.7% increase year-on-year. The competitive price for capacity sales in the reporting year increased by 4% to 124,048 roubles/MW/month.

In 2019, projects were selected to modernise the generating facilities of thermal power plants in 2022-2025 ('DPM-2').

The programme, launched by the Russian government in February 2019 as a continuation of DPM-1 programme, guarantees a return on investment in heat and power capacity development for participating projects up until 2030.

'DPM-2' is part of increased investment to modernise obsolete capital equipment at power plant generating facilities, to extend the life of the upgraded power plants by 15-20 years.

About 40 GW of old heat capacities will be upgraded in the upcoming 10 years, including a number of SUEK's generating facilities.

Installed capacity structure by plant types in Siberia, MW

Power plants	2019	2018
Thermal	26,578	26,521
Hydro	25,301	25,291
Nuclear	–	–
Renewables	225	55
Total	52,104	51,867

Sources: Statistical data from Russian government agencies, SUEK estimates.

Installed capacity structure by plant types in the European part of Russia and the Urals, MW

Power plants	2019	2018
Thermal	131,535	132,091
Hydro	19,960	19,555
Nuclear	30,313	29,132
Renewables	1,321	963
Total	183,129	181,741

Sources: Statistical data from Russian government agencies, SUEK estimates.

+7%

the competitive price for power capacity sales in Siberia compared to 2018