тарифов в ФСТ были утверждены методические указания, определены нормы доходности на инвестированный капитал. Правительство внесло поправки в Федеральный закон «О ценообразовании в отношении электрической и тепловой энергии в РФ». Без государственной поддержки и нормативных решений внедрение RAB-регулирования в формирование тарифа на пассажирские железнодорожные перевозки будет опять же невозможно, поскольку от величины тарифа в регулируемом сегменте зависят условия жизни и мобильность значительной группы населения России.

***

Анализ небольшого отечественного опыта [2] показал, что RAB-регулирование главным образом вводится для того, чтобы в короткий промежуток времени привлечь значительный объем инвестиций. Если этот объем окажется относительно маленьким, то и рост реального тарифа может быть столь же незначительным. Использование лучших практик тарифного регулирования в сфере пассажирских железнодорожных перевозок призвано обеспечить тем не менее устойчивую стратегию развития пассажирского комплекса.

ЛИТЕРАТУРА

1. Калибердин А. Г., Бутыркин А. Я., Михайлов В. И. «Современные модели регулирования тарифов на пассажирские железнодорожные перевозки»// Экономика железных дорог. – 2012. –№ 8. – С. 47–52.

2. Терешина Н. П. Демонополизация, дерегулирование и конкурентоспособность железнодорожного транспорта России. – М.: МИИТ,2009. – 243 с.

3. Рышков А. В., Шаханов Д. А. О необходимости тарифной базы//Мир транспорта. –2013. –№ 5. – С. 60–67.

APPLICABILITY OF RAB-REGULATION IN PASSENGER TARIFFS

Efimov, Sergey M. *– Ph. D. student at the department of Economics and management of transport of Moscow State University of Railway Engineering (MIIT), Moscow, Russia.*

ABSTRACT

In the article the author investigates domestic and foreign practices of tariff formation with account for repayment on invested capital in the activities of infrastructure companies. Application of the scheme of RAB-regulation in passenger tariffs requires adjustment of organizational and methodological principles and legal aspects in the transport sector, in long-distance transportation. The author considers approaches to the solution of an urgent problem of permissible rate of return in the passenger tariff, particularly in the regulated segment, provided that there are increased costs for the maintenance of railway infrastructure, increased cost of energy for traction, which have an impact on the rate of the tariff, which allis independent of a passenger company. When calculating parameters of a new tariff model, it is proposed to take into account options of «evolutionary development», «active development» and «forced restriction».

ENGLISH SUMMARY

Background. *As far as we know, for the first time a technique of tariff formation based on regulatory asset base (RAB) was applied in the UK in the late 1980s, in the process of privatization of power grid and electricity market liberalization. In the middle of the next decade, RAB-regulation in power production was used according to national circumstances, in many countries of Western Europe, Canada, USA and Australia. The European Union in 2002 ordered the Eastern European countries to apply this method when setting tariffs for monopolies, and the principle of inclusion of regulatory asset base in a rate began to be applied in the Czech Republic, Slovakia, Hungary, Poland, Romania, Bulgaria and some other countries. RAB-regulation proved to be very effective: energy companies managed to reduce their costs by several times, which led to a serious decline in rate with an increase in investments in the sector.*

World practices have shown that the regulation of tariffs based on RAB method has several advantages for companies that render services as compared to the existing cost-intensive model of tariff formation. In particular this applies to power distribution networks, heating systems, water facilities and communications.

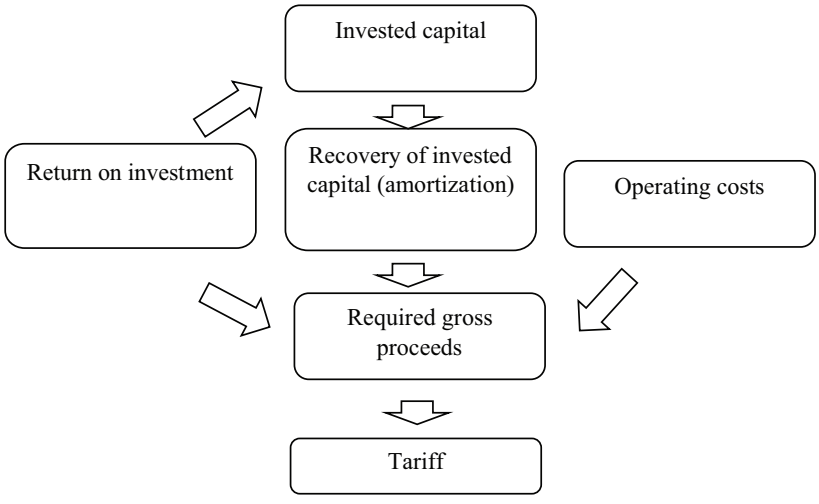
Russian network companies also move to RAB-regulation. The purpose of introducing a new method is to attract investment in the development. For example, the transfer of energy that provides a return on investment, as well as a percentage of income to the investor, who invested those funds, are taken into account.

Objective. *The objective of the author is to investigate approaches to tariff formation using RAB-regulation.*

Methods. *The author uses descriptive method, analysis and comparison.*

Results. *A tariff in RAB technique consists of three components: firstly, funds to cover operating expenses of a company; secondly, funds for return on equity and debt capital; thirdly, funds for the payment of interest on loans (Pic. 1).*

Since September 2008, RAB-regulation in pilot mode was used in Astrakhan region, now more than 17 regions apply this scheme of tariff formation in the energy sector. While in Russia, unlike in Europe, now it is still impossible to increase investment in the network economy and reduce a tariff at the same time. In areas that have moved to RAB, the amount of investments has



Pic. 1. The integrated scheme of long-term regulation of passenger tariffs in terms of attracting outbound investment.

really grown, a tariff has also grown, well ahead of inflation rate. That is, the feasibility of introducing a new adjustment mechanism is confirmed by the fact that it has given a chance to upgrade electrical power networks, the wear of which posed a threat to safety of operation.

Considering a way to use the scheme of RAB-regulation, it should be noted that in the energy sector in the early years of application of this mechanism very little income was accrued on the initial capital, in fact it only covered equipment depreciation of a network company. For example, for inter-regional distribution companies for «old» capital the following rate of return was established: in 2010–6%; in 2011–9%; in 2012–12%. For «new» capital (external investments) the same rate for the period 2010–2012 was 12%. In subsequent periods, the rate of return for the old and the new capital is expected to be the same.

The question of a permissible rate of return in a passenger tariff, particularly in the regulated segment, is crucial. In recent years, income from operations of Federal Passenger Company covers only 92–95% of expenses for the same activity. Therefore, profitability of outlay with account of government subsidies is 2,1%, which is significantly lower than the rate of return of the «old» set in energy companies. To calculate the possibility of covering necessary amounts for servicing the loan with these funds, it should be considered in a structured way. In particular, we should consider the service of external debt capital in the amount required primarily for the purchase of second-class cars in a socially significant regulated segment of railway passenger transportation [1].

There is one serious point: to make a decision on the transition to long-term model of passenger tariff formation, it is necessary to determine firmly a state policy regarding continuation or termination of subsidization of passenger transportation in the regulated segment. When calculating the parameters of a new model of tariff the following options are required in this case:

• evolutionary development – continuation of subsidization of the regulated segment and shortfall in income to keep a current low rate of return;

• active development – continuation of subsidization to achieve the rate of return of the «old» capital to 5%;

• forced restriction – termination of subsidization to achieve the upgrade of fleet of «social» second-class cars (probably in limited quantities).

When constructing a model of RAB-regulation it is also important to take into account a fact that purchased rolling stock at the expense of outbound investment will increase the cost of company's assets, depreciation and ongoing operating costs. It is in view of this fact that following the transition of Federal Grid Company of Unified Energy System to RAB-regulation its tariff increased by 51%. However, this fixed impact on consumer tariff was limited to only 2–3% increase in prices for electricity.

It should be noted that application of RAB-regulation model in a single business segment does not reduce the risks of increase in tariff components. If we consider the reduction of current operating costs in the application of a long-term tariff as a benefit and an incentive to improve efficiency of resource use in the company, limited economic isolation of any sphere of production does not allow us to judge the possibility of profit growth (or its stabilization) for a long period, and well as predictable tariffs for a consumer. For example, in the provision of electricity in addition to a network component the cost of electricity includes generation price. And in the coming years, the market is not immune to shortages of electricity, and then its price may begin to grow exponentially. And although a tariff for energy transmission through networks can be predicted, but from a consumer perspective this makes little sense, since a predictable tariff is added to unpredictable price.

The same risk may also arise in the area of passenger rail tariffs, where an infrastructure component covers more than 60%. Increase in costs associated with maintenance of railway infrastructure, increased cost of energy for traction could have an impact on the value of a tariff's part, which is independent of a passenger company.

Another aspect and advantage of the use of RAB-regulation is considered to be the probability of improving the quality of services. In the field of energy supply theoretically a model provides direct dependence of company's profits on reliability of

power supply and level of customer service. If a network company has committed violations and degraded the quality of service, then a regulatory authority has a right to punish it by adjusting a tariff. The problem is that the mechanism of improving the quality of services is not automatic; it depends on the objectivity and reliability of a regulator and regional authorities, which does not exclude the errors and bias or acts of corruption.

A tariff, which is set for a long period of time, should depend on reliability and quality of service. For this purpose in the energy sector specialists are trying to develop guidelines for calculation and use of reducing (increasing) coefficients designed to bring service of regulated entities in line with levels of reliability / quality of rendered services. Decreasing coefficients are intended to be applied in the case of inconsistency of service quality with the level of established tariff, or when a company gives inaccurate information about true cost of the services. That is, in case of spread of indicators with standards consumers will receive compensation or will pay less for the services of networkers. We emphasize that in this regard, Federal Passenger Company adjusted its own quality management system and continuous monitoring of the level of service on the trip, as well asduring ticket purchase process.

Certain problems of RAB-regulation were demonstrated in the sector of power supply and in relation to the amount of interest on foreign loans. Rate of return on new investment capital is laid in the tariff. For inter-regional network companies it is 12%, which allowed network companies to borrow at 10% per annum (about 2% fall for income tax). If the loan rate is higher, then the company can use it only at a loss, but today there are no loans at 10% at the market. A passenger company will have to overcome the same difficulties.

However, interest in various schemes of investment in the development of natural monopolies in Russia by outbound investors is very important. Introduction of RAB in units of network companies is almost always accompanied by an increase in demand for shares, as it was when stock market participants reacted to the introduction of the model in JSC «FGC UES» (Federal generating company united electric networks). It is likely that bans could be among shareholders of a scheme of RAB-regulation and in this case they, which in this case will want to decrease a credit interest rate.

Mainly determining parameters of RAB-regulation model are terms and time of repayment of borrowings. Analysis of the experience of energy companies shows their variation from 20 to 35 years. Forming possible options of parameters to justify feasibility and effectiveness of the application of such a scheme of investment in renewal of rolling stock, it is proposed to make a calculation period of 20 years, as it corresponds to the period of service of a modern car. However, in the calculation of an option that meets the strategy of «forced restriction» a period of 25 years may be provided for – with account of new design solutions and high reliability of improved rolling stock. Although, the service life of cars is largely dependent on the quality of operation and maintenance.

The practice of energy companies showed that tariffs are usually set for a period of three to five years, which ensures stability and predictability of a situation for investors, reducing their risks, and with them the cost of capital for power distribution network organizations. In this regard it seems advisable to establish long-term railway passenger tariffs also for three years.

Along with the energy sector experiment to introduce a new model of investment and tariff regulation is carried out in the housing and utility sector. One of the main reasons for the transition to RAB-method here is modernization of a network complex, because the depreciation of fixed assets of housing and utility sector exceeded 60%. First tariffs using the method of return on invested capital in this area have been established, by the way, as part of pilot projects on heating since 2011.

In preparation for the implementation of a new method of tariff regulation Federal Tariff Service approved the guidelines, determined rate of return on invested capital. The government amended Federal Law «On pricing of electricity and heat in the Russian Federation». Without government support and regulatory decisions introduction of RAB-regulation in the formation of tariffs for passenger rail transportation is again impossible, because a value of a tariff in the regulated segment influences living conditions and mobility of a significant group of the population of Russia.

Conclusion. *Analysis of domestic experience [2] showed that RAB-regulation is mainly introduced to attract a significant amount of investment in a short period of time. If this amount is relatively small, then the growth of a real tariff may be equally insignificant. Application of the best practices of tariff regulation in the sphere of passenger rail transportation is intended to ensure nevertheless a sustainable strategy of passenger complex development.*

Keywords: power engineering, railway, economy, RAB-regulation, passenger fares, regulated segment of passenger traffic in long-distance communication, modeling.

REFERENCES

1. Kaliberdin, A.G., Butyrkin, A. Ya., Mikhailov, V. I. Current models of regulation of tariffs for passenger rail transportation [*Sovremennye modeli regulirovaniya tarifov na passazhirskie zheleznodorozhnye perevozki*]. *Ekonomika zheleznyh dorog,* 2012, No.8, pp. 47–52.

2. Tereshina, N. P. Demonopolization, deregulation and competitiveness of rail transport in Russia [*Demonopolizatsiya, deregulirovanie i konkurentosposobnost» zheleznodorozhnogo transporta Rossii*]. Moscow, MIIT publ., 2009, 243 p.

3. Ryshkov, A.V., Shahanov, D. A. On the Necessity of Indexation of Tariffs. *Mir transporta* [World of Transport and Transportation] *Journal,* 2013, Vol. 49, Iss. 5, pp 60–67.

Координаты автора (contact information): Ефимов С. М. (Efimov, S.M.) – sefimov@mail.ru.

Статья поступила в редакцию / article received 02.05.2014
Принята к публикации / article accepted 04.08.2014