INFLUENCE OF TARIFF POLICY OF RAILWAYS ON COMPETITIVENESS OF COAL INDUSTRY

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ABSTRACT

The article examines the role of coal and its contribution to the profitability and volumes of transportation of JSC Russian Railways. Tariffs for transportation of coal by rail and transport (rail) component in the final price of this type of fuel were analyzed. It is shown how the railway tariffs and the transportation distance affect the competitiveness of the Russian coal industry.

Keywords: railway, transportation, tariffs, coal, price, transport component, rates of rolling stock operators, competitiveness.

Background. *Coal traditionally occupies an important place in the structure of freight transportation of Russian railways. Its share in total cargo handling increased from 21,9% in 2006 to 25,7% in 2014, while its share in freight turnover in the same years increased from 32% to 38,5% (See Pic. 1 and 2).*

At the same time, the «feature» of this cargo, which makes discussions about tariffs for coal transportation more acute, is that coal is one of the least profitable cargoes transported on Russian railways.

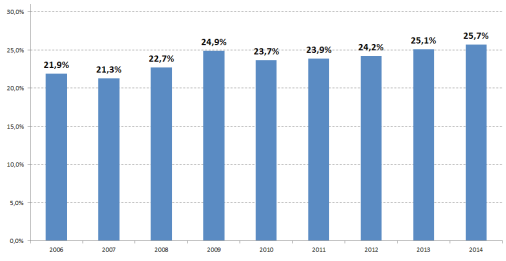
The income from 1 ton • km of coal transportation, as well as the average income received from one loaded ton, is significantly less than the average revenue rate of Russian Railways per 1 ton • km (for all cargo) and the average (for all cargo types) from one loaded ton.

Objective. *The objective of the authors is to consider influence of tariff policy of railways on competitiveness of coal industry.*

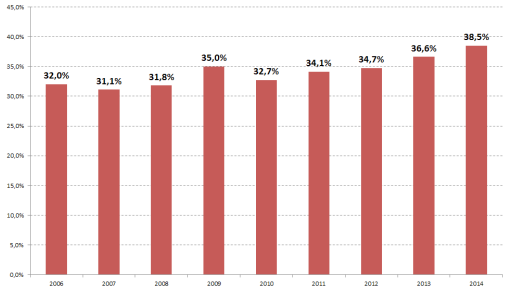
Methods. *The authors use general scientific methods, comparative methods, economical assessment method, analytical approach.*

Results.

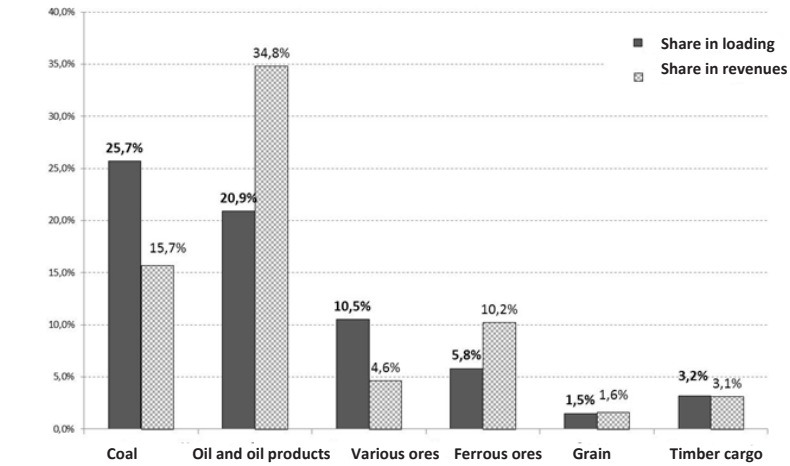
From Pic. 3 it follows that the share of coal in the loading is 1,6 times higher than its share in revenue from freight transportation. This means that from the transportation of one ton of coal, RZD receives about 1,6 times less revenues than from transporting one ton of cargo on average (for all kinds of cargo). Even



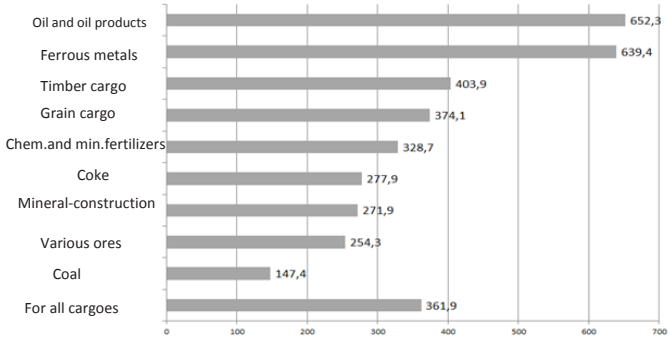
Source: RZD.
Pic. 1. Dynamics of the share of coal in loading cargo of RZD in 2006–2014, in %.



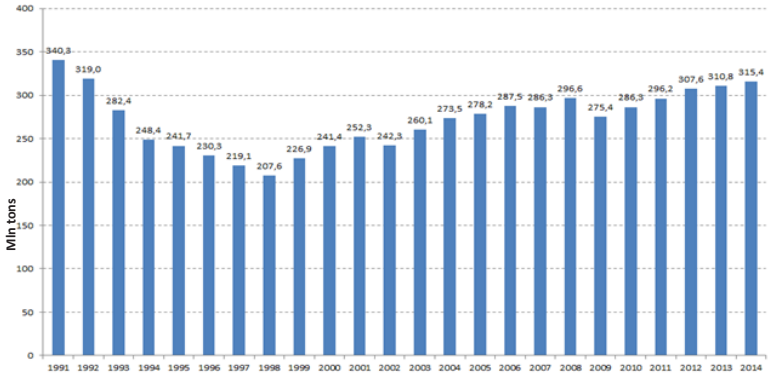
Source: RZD.
Pic. 2. Dynamics of the share of coal in freight turnover of RZD in 2006–2014, in %.



Pic. 3. Shares of some cargo in the loading and income of Russian Railways in 2014, in %.



Pic. 4. Income rate of Russian Railways from transportation of certain goods in 2014, kop. / 10 t • km [Russian Railways, http://f-husainov.livejournal.com/390342.html].



Pic. 5. Dynamics of coal transportation by rail in the Russian Federation in 1992–2014, million tons [3].

more clearly, this can be illustrated by the data shown in Pic. 4.

We note that the practice of setting lower tariffs for coal and higher for other, more valuable cargoes (goods) exists almost everywhere. For example, in the United States in 2013, the revenue rate from coal transportation was 2,4 cents per tonne-mile, a similar figure for chemicals – 5,5, and for the group «other goods» – 6,0 cents per tonne-mile [1].

The different profitability of different cargoes is not a feature of the modern tariff system, tariffs in pre-revolutionary Russia were built in a similar way (for more details, see [2]).

The total volume of coal transported by rail declined in 1992–1998, then began to increase steadily. As a result, coal loading in the Russian Federation in 2014 exceeded the level of the lowest point of the recession in 1998 – by 52% (see Pic. 5).

The greatest contribution to the growth of loading in 2000–2014 was made by transportation for export. So, in 2000, out of 242,6 million tons of shipped coal, 44,1 million tons or 18,2% were delivered for export. In 2013, out of 310, 8 million tons of shipped coal, 126,9 million tons or 40,8% were exported. And in 2014 the share of exports reached 48%. Of the loaded 315,4 million tons 151,3 million tons were exported.

Thus, the share of exports in 2014 relative to 2000 increased by 2,6 times, and the volume of exports in tons – by 3,4 times with the total growth of coal transportation by 30%.

Russian coal has several advantages over coals mined in other countries. Firstly, a low content of impurities such as nitrogen or sulfur. For many consumers this is very important. For example, in some countries there are legal restrictions on the permissible content of nitrogen and sulfur. And such coal can be burned even without complex treatment facilities. Secondly, the production cost of coal in Russia is one of the lowest in the world.

At the same time, there is a factor that negatively affects the competitiveness of Russian coal. Distances that it overcomes by rail are among the longest in the world, and if we talk about exports – the longest ones.

At the same time, the main coal producers (Australia, South Africa, South America, Indonesia) export by water. In Australia, the most distant point of coal mining from the port is just 300 km away [4]. In Russia, the bulk of exports are transported at a distance of 3,5 to 6 thousand km.

For example, the distance from the stations of mass coal loading Mezhdurechensk and Erunakovo to the port of Nakhodka-Vostochny is about 6 thousand km. In general, the average range of transportation of all goods transported by rail in the last two decades has increased from about 1 thousand km in the early 1990s to 1,6–1,7 thousand km in 2013–2014. But the range of transportation of coal grew significantly faster than the range of transportation of all cargo in the aggregate: from 1,2 thousand km in the early 1990s to 2,5 thousand km in 2014. Moreover, if we consider the distribution of coal transportation by rail on the range belts, it can be seen that from quarter to one-third of all volumes are traditionally transported at distances from 4 to 6 thousand km. In this regard, the share of the transport component in the price of Russian coal is the highest in the world. In most other coal-producing countries, this share is significantly less – from 8% in South Africa to 15–20% in Australia [5].

In Russia, energy coal has a share of the transport component in the price of products from 35 to 55%, coking – more than 30–40%, while in other industries this figure is lower: in the oil sector, the share of the railway transport component is less than 10%, in aluminum – between 10 and 15%, in metallurgy – slightly less than 20%.

Table 1 shows the data on the value of freight charges (tariffs) in 2011–2014. In Table 2 – data on

Table 1

Tariffs for coal transportation by railway transport (infrastructure component) in 2011–2014

Route		Transportation distance, km	Type of traffic	Type of cargo	Kind of PS	Cargo weight in a car, t. run	Tariff under the Price list № 10–01 (infrastructure component) without VAT								
							01.06.2011		01.06.2012		01.06.2013		01.06.2014		
Departure station	Destination station							rub./car	rub./t	rub./car	rub./t	rub./car	rub./t	rub./car	rub./t
Mezhdurechensk	Nakhodka-Vost.	5897	Export	Coal non-defined	PV	69	Loaded.	38 954,00	564,55	41 287,00	598,36	43 394,00	628,90	43 638,00	632,43
							Loaded + Empty (round)	57 995,00	839,93	61 426,00	890,23	70 945,00	1 028,19	71 189,00	1 031,72
Erunakovo	Nakhodka-Vost.	5965	Export	Coal non-defined	PV	69	Loaded.	39 513,00	572,65	41 880,00	606,96	44 017,00	637,93	44 265,00	641,52
							Loaded + Empty (round)	59 064,00	856,00	62 602,00	907,28	72 276,00	1 047,48	72 524,00	641,52
Erunakovo	Ryazan-2	3627	RF	Coal non-defined.	PV	69	Loaded.	37 128,00	538,09	39 352,00	570,32	41 361,00	599,43	41 593,00	602,80
							Loaded + Empty (round)	51 874,00	751,80	54 982,00	796,84	61 306,00	888,49	61 538,00	891,86

Table 2

Calculation of transport component in coal transportation for export in 2014

(expenses of cargo owner/shipper)

Route		Transportation distance, km	Type of traffic	Type of cargo	Kind of PS	Cargo weight in a car, t.	Regulated by the state		Not regulated by the state		Full tariff with account of car (operator) component (shipper's costs)**		Average coal price at the destination port (June 2014)	Share of transport costs of shippers in the final price of coal
							Tariff under the Price list № 10–01 (infrastructure component) as of 01.06.2014, without VAT		Car (operator) component*					
Departure station	Destination station							rub./car	rub./t	rub./car	rub./t	rub./car	rub./t	rub./t	%
Mezhdurechensk	Nakhodka-Vost.	Loaded	5897	Coal non-defined	PV	69	43 638,0		632,4	41 000,0	594,2	84 638,0	1 226,6	2500,0	49,1%
Erunakovo	Nakhodka-Vost	Loaded.	5965	Coal non-defined	PV	69	44 265,0		641,5	41 000,0	594,2	85 265,0	1 235,7	2500,0	49,4%

* Operator component for these routes in 2014 was in the range of 37 thousand rubles per car up to 45 thousand rubles. In calculations, the average value of 41 thousand rubles was used.
**When calculating for a loaded run, the shipper's expenses are equal to the amount of the tariff according to the price list (infrastructure component) and the operator's rate (car or operator component) per car for the whole distance of transportation. When calculating for a round-trip («loaded plus empty»), the shipper's costs are equal to the amount of the tariff for the loaded run and the operator's rate for providing the car, but without adding the tariff for the empty run, as the latter is paid by the operator from the received income.

Table 3

Shares of RZD revenues in the final price of coal in its transportation for export in 2014 for particular directions

Route		Transportation distance, km	Type of traffic	Type of cargo	Kind of PS	Cargo weight in a car, t	Regulated by the state		Regulated by the state		Revenues of RZD from transportation (loaded + empty runs)		Average coal price at the destination port (June 2014)	Share of RZD revenues from transportation of 1 ton of coal in the final price of 1 ton
							Tariff under the Price list № 10–01 for a loaded run (imposed on the shipper)*		Tariff under the Price list № 10–01 for an empty run (imposed, usually, on the operator)					
Departure station	Destination station						rub./car	rub./t	rub./car	rub./t (conditionally)**	rub./car	rub./t	rub./t	%
Mezhdurechensk	Nakhodka-Vost.	5829	Export	Coal non-defined	PV	69	43638,0	632,4	32012,2	463,9	75650,2	1096,4	2500,0	43,9%
Erunakovo	Nakhodka-Vost.	5983	Export	Coal non-defined.	PV	69	51420,8	745,2	28259,0	409,6	79679,8	1154,8	2500,0	46,2%

* All tariffs in the table are calculated as of 01.06.2014

**The tariff for an empty flight per ton is a calculated (conditional) value obtained as a quotient from dividing the tariff for a car at empty run by the number of tons at the loaded one.

the transport (railway) component in the final price of coal. As the transport costs, the infrastructure component of the railway tariff and the operator (car) component are taken into account. The shipper's expenses in this case consist of two components, one of which is regulated (infrastructure), and the other is not regulated (car or operator component). For calculations the longest routes with the highest possible tariffs are taken. It can be seen from the calculations that, at the maximum transportation distances, the transport component, which for the consignor will be composed of the amount of tariff (freight charges) paid to RZD, and the amount paid to the operator or the owner of the car is 49% of the final price of the goods at the port of destination.

When calculating for a loaded run, the consignor's expenses are equal to the tariff amount according to the price list No. 10–01 (infrastructure component) and the operator's rates (car or operator component). When calculating for a round-trip («loaded + empty»), the consignor's expenses are equal to the amount of the fare for the loaded run and the operator's rate, but without adding a tariff for the empty run under the price list 10–01. The latter is paid to the infrastructure owner (JSC RZD) by the operator from the received income.

Table 3 shows the share of revenues of JSC Russian Railways from coal transportation for export at the final price of coal in 2014 for two directions of transportation. In this case, the revenues of JSC Russian Railways are made up of two components: freight charges for a loaded run, which is usually paid by the shipper, and the freight charges for the empty run, which the operator or the owner of the car usually pays (both these components were regulated by the state until July 2015 by the Federal Tariff Service, now by the Federal Antimonopoly Service). It can be seen from the table that the revenues received by JSC Russian Railways from coal transportation are 43–46% of the price of coal at the destination.

In the event of a further decline in world coal prices and the growth of railway tariffs, the profitability of coal exports will decrease, and under certain conditions may become negative.

However, in addition to the costs of rail transportation, there are costs for transshipment in the port and various other costs (see Pic. 6).

As already noted, the revenue rate from coal transportation is significantly lower than the average revenue rate for all goods transported by JSC Russian Railways. Consequently, the increase in rail transportation of coal in conditions of limited capacity (and transport capacity) of the infrastructure means «removal» of other, more profitable cargo from the railway to other modes of transport and reducing the profitability of the freight business of JSC Russian Railways as a whole.

Thus, there is a difficult task which regulators setting tariffs face: raising the tariff is dangerous, because this creates risks for the profitable operation of the coal industry, and cannot be reduced, because this leads to losses of JSC Russian Railways and the need to finance these losses from the budget.

In this regard, many experts are proposing to develop a new strategy for the development of the coal industry. It is proposed that in the future not only coal mining, but development of coal and gas deposits, should develop; a promising direction of energy industry – underground gasification of coal. Coal can be burned in a place of occurrence, underground, and receive in return heat and

electricity. Savings on the costs of coal mining will reduce the cost of one kilowatt of electricity by two to three times.

Another direction of development is the production of electricity from extracted coal and its export. It is cheaper to export ready energy, obtained «from coal», than coal itself. The development of the coal-chemical industry is one of the ways of stable development of the coal-mining industry. From one product in the coal industry it is possible to produce more than 130 types of chemical intermediates and more than five thousand types of products of related industries. At the same time, the price of products sometimes increases by several orders of magnitude. However, as noted by regional and federal authorities and a number of experts, there are not many initiative companies willing to start processing of coal. Innovative development in this area requires an influx of investment, a good business climate and the stability of the legal system.

Conclusion. *What could be the solution to the problem of the competitiveness of Russian coal in the tariff sphere?*

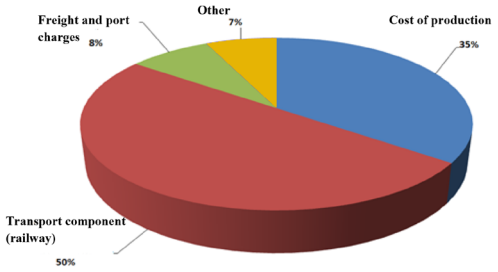
There are two alternatives.

It is possible to continue to maintain cross-subsidies between «high-yield» and «low-yield» cargoes, especially since it has always existed to some extent at Russian Railways. This model has an important plus – it makes the work of such industries as coal, more predictable. But this model has a minus: high-yield cargoes will be «squeezed out» from railway transport, which will lead to a decrease in profitability and the need to increase the financing of JSC Russian Railways from the budget.

It is possible to completely abandon the subsidization of unprofitable coal transportation and to switch to subsidizing shippers directly. This practice has been tested in a number of European countries. For example, in Germany subsidies to the coal industry for 45 years (from 1970 to 2014) amounted to 538 billion dollars or about 12 billion dollars annually. In recent years, these subsidies have been substantially reduced [7], but in this case the shipper himself disposes of the received subsidy, which creates the currently lacking incentives for modernization of the coal industry and increasing its economic efficiency.

In our opinion, the first alternative is almost inevitable in the short term, but in the long term it is necessary to strive for the realization of the second alternative.

Another reason why open subsidization of shippers is better than implicit (hidden) subsidization of its transportation costs through the tariff system is that when the subsidization is made explicit, the public, government and experts can see its magnitude. Therefore, it is possible to correctly discuss the effectiveness of the coal industry and what needs to be done to increase it, as well as on what level of subsidies the society is willing to tolerate, and what level is unacceptable and require sectoral reforms. Without transferring the existing subsidization from a hidden form to an open, explicit, similar discussion is meaningless, if only because neither society, nor experts, nor regulators see the «price of the issue», they do not see how much the existing inefficiency costs [8].



Pic. 6. Components of the price of coal [6].

After the concealed redistribution takes an open form, one can ask the following question: whether this subsidization is even, if the costs of maintaining coal exports are borne by all taxpayers, and the profit from this export is received by only one industry. And perhaps, it is worth considering the coal industry (at least its «export part») as a normal business that does not require state support and insures itself against world price drops by standard market methods, without resorting to the federal budget.

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