

Investment activities

Investment programme approaches

The Company's investment programme is designed to:

- ensure uninterrupted transportation service;
- embrace the most promising projects in terms of both commercial and budget efficiency;
- minimise federal government spending on investment projects.

All the investment projects have commercial and budget efficiency estimates in place and are ranked using the cost/benefit analysis.

The projects' commercial efficiency is assessed based on the net cash flow from investing and operating activities, with the resulting estimates taking into consideration the financial aftermaths for the investment project owner assuming that such owner fully covers the project costs and reaps all of its benefits. Russian Railways has uniform guidelines in place to assess the efficiency of investment projects¹. With a payback period of up to 20 years and an IRR of at least 10%, an investment project is deemed to be sufficiently efficient.

Budget efficiency for projects is assessed based on comparison of cash inflows (tax, customs and insurance payments) resulting from railway infrastructure development vs government-financed investments.



¹ In accordance with the Russian Government's Order No. 2991-r dated 29 December 2017.

Investment highlights in 2019

As adjusted by the Board of Directors of Russian Railways, the Company's 2019 investment programme totalled RUB 688.7 bn².

Expenses incurred in 2019 as part of the Russian Railways investment programme came in at RUB 674.1 bn, including:

- RUB 590.5 bn using the Company's own cash;
- RUB 83.6 bn in government support.

On top of that, RUB 2.1 bn was raised from third-party investors.

PROJECTS INCLUDED INTO THE COMPREHENSIVE PLAN FOR UPGRADING AND EXPANDING CORE INFRASTRUCTURE UNTIL 2024³

2019 investment expenses:

164.5
RUB bn

Upgrade of the rail infrastructure of the Baikal–Amur and the Trans-Siberian main lines (Eastern Operating Domain)

In 2019, the investment expenses amounted to RUB 35.0 bn (including RUB 16.9 bn sourced from the National Wealth Fund).

The project is aimed at developing and upgrading the rail infrastructure to increase the carrying capacity on routes to sea ports and Far East border crossings by 55–66.8 mt in 2020 vs 2012. It will facilitate transportation of 113.2–124.9 mt of hard coal and various ores from the main mineral deposits of the Eastern Operating Domain in 2020.

The key highlights of 2019 include the commissioning of five railway bridges (including a river crossing over the River Zeya) and the Vladivostok tunnel. In 2019,

the target was met with 115.8 mt of cargo transported from the main deposits of the Eastern Operating Domain.

Development and renovation of the rail infrastructure serving ports of the Azov and Black Seas

In 2019, the investment expenses amounted to RUB 14.3 bn (including RUB 6.2 bn allocated by the federal government).

In 2019, the service was launched in the Krasnodar Transport Hub, a 128.8 km two-track electrified Kozyrki–Grechanaya line was commissioned, the Kirpili station was built and a fire pump station was set up at the Kuteynikovo station.

The aggregate carrying capacity of the sections serving ports of the Azov and Black Seas in 2019 stood at 93 mt (up 10.7% vs 2018).

Freight transportation by rail on this route was 83.5 mt (down 0.6% vs 2018) due to a decline in export of grain and ferrous metals.

Development of the Central Transport Hub

In 2019, the investment expenses amounted to RUB 87.6 bn (including RUB 12.6 bn allocated by the federal government and RUB 44.6 bn allocated by the Moscow government).

² Meeting of the Board of Directors of Russian Railways of 25 October 2019 (Minutes No. 5).

³ The Russian Government's Order No. 2101-r dated 30 September 2018.



The project aims to increase suburban passenger traffic of the Central Transport Hub to 850 m passengers annually by 2024.

Under the project, the following milestones were completed in 2019:

- launch of the Karacharovo station (transfer from the Gorkovskiy route to the Moscow Central Circle was reduced by 500 m);
- launch of Innovation Centre, a new transport stop on the Smolensk route to provide transport accessibility for residents of Skolkovo Technopark;
- opening of a second exit at the Streshnevo station of the Moscow Central Circle providing a weather-protected transfer to the Leningradskaya transport stop, which was previously moved;
- completion of work to construct the fourth main track of the Karacharovo–Zheleznodorozhnaya section;
- opening of the Severyanin transport stop upgraded as part of a project to integrate the Yaroslavl route, marking the final stage of an effort to integrate radial routes and the Moscow Central Circle;
- launch of first priority diameter routes: MCD 1 from Odintsovo to Lobnya and MCD 2 from Nakhabino to Podolsk;
- transition to a four-minute interval service at the Moscow Central Circle during peak hours;
- completion of bulk of the work to construct the fifth main track from the Moscow–Passazhirskaia–Yaroslavskaya station to the Mytishchi station and launch of additional electric trains.

Development and renovation of the rail infrastructure serving ports of the North-Western basin

2019 investment expenses: RUB 13.5 bn.

The project is designed to facilitate 146.6 mt of projected freight transportation volume in 2020, with subsequent rise to 192 mt by 2025. Activities under the project:

- construction of the second track and electrification of the Vyborg–Primorsk–Ermitlovo section;
- comprehensive upgrade of the Mga–Gatchina–Weimarn–Ivanogorod section and rail infrastructure serving ports on the southern shore of the Gulf of Finland;
- launch of high-speed passenger transportation at the St Petersburg–Buslovskaya section;
- improved throughput capacity of the Volkhovstroy–Murmansk and Dmitrov–Sonkovo–Mga routes.

By the end of 2019, the project helped the Company reach its 2020 target and transport 152.5 mt of freight against the plan of 138 mt (up 10.5% against the plan).

First stage of the Moscow–Kazan High-Speed Railway

2019 investment expenses: RUB 0.1 bn.

The construction of the first stage of the Moscow–Kazan High-Speed Railway (Zheleznodorozhnaya–Gorokhovets High-Speed Railway) with the commissioning of route from Moscow to Nizhny Novgorod is the pilot project of high-speed transportation in Russia. The railway is expected to become the first section of the new Eurasian transit corridor.

In the medium term, it is planned to be extended to Kazan and Yekaterinburg and then to Beijing in the east and Berlin in the west.

Infrastructure expansion and upgrade on the Severnaya and Sverdlovskaya Railways allowing for additional cargo traffic as part of the Northern Latitudinal Railway project

In 2019, the investment expenses amounted to RUB 1.5 bn.

The project aims to put in place a latitudinal railway connecting the Severnaya and Sverdlovskaya Railways as an essential element in the Arctic Transport System and associated infrastructure.

The project will help reduce the length of transportation routes linking mineral deposits in the northern part of West Siberia to the ports of the Baltic, White, Barents and Kara Seas and thereby contribute to the development of the Russian Arctic.

Construction of a western bypass at the Saratov Transport Hub of the Privolzhskaya Railway with the expansion of the Lipovsky–Kurdyum section

2019 investment expenses: RUB 0.8 bn.

The main aim of this investment project is to expand the railway infrastructure with a view to enhancing the carrying capacity on the approaches to the Saratov Transport Hub and increasing freight volumes by at least 49.2 mt compared to 2015. The initiative is linked to the Development and Renovation of the Rail Infrastructure Serving Ports of the Azov and Black Seas project.

Electrification of the Rtishchevo–Kochetovka section

2019 investment expenses: RUB 0.5 bn.

The project aims to reduce operating costs by cutting down on fuel and energy expenses, decrease running times of freight trains and deliver freight faster, improve carrying capacity of the Rtishchevo–Kochetovka section taking into account plans to increase the volume of freight trains, as well as deliver savings in operating costs associated with locomotive maintenance and repairs, operations of locomotive crews, and train downtime at stations when changing traction. In 2019, drafting of design documents was underway.

Reconstruction of the Morozovskaya–Volgodonskaya railway section of the North Caucasus Railway

2019 investment expenses: RUB 0.7 bn.

The Morozovskaya–Tsimlyanskaya section was upgraded in 2019. The section is equipped with automatic block signalling and power supply systems, with receiving and departure tracks reconstructed at the Kumshalek, Kuteynikovskaya and Cherkasskaya stations. The work completed in 2019 helped to increase the capacity of the Morozovskaya–Tsimlyanskaya section to 25 train pairs per day, making it possible to divert part of transit freight traffic from the key passenger route of Likhaya–Rostov to the Likhaya–Morozovskaya–Kuberle–Tikhoretskaya route.

Development of the Perm–Solikamsk connection

2019 investment expenses: RUB 0.5 bn.

The project is designed to accommodate rising freight volumes from the Bereznikovsko-Solikamsky industrial hub by providing the Solikamsk–Perm Sortirovochnaya route for freight trains with a weight of 6 kt and a length of 71 standard cars.

Development of the Perm Railway Hub and the construction of a river crossing

2019 investment expenses: RUB 0.3 bn.

The project aims to divert railway traffic from the Perm II–Levshino section, ensure safe operation of hydraulic structures, protect local residents and territories from emergencies, and accommodate rising freight volumes of the Bereznikovsko-Solikamsky industrial hub.

Following the work completed in 2019, the Company and the government of the Perm Territory chose the final route for the railway with the construction of a railway river crossing over the Kama River and connection of the railway at the Blochnaya–Kabelnaya and Balmoshnaya–Levshino sections.

Feasibility study for the project to electrify the Ozherelye–Uzlovaya–Yelets section linked to the project to electrify the Rtishchevo–Kochetovka section

2019 investment expenses: RUB 0.5 bn.

The key objectives of the project are to divert passenger trains from the Kazan and Paveletskoye routes of the Moskovskaya Railway, increase capacity of the Uzlovaya–Yelets section to 65 train pairs by 2030

and use EP-20 dual-system locomotives at the Moscow–Rostov-on-Don–Novorossiysk–Adler section.

Upgrade of the Baikal–Amur and Trans-Siberian main lines (phase 2)

In 2019, the investment expenses amounted to RUB 4.6 bn.

The Company continued its work on designing facilities. The freight volumes in the Eastern Operating Domain were updated and the points of origination and termination of freight flows were identified. As a result, the list of activities was adjusted accordingly.

Throughput increase at the Artyshhta–Mezhdurechensk–Tayshtet section

2019 investment expenses: RUB 1.5 bn

The project aims to facilitate transportation of additional coal volumes from deposits in the Kuzbass region and to transport freight from the Kyzyl–Kuraġino railway after it is commissioned. In 2019, drafting of design documents continued underway.

Key technical solutions and feasibility assessment of the project for the construction of the Selikhin–Nysh railway line with a passage across the Nevelsky Strait taking into account the construction of a new port on Sakhalin

2019 investment expenses: RUB 2.1 bn.

The project aims to ensure uninterrupted transport access to Sakhalin and develop railway transport on the island. A stationary bridge crossing will help develop the island's port capacities.

Enhancement of the throughput and carrying capacities to achieve an increase in transit container traffic

2019 investment expenses: RUB 0.8 bn.

The project aims to increase transit container traffic fourfold by 2024 against 2018. In 2019, drafting of design documents continued underway.

OTHER RAIL INFRASTRUCTURE DEVELOPMENT PROJECTS

2019 investment expenses

7.0
RUB bn

Creation of the St Petersburg–Moscow High-Speed Railway¹

2019 investment expenses: RUB 0.3 bn.

The aim of the project is to develop design documents for subsequent construction of the St Petersburg–Moscow High-Speed Railway, which is part of a high-speed railway connecting federal cities of St Petersburg and Moscow with Nizhny Novgorod. The project's feasibility study developed in 2009 was updated along with the financial, organisational and legal models, with potential options considered and reviewed.

Comprehensive development of the Krasnoyarsk Railway's Mezhdurechensk–Tayshet section

2019 investment expenses: RUB 4.6 bn, including RUB 3.3 bn from the federal budget.

The project aims to accommodate future freight volumes at the Mezhdurechensk–Tayshet section to service increased freight transportation from the Kuzbass region to ports in the Far East.

2019 saw the commissioning of second tracks on the sections of Irba–Krasny Kordon, Zhuravlevo–Razyezd 557 km (first phase), Dzheb–Shchetinkino, and a passing loop at the Agul–Korostelev section. The main work under the project is expected to be completed in 2020.

Construction of the Prokhorovka–Zhuravka–Chertkovo–Bataysk line (new rail line on the Zhuravka–Millerovo route)

2019 investment expenses: RUB 0.6 bn.

As part of the project, work was underway in 2019 to equip the Zhuravka–Bochenkovo section with centralised traffic control systems in Voronezh and Rostov-on-Don, complete the equipment of existing computer-based interlocking systems for turnout management at the section's stations with comprehensive information protection and cyber safety systems, construct control posts for the overhead lines (with connecting tracks) at the Zaytsevka and Kuteynikovo stations, construct heating modules for signalling, centralisation and block signalling staff at the Zaytsevka and Sergeevka stations, install snow fencing and ensure afforestation, and help develop receiving and departure tracks at the Sokhranovka, Kuteynikovo and Kolodezi stations.

Development of the Tobolsk–Surгут–Korotchaev railway section

In 2019, the investment expenses amounted to RUB 1.5 bn.

The project aimed to ensure the transportation of the expected volumes of hydrocarbons from the Yamalo-Nenets and Khanty-Mansi autonomous areas by gradually ramping up the throughput and carrying capacity of the Tobolsk–Surгут railway section to 66 train pairs per day.

In 2019, 25.1 km of second tracks were put into operation at the Tanginsky–Ostrovnoy–Obsky, Tobolsk–Surгут, and Kosulino–Bazhenovo sections and as part of the upgrade of the Surгут station. The construction of the second main track throughout the Tobolsk–Surгут section (293.89 km) was completed. As required by the approved design documents, the throughput capacity of the section is now 66 train pairs per day.

SAFETY ENHANCEMENT INITIATIVES

In 2019, the investment expenses amounted to

139
RUB bn

This set of investment projects is aimed at upgrading fixed assets, including those whose useful life has ended, and bringing the railway infrastructure in line with regulatory requirements. These include projects to renovate the track infrastructure, upgrade the overhead lines and automation and telematics equipment at railway sections and stations, renew power supply equipment and communication systems, locomotive and railcar fleets, and fixed assets at the engineering and utility facilities.

¹ In pursuance of Instruction of Russian President Vladimir Putin No. Pr-623 dated 10 April 2019.



Other initiatives aim to improve transportation safety, increase efficiency of anti-terrorism measures at railway facilities, prevent injuries among the public at railway infrastructure facilities, improve traffic safety, and develop the corporate informatisation programme.

INFRASTRUCTURE DEBOTTLENECKING

In 2019, the investment expenses amounted to

167.3

RUB bn

In this area, Russian Railways' investment programme includes projects to build second tracks, extend station tracks, develop railway hubs and border crossing stations, develop marshalling yards, construct and upgrade engineering structures, upgrade the tracks and railway infrastructure on the island of Sakhalin, and develop the Tobolsk–Surgut–Korotchaevo railway section.

Upgrading railway tracks

In 2019, the investment expenses amounted to RUB 138.8 bn.

In 2019, Russian Railways upgraded 5,980 km of railway tracks. This allowed the Company to:

- reduce the length of railway tracks with exceeded limits of throughput in tonnes by 900 km of tracks;
- increase the speed of passenger trains on 1,090 km of tracks;
- increase the speed of freight trains on 1,110 km of tracks;
- reduce the length of permanent speed limit sections on 1,300 km of tracks;
- increase the length of continuous welded rails by 1,600 km of tracks.

Upgrade of rail infrastructure on the island of Sakhalin

In 2019, the investment expenses amounted to RUB 7.6 bn.

The project seeks to increase the railway efficiency and improve the transport services on the island of Sakhalin to ensure transportation of the expected freight volumes. In 2019, over 114 km of tracks were converted from 1,067 mm to 1,520 mm gauge.

Construction of second tracks, extension of station tracks, and development of railway hubs, border crossing stations, and marshalling yards

In 2019, the investment expenses amounted to RUB 7.8 bn.

The reporting period saw completion of the project to upgrade the Ust-Pera station on the Trans-Baikal Railway. On the Privolzhskaya Railway, we finished the renovation of railway tracks and signalling control system at the rail yard of LUKOIL-Trans along with the renewal of public railway infrastructure at the Tatyanka station.

We also completed the construction of two and extension of one railway track at the Vostochny rail yard of the Balezino station on the Gorky Railway.



PROJECTS TO ENHANCE TRANSPORTATION ACCESSIBILITY

In 2019, the investment expenses amounted to

10.1
RUB bn

The projects are aimed at upgrading suburban and long-haul passenger transportation operations.

In the reporting year, we completed the renovation of the Pridacha and Sbeġa suburban train stations and created the suburban transportation infrastructure for the XXIX Winter Universiade in Krasnoyarsk. The Company finished the construction of the passenger infrastructure at the Kuteynikovo station.

The year also saw the completion of projects to upgrade the train stations in Volġoġrad, Yekaterinburg, and Ulan-Ude, construct a passenger terminal at the train station in Abakan, and renovate the Ulan-Ude train station.

ROLLING STOCK RENEWAL

In 2019, the investment expenses amounted to

141
RUB bn

The Company's initiatives to upgrade the rolling stock seek to reduce its wear and tear, increase performance and boost safety.

In 2019, Russian Railways purchased 738 locomotives:

- 461 locomotives (357 electric and 104 diesel locomotives) for freight transportation, including those used for pulling heavy-duty trains,
- 223 shunting diesel locomotives used for shunting, road-switching and hump-shunting operations;
- 54 passenger locomotives (35 electric and 19 diesel locomotives).

On top of that, in 2019 the Company purchased 357 cars for multiple unit trains:

- 199 Lastochka cars;
- 80 cars for electric trains;
- 16 railbus cars;
- 62 locomotive traction cars.

OTHER PROJECTS

In 2019, the investment expenses amounted to

45.1
RUB bn

This category includes projects to introduce resource-saving technologies, support social initiatives, fund activities aimed at creating Russian Railways' subsidiaries and affiliates, and pursue R&D efforts.

Introduction of resource-saving technologies in railway transport

In 2019, the investment expenses amounted to RUB 2.8 bn.

The project aims to reduce the Company's operating costs, increase efficiency, upgrade fixed assets, improve labour safety, and ensure compliance with the regulatory requirements for energy efficiency.

HIGH-SPEED LINES

Pursuant to Russian President's Instruction No. Pr-623 of 10 April 2019, Russian Railways will start engineering and surveying under the St Petersburg–Moscow high-speed railway line project in 2020.

The St Petersburg–Moscow–Nizhny Novgorod high-speed railway line project consists of two parts.

1. The Moscow–Nizhny Novgorod high-speed railway line:
 - 301 km – construction of a new track for the Zheleznodorozhnaya–Gorokhovets high-speed line section;
 - 20 km – construction of a new track (connecting the Gorokhovets station of the high speed railway line and the Gorokhovets station of the Gorky railway line);
 - 100 km – upgrade of the existing infrastructure;
2. St Petersburg–Moscow high-speed railway line:
 - the aggregate length is 421 km;
 - the train travel time will be 2 hours and 5 minutes (without stops).

The project serves the interests of the government, general public and businesses, creating a new platform for long-term economic growth. Over 90% of equipment and materials will be sourced from Russia, including new high-speed trains capable of reaching speeds of up to 400 km/h. The project will help connect metropolitan areas with a total population of over 30 m people. Over 370,000 jobs will be created, including new jobs for more than 48,000 people engaged in the construction of the high-speed railway line.

In addition to the above project, priority is also given to the following lines that may form part of the high-speed Eurasian freight and passenger rail corridor:

- Kazan–Yekaterinburg;
- Yekaterinburg–Chelyabinsk;
- Moscow–Krasnoye.

Saint Petersburg–Moscow–Nizhny Novgorod high-speed railway map

- A new track of the high-speed railway line
- - - Upgrade of the existing infrastructure
- Sections of the high-speed railway line planned for construction

