MEETING GLOBAL MOBILITY DEMAND

GLOBAL TRENDS

FOCUS ON BETTER ACCESS TO ELECTRICITY

GLOBAL ELECTRICITY DEMAND BY 2030
+22%

TRANSPORT ELECTRIFICATION

x10 ELECTRIC VEHICLES BY 2030

GLOBAL TRENDS

INTERFUEL COMPETITION, INCLUDING THE IMPACT OF LNG

CLIMATE AGENDA
Increasing focus on ESG practices and disclosures

RUSSIAN INDUSTRIAL PRODUCTION GROWTH

>4% CAGR

DEMAND
Rising demand for coal in Asia offsets declining demand in Europe

SUPPLY
Australia and Russia will become key coal exporters by 2030

+60 Mt COAL IMPORTS BY ASIAN COUNTRIES BY 2030

INDUSTRY IMPACT

ELECTRICITY CONSUMPTION GROWTH IN SIBERIA BY 2030
+30–40 TWh

DEVELOPMENT OF RUSSIAN RAILWAYS’ EASTERN POLYGON

+55 Mt RAILWAY CAPACITY TO THE EASTBOUND PORTS BY 2024

COAL

ENERGY

LOGISTICS

SUEK’S RESPONSE

INCREASED SUPPLY TO ASIAN MARKETS

+6 Mt BY 2025

INCREASED SHARE OF ENERGY AND LOGISTICS

+17 TWh ELECTRICITY GENERATION BY 2025

+50% TRANSSHIPMENT CAPACITY BY 2025

LOW-EMISSION COAL MINING AND BURNING

+25% PRODUCTION IN CO-GENERATION MODE

−1 Mt CO2 EMISSIONS FROM 2025 BY CO-GENERATING HEAT

GROWTH IN DRY CARGO EXPORT

Russia aims to be amongst TOP-5 international exporters by 2030

VOLATILITY OF RUSSIAN CURRENCY

Growing focus on ESG practices and disclosures

GROWTH IN ELECTRICITY DEMAND IN RUSSIA

1.1% CAGR BY 2030

To meet the growing electricity demand, affordable, versatile and reliable energy sources are needed. At the same time, increased environmental and climate change scrutiny adds the requirement to reduce environmental impact.

The United Nations has set an objective of providing full access to electricity for over 850 million people who still do not have it. The planet’s population continues to grow and is increasingly urbanised. Despite the decline in electricity consumption in 2020 due to the coronavirus, global electricity demand will continue to grow by 0.7% every year until 2030.

The largest contribution to this growth will come from developing economies (3% CAGR), especially Asia where it will be driven by increased industrial production, use of electrical appliances and air conditioners. In developed countries, growth in electricity consumption amid the continued electrification of transport and heating will be constrained by improvements in energy efficiency.

Increased transport electrification could boost total electricity consumption by 6% in 2030. The rising number of electric vehicles can be explained by a reduction in costs associated with ownership, as a result of cheaper batteries and additional government incentives. By 2030, it will cost the same to own an electric vehicle as an internal combustion engine model, across all modes of transport and all key regions. There will also be a greater variety of models available and a well-developed charging infrastructure.

In terms of supply, the growth drivers will be solar and wind generation: their share, according to the International Energy Agency’s outlook, will grow from 8 to 19% by 2030. At the same time, coal will remain one of the most important electricity sources, with a share of 28%.

Coal generation will address around 30% of additional demand for electricity from electric vehicles, which will total 90–180 billion kWh. Generating this amount of electricity will require from 175 Mt of coal, in the baseline scenario, to 240 Mt in the accelerated scenario by 2030.

Liquefied natural gas (LNG) is one of the key fossil fuels that will compete with coal in the medium to long term. In this context, it is important to understand the potential imbalance in the global LNG market, i.e. the excess capacity that will directly compete with coal for energy markets against its potential cost. As anticipated, in the late 2020s, demand for LNG will begin to exceed supply from existing or planned capacities, with the capacity deficit amounting to 125–175 Mt a year by 2035. With that, based on the cost curve of new projects, the incentive price for commissioning these capacities will be approximately $7/mmbtu, which corresponds to a price level for FOB Newcastle coal of around $100–110/tonne. Therefore, according to our estimates, in emerging markets coal will remain a more competitive fuel than gas until 2030–2035.

The growth in the number of electric vehicles will increase electricity consumption (bn kWh)

- 1,554 bn kWh


1 Based on battery efficiency curve (temperature for maximum efficiency –21.5° C). The calculation was based on the monthly temperature forecast for 2020–2030.
2 Forecast for 2030, trend towards loss reduction is assumed.
3 Forecast for 2030, trends towards loss reduction and auxiliary generation are assumed.
GLOBAL COAL MARKET

Key trends in coal-fired generation include:

- A decrease in demand in Europe, the USA and potentially in China will be offset by growth in India and other countries of Southeast Asia
- An increase in the efficiency of power plants consuming higher-calorific coal
- Tighter restrictions on sulphur and nitrogen emissions

Following a marginal decline due to COVID-19, coal-fired generation will recover. A 40% decline in coal generation in developed countries will be offset by growth in developing countries, which plan to commission around 300 GW of coal generation capacity by 2030.

Our baseline scenario assumes slow growth in global steam coal trade at 0.1–0.2% a year.

Southeast Asian countries (Vietnam, Thailand, Malaysia, Philippines and others) developing coal-fired power industry, with an average annual demand growth rate of 5%, are becoming key drivers of consumption growth.

South Korea and Japan will remain important, as robust markets with attractive prices, but their consumption will slowly decline to reflect their decarbonisation plans.

Indian demand for imported coal is expected to grow further, supported by demand for electricity and from the cement industry.

China may reduce its coal imports, as the pace of its new coal-fired power capacity development slows down after 2025.

In the Atlantic market, consumption will continue to decrease in most of Western and Northern Europe due to regulatory restrictions on coal generation, while demand in North Africa and the Middle East will rise.

On the supply side, much of the capacity planned for commissioning is likely to be on the right side of the global cost curve, mainly due to the deterioration of production parameters (stripping ratios and transportation distances) and, therefore, subject to review during lower prices. Indonesia, currently the world’s largest coal exporter, will cut international supplies due to rising domestic consumption. Consequently, by 2030, Australia and Russia will be the biggest coal exporters. In addition, Russian coal meets the requirements of Japanese and South Korean buyers for low sulphur and nitrogen content.

Currently, supply and demand tend to converge and stay in a fundamental balance. The surplus of coal industry capacity is only 3% of the global market (approximately 32 Mt). In 2022–2024, capacity is expected to fall below 13 Mt, and after 2025, a coal supply deficit may emerge. Against comparable basic industries, the capacity utilisation rate in the coal industry is around 97%, while the utilisation rate in non-ferrous metallurgy, fertiliser industry or steel production does not exceed 80%.

Steam coal demand, seaborne trade (Mt)

5%
CAGR OF SOUTHEAST ASIAN MARKET BY 2030

Co-generation is the most efficient source of energy in Siberia as it consumes local coals and can provide central heating for nine months of the year, as a by-product to electricity generation.

THE RUSSIAN ENERGY STRATEGY TO 2035 INCLUDES THE FOLLOWING PRIORITIES

To develop the coal mining industry:
- Priority licensing of deposits with the safest mining and geological conditions and high-CV coals
- Development of railway and other transport infrastructure to support the transportation of Russian coal, primarily to the east
- Introduction of innovations, automation and robotisation
- Modernisation of storage, transportation and transshipment of coal, taking into account present-day environmental requirements

To develop the power industry:
- Increasing the reliability of power supply
- Development of competition in the wholesale and retail electricity markets
- Improvement of development planning systems and structural optimisation of generating capacities
- Development of demand management and electricity storage market
- Gradual elimination of cross-subsidisation
- Introduction of incentives to reduce the unused reserve relative to the declared consumed capacity

To develop heat supply:
- Transition to a new target model of the heat market (heat supply price zones with a long-term tariff). Creation of conditions for financing projects to improve the efficiency of district heating systems and heat consumption and to upgrade fixed assets
- Improving the efficiency of district heating systems, taking into account the priority of co-generation

RUSSIAN LOGISTICS MARKET FUNDAMENTALS

Russia plans to become one of the TOP-5 international exporters by 2035 and is actively developing its logistics infrastructure, including to support the growth of eastbound coal exports to 195 Mt by 2025.

In the cargo turnover structure at Russian ports, 10 key cargo items account for 95%.

The Development of Seaports federal programme assumes a 30% increase in the throughput of Russian seaports by 2030. The main goals of the project are:
- Accelerated development of terminals of paramount importance (container and coal)
- Fulfilment of the Russian transit potential
- Reorientation of Russian foreign trade cargo from the ports in neighbouring states to domestic seaports
- Creating conditions for the export of agro-industrial products worth $45 billion a year
- Creating conditions for increasing cargo traffic through the Northern Sea Route

The main constraint for port loading is still the throughput of Russian railways, mainly in the Far East. An increase in transshipment is possible through the capacity development of existing ports and the expansion of railway approaches. Therefore, the elimination of imbalances in the development of railway and road access routes to seaports is one of the key strategic activities.

KEY CARGO FLOWS AT RUSSIAN SEAPORTS IN 2020

- Coal and coking coal: 23%
- Fertilisers: 50%
- Liquids: 13%
- Grain: 6%
- Others: 4%
- Metals: 2%
- Iron ore: 2%
The state programme for developing the Eastern Polygon of Russian Railways provides for increasing the throughput of the Trans-Siberian and Baikal-Amur Mainlines towards eastern ports by 55 Mt of coal by 2024.

<table>
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<tr>
<th>Region</th>
<th>2020 Trans-shipment (Mt)</th>
<th>2020 Capacity (Mt)</th>
<th>2030 Capacity (Mt)</th>
<th>2030 Capacity forecast (Mt)</th>
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<td>Azov, Black Sea and Caspian</td>
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<td>278</td>
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<td>293</td>
<td>380</td>
<td>380</td>
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</table>

**A 30% increase in the capacity of seaports by 2030 (Mt)**

Source: Rosmorport’s Strategy.