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#### STATE REGULATION OF TARIFFS IN THE GAS SECTOR1

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Abstract. The article discusses the problems of state regulation of tariffs for gas transportation services through gas distribution networks, which minimize losses and the need to create reasonable verifiable principles for establishing tariffs. The absence in the spheres of natural monopolies of effective competitive mechanisms poses a challenge for the state to create a special system for regulating their activities, which includes legal and organizational components. In each industry where natural monopolies operate, there are some pricing features that are reflected in the legal regulation. This article focuses on the structure of contractual relations in the field of gas supply during the transportation and sale of gas, which allows you to clearly demonstrate the reflection of the regulatory framework reflecting the state's requirements to keep a separate record of products (services) and costs of its production by an organization engaged in the extraction, transportation and sale of natural gas.

Keywords: state regulation, tariffs; antimonopoly regulation; gas supply

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## 1. Introduction

Tariff regulation is actively developing in Russia. One of the areas of activity of the Federal Antimonopoly Service of the Russian Federation (FAS Russia) is the establishment of state prices and tariffs for a particular type of product or service that is provided by natural monopolies. Natural gas occupies a dominant position among energy sources in Russia (Paptsov et al., 2019; Voronkova et al., 2019; Fedulova et al., 2019; Shakhovskaya et al., 2018) therefore, particularities of state regulation of gas supply activities require special attention. As natural-monopoly and state-regulated types of activity, the transportation of gas through gas pipelines and distribution networks is singled out in regulatory legal acts (Luzina et al., 2019; Frolova et al., 2019; Saenko et al., 2019). When regulating gas pricing, insufficient attention is paid to the problems of operating networks and improving safety in order to minimize losses (Masood et al., 2019). The disclosure of the reserves of the organizational and economic mechanism of state regulation of tariffs for gas transportation services through gas distribution networks is an important task (Korableva et al., 2019).

Russian Foundation for basic research (rfbr) for support in the framework of the research project: Russian middle classes: theoretical and methodological bases of identification, social standards of identification, evaluation and increased number (No. 16-02-00533) "agreement No. 16-02-00533/16 from May 12, 2016 onwards.

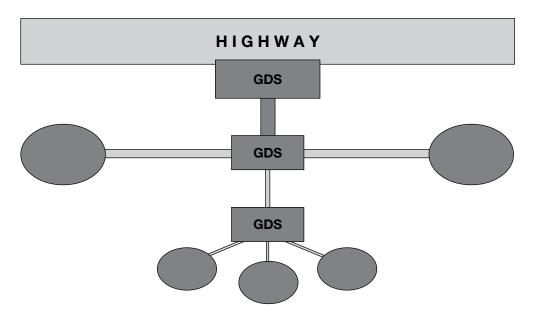
#### 2. Methods

In the earth's crust, gas is in a gaseous state as separate deposits or as a "gas cap" above the underlying oil, as well as in a dissolved state in the same oil or water.

Gas supply - the organized supply and distribution of gas fuel for the needs of the national economy. Natural gas is the most environmentally friendly fuel, while the cost of its production and transportation is quite low. These features make it the most perfect and economical type of fuel. That is why a developed and sustainable gas supply is a priority, not only in our country.

The largest consumers of natural gas are thermal power plants (thermal power plants) and enterprises of various industries (mechanical engineering, ferrous and non-ferrous metallurgy, building materials industry, etc.). There are various ways of organizing gas supply. The selection of a suitable method depends on the region and on the development of a gas transportation system in it.

Gas is supplied by natural and artificial gases through gas pipelines transporting gas from the places of its production or production to consumers. Gas is received by a settlement or an industrial facility at a control and distribution point, where gas is reduced to a pressure allowed by the norms and enters the city gas network or an industrial enterprise (see Figure 1).



Source: Authors' research

Transportation of liquefied gases. Widespread gas transportation by sea. At elevated pressure, natural gas is cooled and pumped onto gas tankers. Terminals for liquefying it are located on the sea coasts, where gas is delivered as already described, through pipelines. This transportation option allows you to provide natural gas to countries and regions where it is absent. Unloading is carried out in special storage, from which gas is then delivered to consumers through pipelines (Methodological recommendations).

Another common way to organize gas supply is autonomous gasification. In this method, propane gas obtained as an accompanying product is used, mixed in various proportions with butane. Such gas mixtures are the most high-calorie, unlike natural methane, and their combustion gives 2-3 times more heat. Such a gas is called somewhat more expensive than ordinary natural gas, but due to the gain in caloric value, its use has also been recognized as economically feasible. Gas supply in the form of autonomous systems is used in areas that do not have an extensive gas transmission network (Milojević, 2017; Prodanova et al., 2019; Akulshin et al., 2017; Trofimova et al., 2019).

Currently, in Russia, regulatory and legal regulation in the field of gas supply is actively developing. To understand the current state of the regulatory framework, it is necessary to highlight the documents regulating the activities of organizations in the field of gas supply.

Gas supply regulation in the Russian Federation is based on the Constitution of the Russian Federation, the Civil Code of the Russian Federation, the Federal Law "On Subsoil", the Federal Law "On Natural Monopolies", the Federal Law "On the Continental Shelf of the Russian Federation", and also consists of the Federal Law "On gas supply in the Russian Federation "dated March 31, 1999 N 69-Φ3 and from the federal laws adopted in accordance with it, regulatory legal acts of the Russian Federation and regulatory legal acts of municipalities entities (Federal Law of March 31).

The Federal Law "On Natural Monopolies" transporting gas through pipelines refers to the areas of activity of natural monopolies regulated by law. In accordance with Art. 8 Federal Law "On Gas Supply to the Russian Federation" The Government of the Russian Federation in the field of gas supply establishes principles for setting gas prices and tariffs for services for its transportation through gas transmission and gas distribution networks, and the procedure for compensating for losses incurred by gas distribution organizations in supplying gas to the population in accordance with the benefits provided for the legislation of the Russian Federation.

State regulation of tariffs for gas transportation services is carried out in accordance with Art. 21 of the Federal Law "On Gas Supply to the Russian Federation" and Decree of the Government of the Russian Federation of December 29, 2000 N 1021 "On State Regulation of Gas Prices and Tariffs for Services for its Transportation in the Russian Federation" (Decree of the Government).

The state regulation of gas prices and tariffs for gas transportation services takes into account economically justified costs and profits, as well as the level of financial support for organizations that own gas supply systems to expand gas production, the network of gas pipelines and underground gas storages. Decree of the Government of the Russian Federation of October 13, 1999 N 1158 "On ensuring compliance with economically sound principles of pricing of products (services) of natural monopolies" also extends to this type of activity of natural monopoly entities.

Thus, the condition of economic feasibility, despite the fact that it is not singled out as a separate principle of state policy in the regulatory area under consideration, is also necessary to determine the legality of the tariff for gas transportation services.

The methodology and features of calculating tariffs (tariff rates) for gas transportation services through gas pipelines, the main methods, as well as the composition of tariffs are determined by the corresponding Methodology approved by Order of the Federal Tariff Service of Russia dated 15.12.2009 No. 411-e / 7 (as amended on 10.31.2014) "On the approval of the Guidelines for the regulation of tariffs for gas transportation services through gas distribution networks" (Registered in the Ministry of Justice of Russia on January 27, 2010 N 16076). Based on this regulatory act, state regulation of tariffs for gas transportation services through gas pipelines is carried out by establishing their fixed levels (Order of the Federal Tariff Service).

## 3. Results

- ✓ The basic principles of setting tariffs in the field of gas supply are enshrined in the regulatory field. From 01.01.2001, organizations engaged in the extraction, transportation and sale of natural gas are required to keep separate records of products (services) and costs of its production for the following activities:
- ✓ natural gas production;
- ✓ services for the transportation of natural gas through pipelines;
- ✓ storage of natural gas;
- ✓ services for the supply (sale) of natural gas.

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- ✓ The following shall be subject to state regulation in the territory of the Russian Federation:
  - 1. Wholesale gas prices in cases.
  - 2. Tariffs for gas transportation services through gas pipelines for independent organizations.
  - 3. Tariffs for gas transportation services through gas distribution networks.
  - 4. The size of the payment for the supply and marketing services provided to gas consumers by its suppliers (when regulating wholesale gas prices).
  - 5. Retail prices for gas sold to the public.
  - 6. The retail price of liquefied gas sold to the population for domestic purposes.
  - 7. Special allowances to tariffs for gas transportation services through gas distribution networks designed to finance gasification programs.
  - 8. Fee for technological connection of gas-powered equipment to gas distribution networks and (or) standardized tariff rates that determine its value.
- ✓ The Federal Antimonopoly Service of the Russian Federation carries out state regulation of:
- ✓ wholesale gas prices;
- tariffs for gas transportation services through gas pipelines for independent organizations;
- tariffs for gas transportation services through gas pipelines owned by independent gas transportation organizations;
- ✓ tariffs for gas transportation services through gas distribution networks;
- ✓ the size of the payment for the supply and marketing services provided to gas consumers by its suppliers (when regulating wholesale gas prices).

Executive authorities of the constituent entities of the Russian Federation in the field of state regulation of tariffs state:

- retail gas prices;
- retail prices for liquefied gas
- payment for technological connection of gas-using equipment to gas distribution networks and (or) standardized tariff rates that determine its value.

Tariffs for gas transportation services through gas distribution networks are approved for a period of not less than 3 and not more than 5 years. Rates can be set with a calendar breakdown.

The initial data for the calculation of regulated prices (tariffs) by the method of economically justified expenses are:

- estimated volume of products (services) for the regulatory period, determined on the basis of the balance of gas production and sales in the Russian Federation approved in the established procedure;
- the estimated total revenue (for the regulatory period) required to compensate for the economically justified costs attributable to the cost of production (work, services), and to provide organizations engaged in regulated activities with the profit necessary for their self-financing, as well as the means to pay all taxes and other obligatory payments in accordance with the legislation of the Russian Federation.

When setting regulated prices (tariffs) for gas, the indexation method can be used. When applying the method of indexing, prices (tariffs) for gas are multiplied by the value of the index of changes in prices (tariffs), determined by the regulatory body, taking into account the average annual parameters for the change in wholesale gas prices established by the Government of the Russian Federation and the forecast inflation rate.

Gas producers in Russia create competitive conditions in the gas market. Companies such as Gazprom PJSC, Novatek PJSC, Northgas CJSC, Surgutneftegas PJSC, Itera Oil and Gas Company and others are engaged in the exploration, production, processing and sale of natural gas. Many gas producing companies have their own gas tankers for transporting liquefied gases.

Otherwise, the situation is when transporting natural gas through pipelines (De Moreira et al., 2019). The world's largest gas transmission system is owned by PJSC Gazprom. The main part of this system is part of the Unified Gas Supply System (UGSS) of Russia. UGSS is a unique technological complex that includes gas production, processing, transportation, storage and distribution facilities in the European part of Russia and Western Siberia. Art. 14 of the Federal Law "On Gas Supply in the Russian Federation" regulates the indivisibility of the Unified Gas Supply System. Gazprom provides independent companies with non-discriminatory access to gas pipelines. In 2018, 24 companies provided gas transportation services through the Gazprom gas transmission system in the Russian Federation. The dynamics of access for 3 years is presented in table 1.

Table 1. Data on gas transportation services for companies that are not members of the Gazprom Group.

| Period   | 2016  | 2017  | 2018  |
|--|-------|-------|-------|
| Number of companies                              | 22    | 24    | 24    |
| Volume of transportation, billion cubic meters m | 121,5 | 129,0 | 137,9 |

Source: (PJSC Gazprom quarterly report)

In the period from 2002 to 2004, PJSC Gazprom reorganized the company structure by opening separate legal entities working in various areas in the oil and gas industry within the corporation. Consider subsidiaries that are controlled by PJSC Gazprom, which are of significant importance to it and built into an organized structure of contractual relations in the field of gas supply during gas transportation and sales (PJSC Gazprom quarterly report).

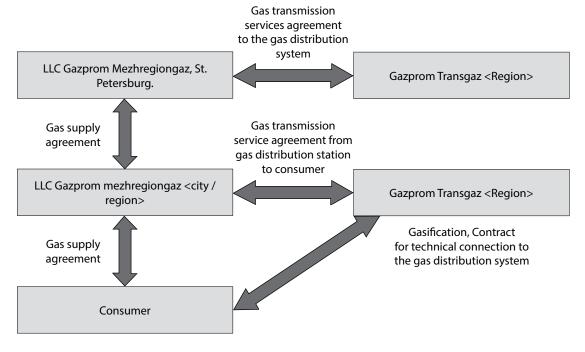


Figure 2. The structure of contractual relations in the field of gas supply during the transportation and sale of gas

Source: Methodological recommendations reflected by authors

Sale of natural gas to all categories of consumers in the Russian Federation:

- Gazprom Mezhregiongaz LLC, location Russian Federation, St. Petersburg. Share of PJSC Gazprom in the authorized capital of the controlled organization: 100%.

## Gas transportation.

- LLC Gazprom transgaz Volgograd;
- OOO Gazprom transgaz Nizhny Novgorod;
- Gazprom transgaz Makhachkala LLC;
- LLC Gazprom transgaz Stavropol;

- And others. The share of PJSC Gazprom in the authorized capital of these controlled organizations: 100%, Type of control: direct control

Transportation of natural gas through gas distribution networks:

- LLC Gazprom gas distribution Volgograd
- PJSC Gazprom Gas Distribution Nizhny Novgorod
- JSC Gazprom Gas Distribution Makhachkala
- OOO Gazprom gas distribution Dagestan
- LLC Gazprom gas distribution Vladikavkaz
- And others

Figure 2 clearly demonstrates the interaction of organizations performing a strictly defined type of activity, which allows them to keep separate records of products (services) and costs of its production.

#### Discussion

The volume of actually received gas and transferred to consumers by a regional supplier is determined by metering devices at a gas distribution station (GDS). The volume of actually received gas by the consumer is determined by metering devices installed on the territory of the consumer.

When transporting natural gas, irretrievable losses (volume reduction) of natural gas are generated due to the technological features of the transportation process, as well as the physicochemical characteristics of the transported natural gas, i.e. technological losses (Kopteva et al., 2019; Botelho et al., 2019).

Do not apply to technological losses of natural gas:

- gas losses caused by the violation of regulatory legal and (or) regulatory and technical documents governing the operation of equipment, processes, structures;
  - gas losses that occurred during emergency recovery operations;
- the amount of gas used during routine maintenance and repair work, as well as during testing at the main gas pipeline facilities;
  - the amount of gas used for own and (or) communal needs;
  - gas losses resulting from accidents, theft of transported gas.

The Ministry of Energy of the Russian Federation (MinEnergo) has developed guidelines for determining the technological losses of natural gas during transportation by trunk pipelines. Based on this technique, the norm of technological losses of natural gas during transportation by the main pipeline is calculated - the relative value of technological losses in the calculation period to the amount of natural gas to be transported through this section in accordance with the technological scheme of transportation approved in the established manner. By Order No. 1206 of December 22, 2017, the Ministry of Energy approved the standards for technological losses of combustible natural gas when transported by trunk pipelines by subsidiaries of PJSC Gazprom. Here are some of the standards indicated in the document in table 2.

Table 2. Norms of technological losses of natural gas during transportation by main pipeline transport

| Name of person                       | Norm,% |
|--------------------------------------|--------|
| LLC Gazprom transgaz Volgograd       | 0,004  |
| LLC Gazprom transgaz Nizhny Novgorod | 0,007  |
| LLC Gazprom transgaz Stavropol       | 0,012  |
| LLC Gazprom transgaz Makhachkala     | 0,013  |
| LLC Gazprom transgaz Moscow          | 0,019  |
| LLC Gazprom transgaz Saratov         | 0,030  |

Source: Methodological recommendations

The standards for natural gas losses during transportation by the main gas pipeline are monitored at the state level.

In turn, losses incurred in areas of gas distribution systems are located in the area of expenses of gas distribution organizations and the gas supplier (Islamov et al., 2019; Rogatchev et al., 2019). Federal Tariff Service in the Information Letter dated June 28, 2005 N SN-3923/9 provided clarifications on the issue of accounting for gas losses in order to resolve disagreements arising from settlements between suppliers, consumers of gas and gas distribution organizations providing gas transportation services. Responsibility for gas imbalance, according to the Federal Tariff Service of Russia, is distributed between the gas supplier and the gas distribution organization and is reflected in their financial result.

It should be noted that the size of technological losses taken into account when calculating the tariff cannot exceed 0.5% - 0.6% of the total volume of gas transportation.

Based on the fact that tariffs for gas transportation services are set mainly on the basis of reimbursement of economically justified costs, as a result, losses are returned in new tariffs to consumers.

### **Conclusions**

An important role in the development of the regulatory framework is support from the Government of the Russian Federation, the Ministry of Energy of Russia, the FAS Russia. Work on the establishment of tariff regulation mechanisms is important for the economic sphere of control. It should be noted that focused and effective work on the creation of common principles of tariff regulation in all regulated areas of activity will serve as protection against various risks: legal, operational.

The organizational and economic mechanism of state regulation of tariffs for gas transportation services through gas distribution networks that minimize losses and create reasonable verifiable principles for establishing tariffs is a promising and important tool for the development of the industry as a whole.

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