

# TCFD compliance

Recommended disclosures	Report section and page / comments
<p><b>Corporate governance</b></p> <p>Disclose the organisation's governance around climate-related risks and opportunities.</p>	<p>a. Describe the board's oversight of climate-related risks and opportunities. Participation of the Board of Directors in sustainable development management, p. 20</p> <p>b. Describe management's role in assessing and managing climate-related risks and opportunities. Sustainable development management at Russian Railways, p. 22</p>
<p><b>Strategy</b></p> <p>Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning where such information is material.</p>	<p>a. Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term. Climate action, p. 50–58</p> <p>b. Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning. Climate action, p. 50–58 Annexes, Additional Information on TCFD Compliance, p. 188</p> <p>c. Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2 °C or lower scenario. The Company is not currently assessing such scenarios</p>
<p><b>Risk management</b></p> <p>Disclose how the organisation identifies, assesses, and manages climate-related risks.</p>	<p>a. Describe the organisation's processes for identifying and assessing climate-related risks. Risk management process, p. 143–144 Annexes, Additional Information on TCFD Compliance, p. 188 The Company discloses information about risks in line with Decree No. 1102 of the Russian Government dated 4 July 2023</p> <p>b. Describe the organisation's processes for managing climate-related risks. Climate change risks, p. 52–53 Annexes, Additional Information on TCFD Compliance, p. 189 The Company discloses information about risks in line with Decree No. 1102 of the Russian Government dated 4 July 2023</p> <p>c. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management. The Company discloses information about risks in line with Decree No. 1102 of the Russian Government dated 4 July 2023</p>

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<p><b>Metrics and targets</b></p> <p>Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.</p>	<p>a. Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process. The Company discloses information about risks in line with Decree No. 1102 of the Russian Government dated 4 July 2023</p> <p>b. Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks. GHG emissions, p. 54</p> <p>c. Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets. Environmental Strategy targets, p. 44 Annexes, Additional Information on TCFD Compliance, p. 189</p>

## Additional Information on TCFD Compliance

### Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.

Natural climate factors can significantly affect the interaction between railway tracks and rolling stock. The main factors influencing the resilience of rail transport operations are temperature and precipitation, which can lead to several negative consequences for railway infrastructure:

- snowfall disrupts transportation, damages communication and power lines, affects the normal operation of turnouts, and increases the risk of avalanches; rapid melting can also lead to flooding;
- low temperatures increase the likelihood of rail fractures, the formation of cracks in metal bridge span structures, and breaks in power and communication lines;

- high temperatures are particularly dangerous in areas with continuous welded rails, where spontaneous thermal stress relief can cause rail buckling;
- rain and heavy downpours create risks of mass washouts, landslides on embankments and cuts, track erosion, and damage to engineering structures.

In addition, the territory of Russia is exposed to various hazardous natural phenomena, including earthquakes, hurricanes, storms, tornadoes, blizzards, snowstorms, mudslides, landslides, and wildfires.

It is important to note that the total number of hazardous meteorological events has roughly doubled over the past two decades. These meteorological anomalies pose significant risks to rail transport, especially as they become increasingly prolonged. The most critical changes involve fluctuations in average annual temperatures, particularly during

the hot season, as well as the intensity of precipitation that occurs within short time frames.

The risks are associated with the climate change and the resulting increase in the frequency and intensity of adverse natural processes and phenomena, which can damage infrastructure and disrupt or limit the operations of Russian Railways.

These adverse events may result in damage or destruction of buildings, structures, and communications, potentially leading to emergencies, including those with environmental repercussions. Such impacts can lead to decreased transportation volumes and reduced revenue from core operations, as well as higher costs for mitigating the negative effects of climate risks. Additionally, they may indirectly affect the funding allocated for ongoing environmental protection projects.

In the upcoming planning period through 2035, the impact of natural climate risks is assessed as moderate, with a low likelihood of occurrence. Given the extensive infrastructure of Russian Railways across various climatic zones in Russia, efforts will be intensified to study the vulnerability of infrastructure assets to projected impact factors with a view to minimising their long-term consequences. This will involve developing protective and preventive measures, as well as creating adaptation plans to ensure the Company's infrastructure is resilient to climate change.

### Climate-related risk management

Russian Railways regularly conducts analysis of failures in technical equipment and structures, including those caused by natural disasters. These ongoing efforts, along with the implementation of various monitoring and analytics systems, have improved response quality. To assess the impact of changing climate factors and develop solutions for railway infrastructure operations, the Company has established a Competence Centre for Assessing the Exposure of Russian Railways' Railway Infrastructure to External Factors. This centre collaborates with dedicated scientific institutes, bringing together significant expertise from the scientific community in climate change and engineering solutions.

To analyse external climate factors, a forecasting system has been developed to evaluate their impact on rail transport and facilitate prompt responses. This system consists of the following components:

1. A 30-year observation database containing information on incidents (such as accidents, delays, and transport incidents) caused by external factors, along with details about infrastructure assets, including their technical and hydrological characteristics.
2. A set of analytical methods designed to forecast potential failure states of infrastructure assets.
3. Decision-making models for creating and implementing adaptation plans, which encompass protective measures for assets and strategies for minimising risks of their failure, informed by data from automated monitoring and alert systems.

A predictive monitoring system for the condition of artificial structures, using water throughput calculations, has been established as part of the Company's digitalisation programme (based on Russian Railways' Geoinformation Platform). It enables the monitoring of the water throughput of small artificial structures based on forecast precipitation levels.

The existing hydrological monitoring system tracks water flow levels twice a day. In addition, a stationary monitoring system is being implemented to enable continuous

measurements, fully automate the process, and automatically collect and visualise data.

Furthermore, modelling is used to assess the impact of external factors on the condition and reliability of engineering structures. This involves using models based on physical and mathematical similarity while considering potential changes in the characteristics of real-world structures.

**The Company also monitors the state of the coastal areas, focusing on sediment movement (erosion) and channel processes in open waterways. By managing climate-related risks, the Company can capitalise on opportunities to strengthen the resilience of its operations.**

Targets used to manage climate-related risks and opportunities

The Company's Environmental Strategy through 2030 with an outlook through 2035 aims to achieve specific targets for GHG emissions per unit of transportation. It includes a comprehensive set of initiatives focused on electrifying railway lines, upgrading traction rolling stock, and implementing energy-saving measures.

# Annex to the Energy Efficiency section

Resource type	Physical unit of measurement	2022	2023	Change (±%)
<b>Electrical energy, total</b>	m kWh	51,567.5	51,503.9	-0.1
for train traction	m kWh	44,998.4	44,971.3	-0.1
• incl. other owners of multiple units <sup>1</sup>	m kWh	1,160.0	1,353.2	16.7
for non-traction use	m kWh	6,569.1	6,532.6	-0.6
<b>Diesel fuel, total</b>	kt	2,621.3	2,635.2	0.5
for train traction	kt	2,428.5	2,443.2	0.6
for non-traction use	kt	192.9	192.0	-0.5
• excluding consumption by service companies	kt	164.6	156.6	-4.9
<b>Coal<sup>2</sup></b>	kt	578.6	564.1	-2.5
• excluding consumption by utilities	kt	512.0	500.3	-2.3
<b>Fuel oil</b>	kt	207.0	188.7	-8.8
<b>Natural gas</b>	mcm	391.3	372.8	-4.7
<b>Petrol</b>	kt	35.9	36.1	0.5
<b>Third-party heat energy</b>	m Gcal	2.1	2.1	-0.8

<sup>1</sup> Multiple Unit Trains.

<sup>2</sup> Including consumption by utilities.