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Branch Research

Locomotive Market of Russia and 1520 Space Countries

Results of 2011 and Prognosis till 2015

- Main performance figures of railway engineering development in Russia during 2002-2011
- Business description of traction stock manufacturing companies in Russia and 1520 space countries
- Dynamics of diesel-electric and electric locomotives production in Russia and other countries of 1520 space
- Description of conditions of locomotives fleets of 1520 space railway administrations as well as transport companies of Russia
- Dynamics and prognosis of market volume for traction stock in Russia and other countries of 1520 space
- Technical specifications of the main traction stock models

Contents

About Locomotive Market of Russia and 1520 space countries research

In 2011-2012 the shortage of locomotives in Russia became one of the key factors that determined aggravation of operational figures for the railways network, slowing of freight delivery and decreasing reliability of the railway transport. Despite the 2011 investment program of RZHD JSC, which was record-braking in volumes since the moment of the company's foundation with its sum of 396.3 billion roubles, which exceeds the investments of 2010 by 26% and allowed purchasing of 453 new locomotives for more than 35 billion roubles, the demands of this national transporter for fleet's renewal were satisfied by less than 60%.

For the purpose of solving the problem of traction stock shortage and elimination of the gap between operational specifications of the existing and required models of traction stock in 2010-2011 RZHD JSC concluded large-volume long-term contracts with Sinara-Transportnie Mashiny JSC and Transmashholding CJSC, which involve both the existing production sites in Russia and Ukraine and those under construction (including those being constructed in co-operation with largest international railway engineering manufacturers, such as Alstom and Siemens). Besides, formation of proprietary traction stock fleet is an essential element for emergence of private transporters at operating railway ranges of Russia and other countries of 1520 space. In 2008-2011 private companies in Russia practically suspended purchases of locomotives in connection with ambiguous legal status of private traction stock. In 2010 there was completed the third stage of railway transport reforming, which stipulated formation of a developed competitive market of transportation, but the measures for development of private property on mainline locomotives have not been fully implemented so far. In 2010-2012 the prospects of separation of locomotive traction from the infrastructure and formation of private property on locomotives remained still ambiguous. Another problem, which becomes more and more acute, is the level of depreciation of industrial railway transport, working at tracks of enterprises-freight senders in such industries as ore mining, metallurgical, oil and gas, chemical and others.

1520 space countries are characterized by one of the largest traction stock fleets in the world (almost 40 thousand units including industrial railway transport), by high level of its depreciation and acute need for the stock's modernization and renewal. This makes the market of the former USSR the largest and most attractive one in the world and determines quite noticeable interest towards imports and creation of joint ventures with machine-engineering companies of USA, Europe and China. Besides, tens of billions of US dollars will be invested in countries of 1520 space in the context of development of infrastructure, formation and expansion of traction and rolling stock fleet for high-speed traffic.

The main prerequisites that determined the subject of this research were:

- High level of traction stock depreciation and shortage of existing fleet, which now do not provide for needs of freight owners, operators and infrastructure owners in Russia and other 1520 space countries, as well as determined by this demand the necessity to implement comprehensive programs of renewal and modernization of traction stock fleets;
- Ambiguous legal status of private traction stock under conditions of railway industry reforming in Russia and a number of other countries of 1520 space;
- Monopsonic nature of Russian market and markets of other countries of 1520 space, which determines high level of demand volatility depending on the conditions of formation of investment program of RZHD JSC and railway administrations other countries;
- High level of industry concentration and limited production possibilities of locomotive manufacturing enterprises;
- Inferiority of Russian railway engineering enterprises in comparison with international companies in relation of technical specifications, quality of traction stock and technical maintenance programs.

Main objective of Locomotive Market of Russia and 1520 Space Countries, Results of 2011 and Prognosis till 2015 research is evaluation of the current conditions and development outlooks of traction stock market in Russia and countries of CIS, locomotives fleets of railway administrations of Russia and CIS, and projects aimed at its modernization and renewal, description of situation in the field of privately owned traction stock. In the process of the research the specialists of INFOLine IA evaluated the capacity of Russian traction stock market, analyzed the dynamics of manufacturing, export and import of the rolling stock, characterized the conditions and structure of the traction stock fleet of the railway administrations of 1520 space.

Main information sources used during the preparation of **Locomotive Market of Russia and 1520 Space Countries, Results of 2011 Prognosis till 2015:**

- INFOLine IA data base on such subjects as Machine Engineering Industry and Railway Transport of RF for 2003-2012;
- Reports of Railways Co-operation Organization, which includes 27 countries: Azerbaijan, Albania, Belarus, Bulgaria, Hungary, Vietnam, Georgia, Iran, Kazakhstan, China, Democratic People's Republic of Korea, Cuba, Kirgizia, Latvia, Lithuania, Moldova, Mongolia, Poland, Russia, Romania, Slovakia, Tajikistan, Turkmenistan, Uzbekistan, Ukraine, Czechia and Estonia;
- Materials of the Ministry of Transport, Federal Railway Transport Agency, the Ministry of Industry and Energy, Government of RF;

- Materials of RZHD JSC and subsidiary companies (financial reporting, briefings, press conferences, public speaking of top managers, press releases);
- Data of railway engineering enterprises, transportation and leasing companies (web sites content, financial reporting, press releases and presentation);
- polling and questionnaire surveys conducted by INFOLine IA at railway engineering enterprises, transportation and leasing companies regarding the performance results;
- Materials from over 1000 Russian and foreign mass media in 20 languages of the world (national and regional printed press, information agencies, electronic mass media, branch printed press);
- Data of Federal State Statistics Service, Federal Customs Service and Federal Antimonopoly Service.

The Locomotive Market of Russia and 1520 Space Countries, Results of 2011 and Prognosis till 2015 research includes description of the current conditions of investment projects and development outlooks for railways and traction stock fleet of Russia, Belorussia, Ukraine, Kazakhstan, Azerbaijan, Georgia, Armenia, Uzbekistan, Mongolia, Turkmenistan, Tajikistan, Kirgizia, Moldova, Estonia, Lithuania, Latvia, Finland. In the context of this research the specialists of INFOLine IA carried out the analysis of one of the most intricate markets of railway engineering industry – the market of mainline traction stock for 1520-mm track gauge.[1] The structure of the research includes the following main sections:

- **Section I. Description of the traction stock and railway engineering market**. This section includes description of the main indexes of the railway engineering industry of Russia in 2000-2011, a brief description of the present conditions and development trends for the mainline traction stock in Russia, projections for renewal demand of locomotive fleet till 2015, characterization of specificities and trends of integration processes in 1520 space, harmonization of railway engineering industry technical regulation parameters.
- **Section II. The description of RZHD JSC and private operators traction stock conditions** includes volume and structure indexes of traction stock fleet for Rossiyskie Zheleznie Dorogi JSC (Russian Railways), private railway transporters (Zheleznie Dorogi Yakutii JSC) and private operators of mainline traction stock (Globaltrans Investment plc, Novaya Perevozochnaya Kompaniya JSC, BaltTransServis JSC, Gazpromtrans JSC, TransOil JSC; Firma Transgarant JSC, Dalnevostochnaya Transportnaya Gruppa JSC, Obyedinennaya Transportno-Ekspeditorskaya Kompaniya, CJSC (OTEKO, CJSC)). The data on the traction stock fleet of the owners and operators is structured according to locomotives types (electric locomotives, diesel-electric locomotives), function (mainline freight, shunting), as well as models of locomotives.[2]
- **Section III. The condition of the traction stock of 1520 space railway administrations.** This section contains description of current conditions of the infrastructure, traction and rolling stock of the railways in Republic of Belarus, Ukraine, Republic of Kazakhstan, Republic of Azerbaijan, Republic of Georgia, Republic of Armenia, Republic of Uzbekistan, Republic of Mongolia, Republic of Turkmenistan Republic of Tajikistan, Republic of Kirgizia, Republic of Moldova, Republic of Estonia, Republic of Lithuania, Republic of Latvia, Republic of Finland), the key projects, problems and development outlooks of the railway administrations in 1520 space countries, as well as indexes of comparison characteristics of locomotives and cars utilization for passenger and freight transportation in 1520 space countries. The description of railway traction stock of each country takes into account the data of Railways Co-operation Organization, Union Internationale des Chemins de fer (UIC), United Nations Commodity Trade Statistics Database, Federal Customs Service of RF, data on registration of operating locomotives (structures by models and depots of registration), official data of CIS and Baltic States railway administrations, as well as information from open sources.
- **Section IV. Current condition and development outlooks for the traction stock market of 1520 space countries.** This section includes analysis of the current condition and development outlooks of the diesel-electric locomotives and electric locomotives market, description of markets' volume dynamics in Russia, Kazakhstan, Ukraine and other 1520 space countries according to indexes of production, import and export of new traction stock, import and export of used traction stock, as well as the prognosis till 2015. It also describes the current conditions and development milestones for high-speed traffic till 2015 in 1520 space countries, including analysis of key parameters of the projects for development of high-speed railway communications.
- **Section V. Description of the main traction stock models of 1520 space countries.** The section is devoted to structured description of locomotives, manufactured in Russia, Ukraine, Kazakhstan, China, Georgia and Lithuania: mainline passenger diesel-electric locomotives (TEP70BS, TEP70U, TEP150, CKD9A), mainline freight and freight-and-passenger diesel-electric locomotives (2M62, 2TE25A Vityaz, 2TE25K Peresvet, 2TE70, ER20CF, 2TE116, 2TE116U, 2TE116UM, TE33A, CKD4B, CKD9C, 2ZAGAL), shunting diesel-electric locomotives (TEM18, TEM18DM, TEM18V, TEM TMH, TEM35, TEM9, TEM9H, TEM14, TE8, TEM7A, TGM6D, TGM4B, TEM31, TEM103, TE16Z (GKD3B), CKD6E), mainline passenger electric locomotives (EP2K, EP10, EP1, EP1M, EP20, KZ4A, KZ4AC, KZ8A, O'ZBEKISTON), mainline freight and freight-and-

[1] The resent research was not aimed at an in-depth study of the traction stock market operating at non-public railways or at tracks with a gauge different from 1520 mm, since this market is to a high degree informationally closed and specific. At the same time this research contains business-references for Russian companies which manufacture such traction stock. If you are interested in the market of industrial railway transport you are welcome to forward an inquiry to us (technical assignment or a list of questions in free format) at following addresses: research@advis.ru and BurmistrovMB@yandex.ru.
[2] The completeness of data on structure of private locomotive fleets is determined and limited by the publicity policy of private operators.

passenger electric locomotives (DE1, DS3, DS4, VL11M/6, 6E1, 8E1, HXD2, 2EL5, 2EL4, 2ES5K, 2ES4K, 3ES5K, E5K, 2ES5, 2ES6, 2ES10, EP1P), industrial electric locomotives of Russian production (NP1, NPM2, ZKRA-600, K4, K7, K10, K14, K28, K10U, K14U), as well as high-speed passenger trains Siemens Velaro RUS, Siemens Desiro Rus, Talgo 250, Stadler FLIRT, since those models are exported to countries of 1520 space in the context of the projects aimed at development of high-speed passenger traffic. The description includes designation of the series and manufacturing company, function of locomotives, technical specifications and specific design features of the series, as well as images of locomotives (or a drawing – for projects under preparation for certification).

Contact information is provided for all enterprises represented in the research, as well as:

- **regarding railway administrations of 1520 space** (Rossiyskie Zheleznye Dorogi JSC (Russian Railways), Belaruskaya Chyhunka State Railway Company (Belarusian Railway), State Administration of Railway Transport of Ukraine (Ukrainian Railway), National Company NC Kazakhstan Temir Zholy JSC (Kazakhstan Railways), Azerbayjan Demir Yollari CJSC (Azerbaijan Railways), Georgian Railway LLC, Uzbekiston Temir Yullari State Railway Joint Stock Company (Uzbekistan Railways), Turkmen Demir Yollari State Railway Company (Turkmenistan Railways), Rokhy Okhany Tochikiston State Railway Company (Tajik Railways), Kyrgyz Temir Žoly State Railway Company (Kyrgyz Railway), Calea Ferată din Moldova (Railway of Moldova State Enterprise), Eesti Raudtee JSC (Estonian Railways), Lietuvos Gelezinkeliai JSC (Lithuanian Railways JSC), Latvijas Dzelzceļš SJSC (– Latvian Railway)) the research contains data on the size of traction stock and freight rolling stock fleets, age of traction stock and freight rolling stock fleets, operated models of traction stock and types of freight rolling stock fleets; the research contains data on the key locomotives purchasing contracts and investment projects, including projects aimed at development of traction and rolling stock fleets, railways infrastructure; it also contains a brief reference for size and structure of locomotives and cars of VR Group Ltd (Finnish Railway); additionally the reference for Rossiyskie Zheleznye Dorogi JSC contains explicit analysis of specificities and intermediate results of Russian railway industry reforming, the influence of this reforming processes on development of cars and locomotives fleet of Russia, as well as ways for solution of the current problems of freight traffic and locomotive traction development, description of characteristics of tariffication of RZHD JSC network services for customers and the investment program of the holding.
- **regarding transport companies – owners of diesel-electric locomotives and electric locomotives** in 1520 space (Globaltrans Investment PLC, BaltTransServis LLC, TransOil LLC, Gazpromtrans LLC, AK Zheleznye Dorogi Yakutii, Firma Transgarant LLC, DVTG JSC, Novaya Perevozochnaya Kompaniya JSC, OTEKO CJSC) the research contains data on size of traction and rolling stock.

In Russia and 1520 space countries there are specialists in need of immediate, comprehensive and true-to-life coverage of events in the railway engineering industry. Locomotive Market of Russia and 1520 Space Countries, Results of 2011 and Prognosis till 2015 research is intended to satisfy exactly this demand for reliable and complete information on the part of the following professionals:

- leasing and transport company specialists responsible for purchases of railway engineering products and traction stock, as well as the strategic planning;
- specialists of marketing and sales departments of enterprises or private freight dispatchers in the segment of extractive industries (ore mining, metallurgy, oil-and-gas and others);
- specialists of marketing and sales departments of enterprises or private freight dispatchers in the segment of industrial production (chemical industry, machine engineering and others);
- specialists of marketing and sales departments of enterprises manufacturing products or rendering services for railway engineering enterprises;
- specialists of marketing departments and management of railway engineering enterprises;
- private and institutional investors, which own or are planning to acquire the securities of Russian railway engineering enterprises.

Information about INFOLine agency

INFOLine information agency was established in 1999, its aim was to render information and advisory services to commercial organizations. The agency renders permanent information support to more than 1000 companies in Russia and world-wide. On daily basis INFOLine IA monitors publications in more than 5 000 MSM and carries out analytical research according to 80 subjects of RF economy. Since 2003 INFOLine IA has been conducting various desk researches of the markets both on the customer's request and on the Agency's own initiative. When working on a market research, the Agency's analysts make extensive use of their unique data support and their years-long experience of operating various data flows. Our researches of markets and business branches have been approved by and relied upon by: Siemens, Transmashholding, Sinara GC, Uralvagonzavod, Ruzkhimmash, Alfa-Bank, Stahanovskiy Vagonostroitelniy Zavod, Dneprovagonmash, Promtraktor-Vagon, SIBUR-Trans, BaltTransServis, Transcontainer, Russkaya Troika, Globaltrans, OTEKO, GK Transgarant, FK Uralsib, VTB-leasing, Raiffeisen-leasing, Brunswick Rail Leasing and many others.

For additional info please visit our site at www.advis.ru or www.infoline.spb.ru

Section I. Description of the traction stock and railway engineering market

The main key figures of railway engineering industry in Russia

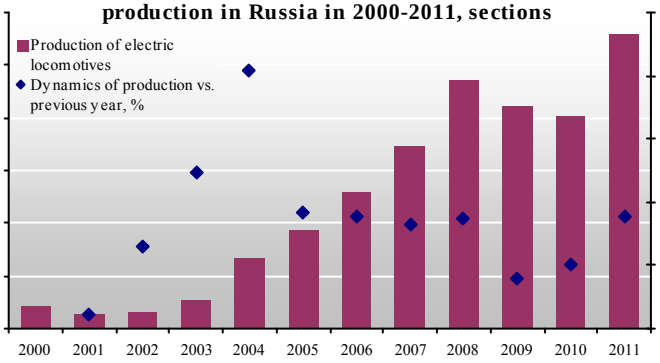
A specific feature of Russian railway engineering market is its detachment from the world market as the result of different track gauges in the countries of the former USSR (1520 millimeters) and other countries (mainly 1435 millimeters). The difference in track gauge, availability of developed manufacturing and maintenance infrastructure (railway car repair yards), oriented at rolling and traction stock produced at the pants of the former USSR countries, together with intricate system of certification (Register of Certification at Federal Railway Transport), which is totally under control of RZHD JSC and, correspondingly, Government of RF – all those factors make it practically impossible for foreign producers to enter the national market without approval of RZHD JSC (either through imports of rolling stock and components or in the context of projects aimed at localization of their production in Russia). <…>

Production of traction stock in Russia

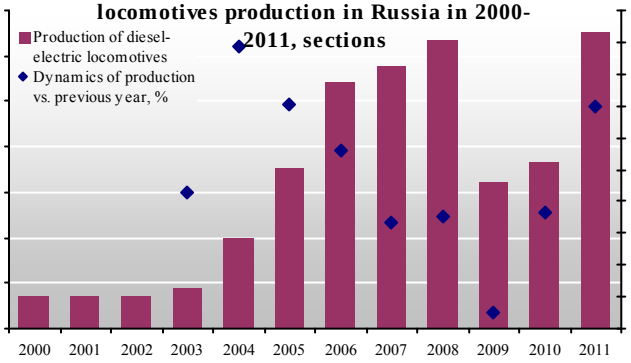
The biggest Russian manufacturer of traction stock is Transmashholding CJSC. <…>

The second largest locomotives producer is Sinara Group of Companies, which includes Lyudinovskiy Teplovozostroitelniy Zavod JSC and Uralskie Lokomotivy JSC. <…>

Dynamics of overall electric locomotives production in Russia in 2000-2011, sections



Dynamics of overall diesel-electric locomotives production in Russia in 2000-2011, sections



Outlooks for development of railway engineering in Russia

Main characteristics of Strategy for Railway Engineering Development till 2015

In order to provide for the needs of Russian economy in railway transport operations it is necessary to annually purchase over 935 units of locomotives, 58.5 thousand units of freight cars and 1790 units of passenger cars. The most important reason for purchases shortage against the demands of the industry is the underfunding of RZHD JSC investment budget – the company is not able to purchase sufficient locomotives volumes for renewal of its fleet. <…>

Financing is not connected with direct investments into the industry's enterprises. Governmental investments will be directed solely at financing of applied research and developmental work. It should be noted that the scale of such support is rather insignificant (less than 0.3% of the railway engineering market capacity), and for this reason it would not produce any significant effect on the industry's development. Besides, even such insignificant – in terms of money – package of governmental support measures is not rendered in full. <…>

Main characteristics of Strategy for Railway Engineering Development till 2030

Strategy for development of railway transport in RF till 2030 emphasizes the following problems of the railway rolling stock industry:

- existing rolling stock production capacities do not satisfy the demands of railway transport in renewal and expanding of rolling stock fleet;
- technical and technological level of the major part of production equipment at the railway engineering enterprises does not correspond to requirements presented to rolling stock <…>

The demand for renewal of Russian railway transport, both of public and non-public usage, is presented in the tables in two versions (minimal and maximal). It should be noted that for 2008-2015 target indexes of maximal and minimal scenarios for public usage transport development coincide, which can be explained by the necessity of accelerated renewal of Russian railway fleet.

Demand for renewal of rolling stock of public railway transport of RF before 2030

Type of rolling stock	2008-2030		2008-2015	2016-2030	
	Max.	Min.	Min/Max	Max.	Min.
Locomotives, units	…	…	…	…	…
Including modernization	…	…	…	…	…
Freight cars, thousand	…	…	…	…	…
Passenger cars, units	…	…	…	…	…
Including modernization	…	…	…	…	…
Multiple-unit rolling stock, units	…	…	…	…	…
Including modernization	…	…	…	…	…

Data source: Ministry of Transport of RF

The average annual demand for renewal of locomotives fleet for the period of 2008-2030 comes to about 800 units a year. Annual volume of purchases is 1. 5-2 times below this level, though there is a positive trend of growing purchases, when actual figures of fleet renewal exceed planned ones. **<…>**

Integration processes in 1520 space countries

Integration factors for countries of 1520 and 1435 space

1520 space is one technically and technologically integrated complex, which creates conditions for profound economical linkage of CIS and EurAsEC countries with countries of EC and Asia-Pacific Region. A new integration impulse was given by formation of Single Economic Space (SES) and Customs Union of Russia, Belarus and Kazakhstan, which allows creation of a single economical railway space from Asia-Pacific Region to the borders of EC. **<…>**

Harmonization of legislative space in relation of technical regulations and standardization

In 1520 space countries a situation is taking shape when mandatory technical regulations are developed without due mutual approval. This is creating conditions for breach of the technological unity of the railways network. Some countries have not introduced so far the mandatory certification of railway engineering products, which complicates the comparability of results and possibility of their immediate recognition. In order to implement the Memorandum on Co-operation of Railway Administrations Participant-States of CIS and Baltic states in the Field of Securing the Unity of Technical Regulation System in 1520 Space there was prepared the Agreement on Policy of the States in the Field of Technical Regulation of Railway Transport of 1520 Space. There was reached an agreement on necessity to apply a number of unified main regulatory documents. **<…>**

Section II. Conditions of traction stock fleet of RZHD JSC and private operators

Rossiyskie Zheleznie Dorogi JSC (Russian Railways)

Address: *d. 2, Novaya Basmannaya, 107174, Moscow.* Phones: *+7 499 262 1002(262 3726,262 9809).* E-Mail: *info@rzd.ru.* Web: *www.rzd.ru.* Chief executive: *Vladimir Ivanovich Yakunin, president.*

Traction Stock Direction. Address: *d. 35, ul. Kalanchevskaya, 107174, Moscow.* Phone: +7 *499 262 5009.* Fax: *+7 499 262 1356.* Chief executive: *Aleksey Valeryevich Vorotilkin, chief of directorate.*

Concise business description

RZHD JSC is the biggest vertically-integrated transport company offering services of freight and passenger transport operations.

RZHD JSC was founded in autumn of 2003 in the process of reorganization of the Ministry of Railway Communications and enterprises of railway industry. 100% of the registered capital of RZHD JSC belongs to the state. RZHD JSC is in the process of reforming.

Description of the railways network

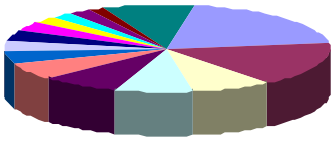
Russia occupies the first position in the world in terms of electrified railways length – over 44 thousand kilometers. Total length of railway communications is over 85.5 thousand kilometers. <…>

In 1990-2011 the railway infrastructure practically remained without change geographically and its handling capacity changed insignificantly at some directions of traffic. The topology of the network does not answer the current demands of its services users, and its conservation represents a limiting factor for the economic growth. <…>

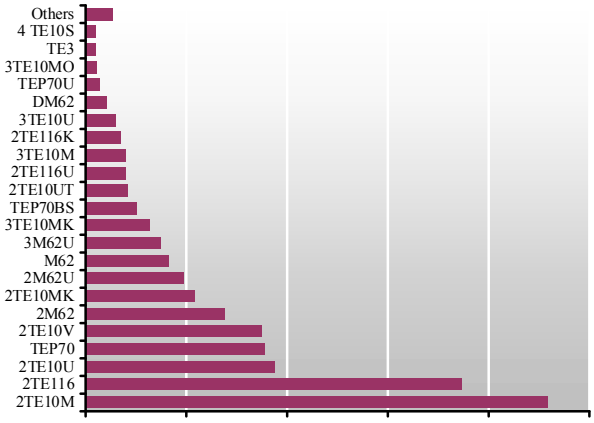
Volume of traction stock fleet

In the structure of shunting diesel-electric locomotives fleet of RZHD JSC 89% falls on diesel-electric locomotives of CHME 3 series of different modifications (3 419 units) and TEM 2 (1764 units). Structure of the shunting diesel-electric locomotives fleet of RZHD JSC according to models is represented at the diagrams <…>

Structure of mainline diesel-electric locomotives owned by RZHD according to models, %



Model line of mainline diesel-electric locomotives fleet of RZHD JSC.



Dynamics and structure of freight cars fleet

Structure of freight railway rolling stock as of 01 January 2012[3] in terms of ownership (privately owned, inventory, leased) and main types of cars is represented in the table. <…>

[3] The newly built freight cars are assigned numbers during 1-2 months, in connection with that we use data bases of cars owners of RZHD MCC as of 03 March 2012, excluding data on cars produced in January-February 2012.

Structure of freight railway rolling stock in terms of cars types as of 01 January 2012.

Car type	Private fleet		Inventory fleet		Fleet in total	
	Quantity	Average age, years	Quantity	Average age, years	Quantity	Average age, years
Boxcars	…	…	…	…	…	…
Flat cars	…	…	…	…	…	…
Gondola cars	…	…	…	…	…	…
Tank cars	…	…	…	…	…	…
…	…	…	…	…	…	…
Total	…	…	…	…	…	…

Data source: INFOLine IA calculations with reference to data base of freight cars numbers of RZHD MCC (main computer center) of

Age structure of freight railway rolling stock in Russia in terms of cars types as of 01 January 2012 is represented in the table <…>

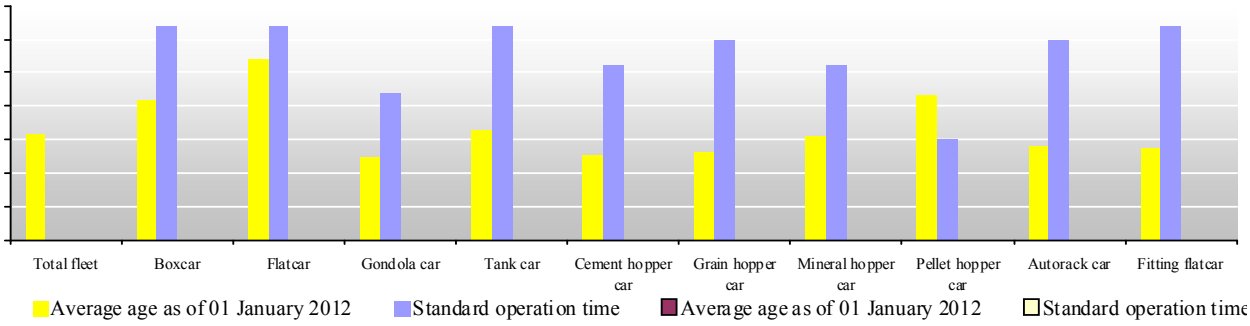
Age structure of freight railway rolling stock in Russia in terms of cars types as of 01 January 2012

Car type	**2011-2007**	**2006-2002**	**2001-1997**	**1996-1992**	**1991-1987**	**10 i 25**
Boxcars	…	…	…	…	…	…
Flatcars	…	…	…	…	…	…
Gondola cars	…	…	…	…	…	…
Tank car	…	…	…	…	…	…
…	…	…	…	…	…	…
Total	…	…	…	…	…	…

Data source: INFOLine IA calculations with reference to data base of freight cars numbers of RZHD MCC

Data on average age and standard operation time of freight cars are represented at the diagram. <…>

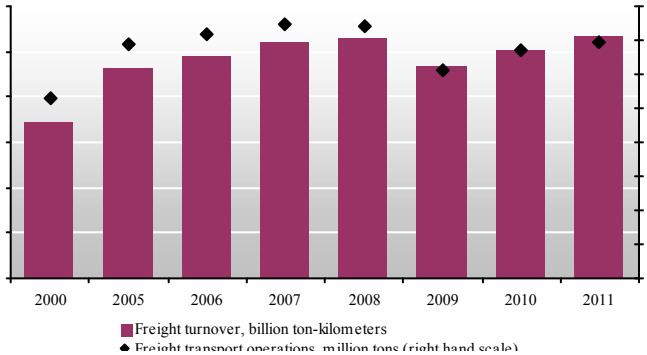
Average age and standard operation time of freight cars in Russia as of 01 January 2012, years



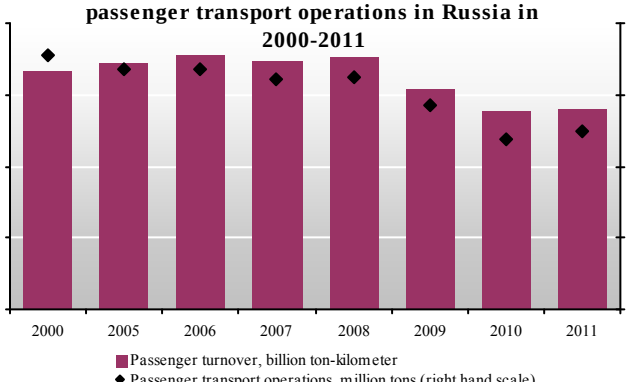
Dynamics of freight and passenger transport operations

In 2011 the volume of railway transport operations came up to … million tons, which by …% exceeds the figures of 2010. <…>

Dynamics of freight turnover and freight transport operations in Russia in 2000-2011



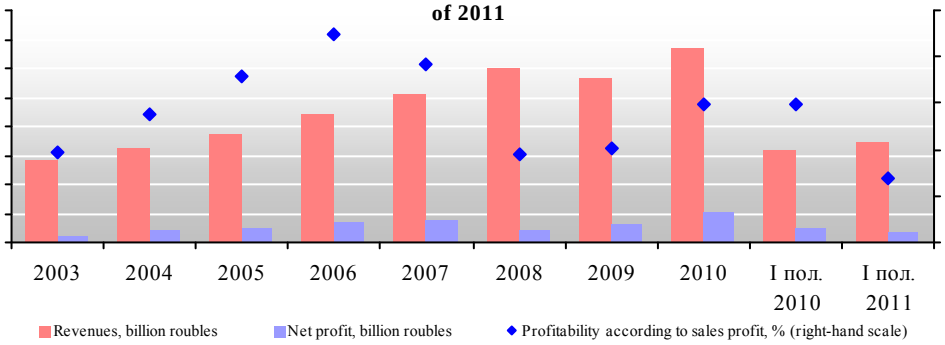
Dynamics of passenger turnover and passenger transport operations in Russia in 2000-2011



Financial activities

In the 1st half of 2011 revenues of RZHD holding[4] according to IFRS increased by …% as compared to the similar period of 2010 and came up to … billion roubles. The revenues growth to a considerable extent was the result of freight turnover increase by …% and loading increase by …%. Net profit of RZHD Holding for reporting period decreased by …% and came up to … billion roubles.

Financial performance dynamics (IFRS) of RZHD JSC in 2003-1st half of 2011

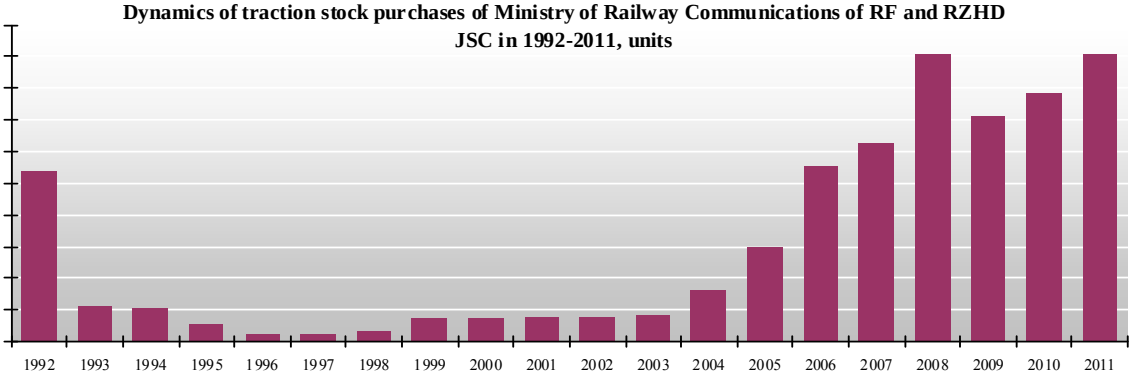


In the revenues structure of the holding about …% are generated by railway transportation, among them …% – freight transport operations.

Investments into renewal of traction stock

RZHD JSC made a decision to carry out massive replacement of locomotive fleet. The development strategy of railway transport contains a provision to exclude operation of locomotives with expired service life before 2010, and by 2020 the traction stock fleet should be totally renewed. <…>

Dynamics of traction stock purchases of Ministry of Railway Communications of RF and RZHD JSC in 1992-2011, units



Development outlooks

Demand for investments for purchasing of traction stock till 2020 comes up to …billion roubles, including … billion roubles for the period till 2015 and … billion roubles – for the period of 2016-2020. Aggregate investments into development and renewal of infrastructure and traction stock fleet, provided for by the Master Plan, come up to: for 2012-2015 – … trillion roubles, for 2016-2020 – … trillion roubles <…>

Private railway transporters

Conditions of locomotives fleet of private companies

In 2001 it was planned to allow competition only in certain segments of railway transport market, the infrastructure, even upon the completion of reforms, was to stay under the state management. In 2011 an attempt was made to introduce corrections into this program. The corrected concept of the industry's development is included into the Target Model of Freight Railway Operations for the Period of 2015, which was approved by the

[4] The consolidated financial reporting of RZHD Group of Companies according to IFRS takes into account over 140 subsidiaries and over 170 associated companies of RZHD holding.

government of Russia in beginning of 2011. A special feature of the document is introduction of the institute of private transporters into the reforms' content.

Private operators of railway traction stock

Description of the railway traction stock of operators, which have their own locomotive fleet, is represented in the next table.

Description of the railway traction stock of operators, which have their own locomotive fleet

Company's name	Concise description	Locomotive fleet, units	Contact information
Globaltrans Investment, plc. Globaltrans	A public company, global depository receipts floated at LSE since May 2008 The main shareholder of Globaltrans is Transportation Investments Holding Limited, operating under the brand of Н-Транс[5]	… locomotives[6]	Legal address: *Omirou 20, Agios Nikolaos, Limassol CY-3095, Cyprus*. Postal address: *City House, 3rd floor, 6 Karaiskakis Street, Limassol CY-3032, Cyprus*. Phone: *+35725503153*. Fax: *+35725503155. E-Mail: irteam@globaltrans.com*. Web: *www.globaltrans.com*. Chief executive: *Sergey Valentinovich Maltsev, CEO*.
…	…	…	…

Section III. Condition of the traction stock of 1520 space railway administrations

Analysis of railway infrastructure conditions and dynamics of transport operations

Condition of the locomotive fleets of 1520 space countries

In the group of 1520 space and world-wide Russia represents the largest market of traction stock. The size of the traction stock fleet of 1520 space countries comes up to … thousand units of locomotives (including fleets of industrial locomotives); in particular the Russia's share is …% locomotives. <…>

Indexes of saturation with railway infrastructure

The degree to which individual countries are provided with railway communications can be characterized by density of transportation network. <…>

Analysis of the average length of freight and passenger transport operations

The longest average length of railway freight transport operations as of 2011 in Russia – … km, from 2000 average length of railway freight transport operations in Russia increased by …%, second position is taken by Kazakhstan – … km (from 2000 average length of freight transport operations increased by …%).<…>

Analyses of changes in volume of passenger and freight transport operations

In Russia in 2011 the increase of freight transport operations volume against 2000 came up to …%. Changes in freight and passenger transport operations volume in CIS countries are represented at the diagrams below. Practically all countries demonstrated increased volume of freight transport operations in 2011 against 2010. <…>

Analyses of changes in volume of passenger and freight transport operations

As compared to 2010 in 2011 countries of 1520 space demonstrated increase of freight turnover, with exception of Moldova, Azerbaijan and Finland, where this index

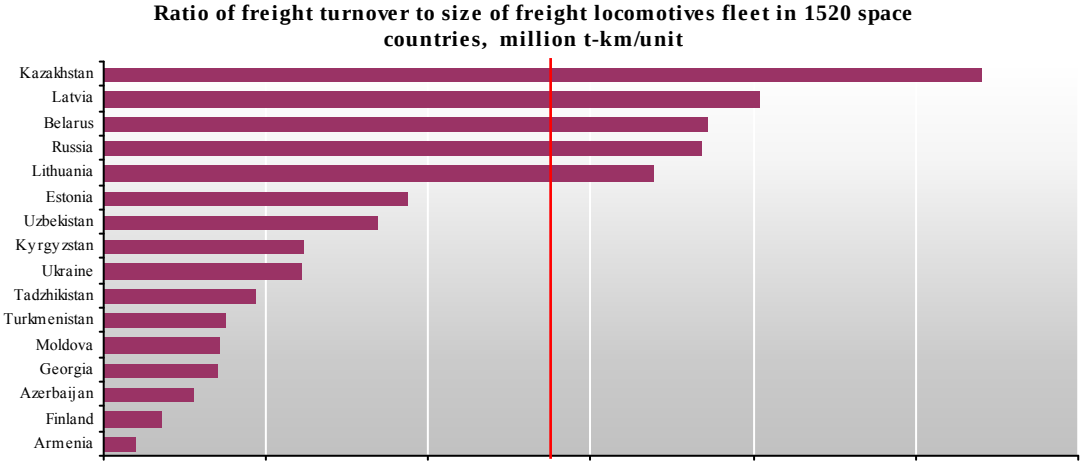
[5] N-Trans GC, besides Globaltrans, consolidates over 20 companies, in particular BaltTransServis LLC and Global Ports Group, which includes such container terminals as Petrolesport, Vostochnaya Stividornaya Kompaniya, Moby Dick, Yanino logistic park, Vopak E.O.S.oil terminal and others. The structure of Globaltrans consists of Novaya Perevozochnaya Kompaniya JSC, Sevtehnotrans LLC, Ukrainskaya Novaya Perevozochnaya Kompaniya LLC, Balttransservis LLC, Spacecom AS, Intopex Trans AS.

[6] As of 30 June 2011. As of 31 December 2009 the fleet included … units, as of 30 June 2010 – … units, as of 31 December 2010 – … units.

lowered. Most of all the freight turnover decreased in Moldova (by … %) and Azerbaijan (by … %). In Russia the increase of turnover came up to …%. <…>

Comparative figures of locomotives fleet usage

The diagram contains comparative characteristic of 1520 space countries according to freight turnover serviced by the countries freight locomotives fleets. <…>



Average ratio of freight turnover to the size of freight diesel-electric and electric locomotives fleet in 1520 space during the year is … million t-km/units, Kazakhstan is the leader among other countries (the average value is exceeded by 95%), the last position in the group is occupied by Republic of Armenia (by …% below the average). <…>

Description of 1520 space countries railway administrations

The section contains data on size of traction stock and freight rolling stock fleet, age of traction and freight rolling stock, operated models of traction stock and types of freight rolling stock; there are also represented data on key locomotives purchase contracts and implemented investment projects, including projects aimed at development of traction and rolling stock fleets, railways infrastructure. The section contains structured description of Belaruskaya Chyhunka State Enterprise (Byelorussian railway), State Administration of Railway Transport of Ukraine Ukrzaliznytsia (Ukrainian Railway), Қазақстан Temir Zholy SJSC (Kazakhstan Railway), Azerbaijan Demir Yollari CJSC (Azerbaijan Railways), Georgian Railway LLC, South Caucasus Railway CJSC, Uzbekiston Temir Yullari State Railway Joint Stock Company (Uzbekistan Railways), Turkmen Demir Yollari State Railway Company (Turkmenistan Railways), Rokhy Okhany Tochikiston State Railway Company (Tajik Railways), Kyrgyz Temir Žoly State Railway Company (Kyrgyz Railway), Calea Ferată din Moldova (Railway of Moldova State Enterprise), Eesti Raudtee JSC (Estonian Railways), Lietuvos Gelezinkeliai JSC (Lithuanian Railways), Latvijas Dzelzceļš SJSC (Latvian Railway)); there is a brief reference for size and structure of locomotives and cars fleet of VR Group Ltd (Finnish Railways).

Section IV. Current condition and development outlooks for the traction stock market of 1520 space countries.

Development outlooks for traction stock fleet in 1520 space countries

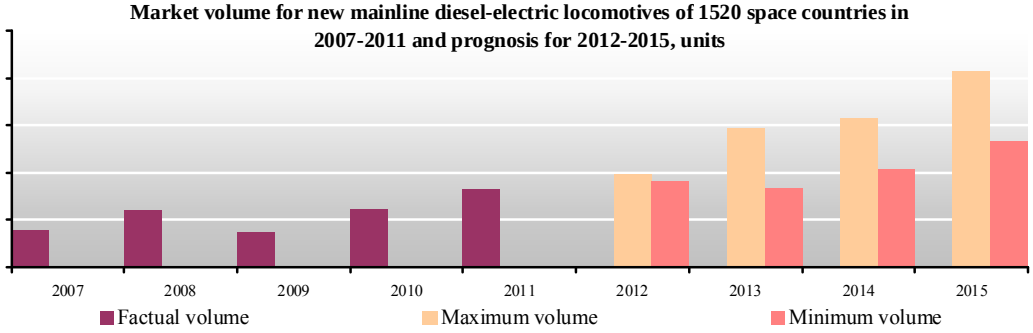
The process of development and renewal of locomotive fleet in 1520 space is constrained by a number of factors. The volumes of investment financing of railway administrations programs satisfy the demand for new traction stock not more than by …%. <…>

Current condition and development outlooks for the diesel-electric locomotives market of 1520 space countries.

In the number of 1520 space nonelectrified railways predominate over the electrified ones in the structure of railway communications: in Byelorussia nonelectrified railways comprise 84% of the network, in Estonia and Uzbekistan – over …%, in Latvia and Lithuania – about …%, in Azerbaijan – …%; in Turkmenistan, Mongolia, Kirgizstan, Tajikistan and Moldova electrified railway tracks of public usage are absent at all. The volume of diesel-electric locomotives fleet in 1520 space countries comes up to … thousand units, ore more than …% of the group's traction stock. **<…>**

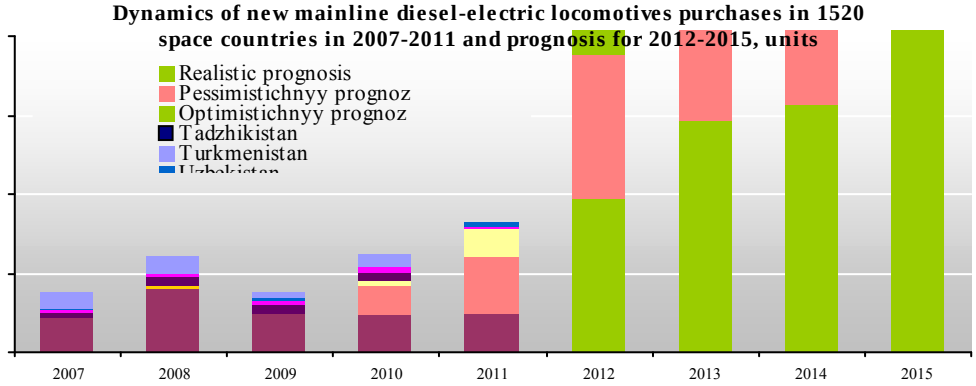
Description and prognosis of 1520 space market volume for new mainline diesel-electric locomotives

Dynamic of purchases of new mainline diesel-electric locomotives in 1520 space countries in 2007-2011 and prognosis till 2015 are represented at the diagram. **<…>**



In Russia mainline diesel-electric locomotives are widespread all over the railway network and perform about 40% of passenger and freight transport operations. **<…>**

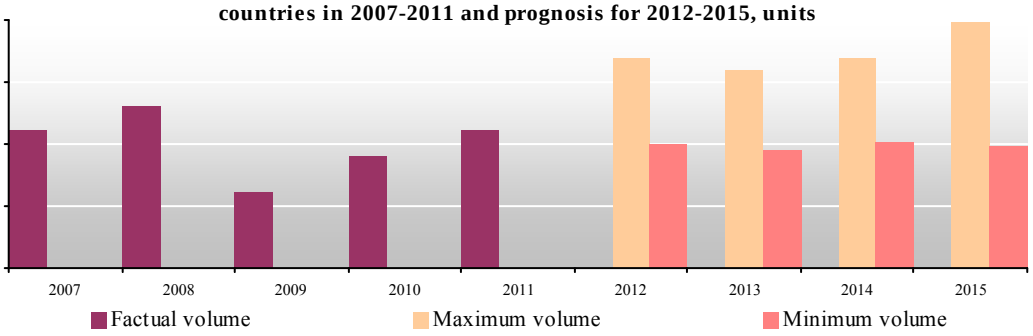
Dynamic of purchases of new mainline diesel-electric locomotives in 2007-2011, structured by countries of 1520, space and realistic prognosis till 2015 are represented at the diagram. <…> **<…>**



Description and prognosis for 1520 space market volume for new shunting diesel-electric locomotives

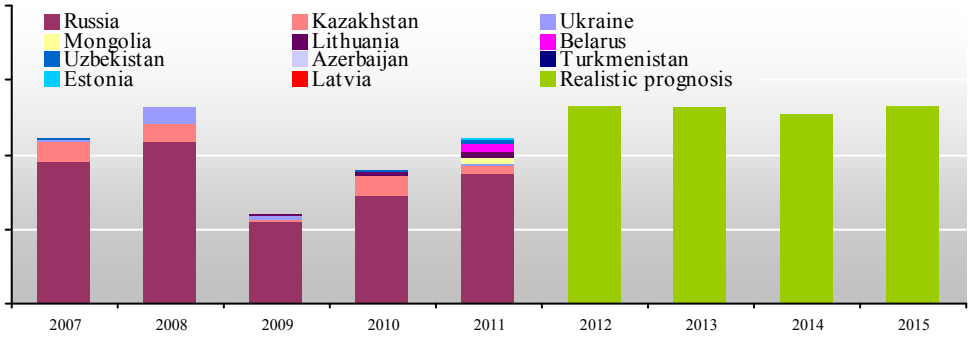
Dynamic of purchases of new shunting diesel-electric locomotives in 1520 space countries in 2007-2011 and market development prognosis till 2015 are represented at the diagram. <…> **<…>**

Market volume for new shunting diesel-electric locomotives of 1520 space countries in 2007-2011 and prognosis for 2012-2015, units



In Russia shunting diesel-electric locomotives are widespread all over the railway network and perform about 98% of shunting operations**.** <…>

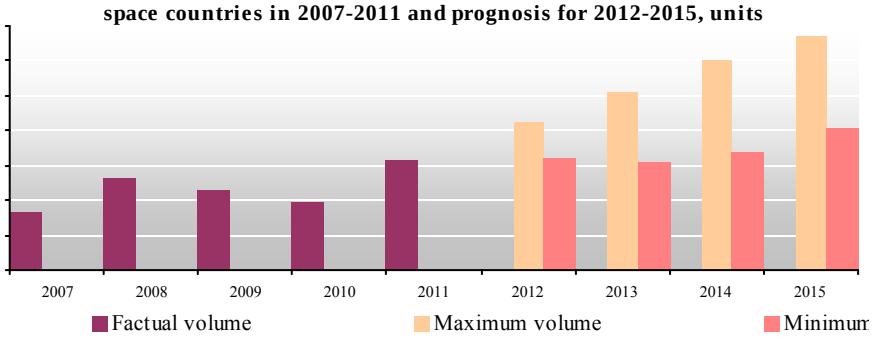
Dynamics of new shunting diesel-electric locomotives purchases in 1520 space countries in 2007-2011 and prognosis for 2012-2015, units



Current condition and development outlooks for the electric locomotives market

In Russia mainline electric locomotives are produced by HC Kolomenskiy Zavod JSC (EP2K), Novocherkasskiy Elektrovozostroitelniy Zavod LLC (EP1, EP1M, EP1P, 2ES5K, 3ES5K, 2ES4K, E5K) and Uralskie Lokomotivy LLC (2ES6, 2ES10). <…>

Market volume for new mainline electric locomotives of 1520 space countries in 2007-2011 and prognosis for 2012-2015, units



The main production facilities for manufacturing of mainline electric locomotives are located in Russia, which determines the decisive role of RZHD JSC at the market. <…>

Dynamics of new mainline electric locomotives purchases in 1520 space countries in 2007-2011 and prognosis for 2012-2015, units

In Kazakhstan such companies as Transmashholding CJSC, Alstom Transport and HC KTZ JSC are implementing a localization project of electric locomotives production at the facilities of their joint venture Elektrovoz Kurastyru Zauyty LLC. This stage-by-stage localization of electric locomotives production under Alstom Transport license in Kazakhstan will allow NC KTZ JSC (Kazakhstan Railway) to abandon imports of used locomotives from CIS countries (Russia, Ukraine, Georgia, including those returned after the complete overhauling) and import of new electric locomotives from Chinese plants of CSR Corporation Ltd and Siemens AG (CSR Zhuzhou Electric Locomotive Co. Ltd in Zhuzhou). NC KTZ JSC plans to continue purchases till 2021 to satisfy the demand in new electric locomotives.[7] <…>

Current conditions and development outlooks for high-speed traffic development

Current conditions of high-speed traffic in Russia

The first high-speed train was launched in Russia in 90s; in the end of 2009 Russia joined the countries with high-speed railway traffic. The national system of high-speed traffic represents a long-term project of Russian Railways. <…>

High-speed traffic projects in CIS and Baltic states

Brief description of investment projects in the segment of high-speed traffic development in 1520 space countries is presented in the table.[8] <…>

Description of high-speed traffic development projects in 1520 space countries

Country	Administration	Investment project	Implementation time	Investment volume, million US dollars
Azerbaijan	CJSC Azerbaijan Railways	State program for development of Azerbaijan Railways	…	…
Belorussia	Belorussian Railway, State Enterprise	Development of high-speed interregional passenger traffic	…	…
Georgia	Georgian Railway LLC	Construction of high-speed railway Tbilisi-Batumi	…	…
Kazakhstan	NC KTZ JSC	Development of high-speed passenger traffic	…	…
Ukraine	Ukrzaliznytsia	Introduction of high-speed passenger trains at Ukrainian railways	…	…
Latvia	Latvian Railway	Construction of high-speed international mainline Rail Baltica	…	…
Lithuania	Lithuanian Railways			
Estonia	Esti Raudti JSC			

Data source: railway administrations of CIS and Baltic states

[7] During the period before 2020, according to the Program of Development of Railway Transport in Republic of Kazakhstan, NC KTZ JSC plans to purchase 1.5 thousand locomotives, giving priority to national manufacturers.
[8] According to 1520 space railway administrations data.

Section V. Description of the main traction stock models of 1520 space countries.

Description of the main models of mainline and shunting diesel-electric locomotives

Mainline passenger diesel-electric locomotives

The section contains a description and technical specifications of mainline passenger diesel-electric locomotives (TEP70BS, TEP70U, TEP150, CKD9A),

Mainline freight diesel-electric locomotives

The section contains a description and technical specifications of mainline freight and freight-and-passenger diesel-electric locomotives ,

Shunting diesel-electric locomotives

The section contains a description and technical specifications of shunting diesel-electric locomotives (TEM18, TEM18DM, TEM18V, TEM TMH, TEM35, TEM9, TEM9H, TEM14, TE8, TEM7A, TGM6D, TGM4B, TEM31, TEM103, TE16Z (GKD3B), CKD6E),

Description of the main models of mainline electric locomotives

Mainline passenger electric locomotives

The section contains a description and technical specifications of mainline passenger electric locomotives (EP2K, EP10, EP1, EP1M, ЕП20, KZ4A, KZ4AC, KZ4AT, O'ZBEKISTON),

Mainline freight electric locomotives

The section contains a description and technical specifications of mainline freight and freight-and-passenger electric locomotives (DE1, DS3, DS4, VL11M/6, 6E1, 8E1, HXD2, 2EL5, 2EL4, 2ES5K, 2ES4K, 3ES5K, E5K, 2ES5, 2ES6, 2ES10, EP1P, KZ8A),

Description of the main models of high-speed electric trains

The section contains a description and technical specifications of passenger trains of Siemens Velaro RUS, Siemens Desiro Rus, Talgo 250, Stadler FLIRT, VMK.

Description of the main models of industrial electric locomotives

The section contains a description and technical specifications of industrial electric locomotives of Russian manufacture (NP1, NPM2, ZKRA-600, K4, K7, K10, K14, K28, K10U, K14U),