Factors influencing efficient structure of fuel and energy complex

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Abstract. The development of the Russian fuel-energy complex is a priority for the national economic policy, and the Far East is a link between Russia and the Asia-Pacific region. Large-scale engineering of numerous resources of the Far East will force industrial development, increase living standard and strengthen Russia's position in the global energy market. So, revealing the factors which influence rational structure of the fuel-energy complex is very urgent nowadays. With the use of depth analysis of development tendencies of the complex and its problems the authors show ways of its efficiency improvement.

1. Introduction
The Far East has regional characteristics and conditions for the development of the productive forces. Its geographic position is characterized by a large distance from major industrial and agricultural centers of the country. It has a great length of maritime boundaries. In the territorial aspect, countries of the Pacific and Indian basins, inhabited by more than a half the world's population, tend towards it. Over a large area, it borders with China. On its territory there are many rich natural resources of the country, which are widely involved into the economic turnover: gold, tin, mica, boron ore, tungsten, mercury, lead, zinc, resources of seas and oceans, valuable breeds of wood, water, oil, gas, coal, iron ore, cement raw materials, a variety of natural resources. The economic complex of the Far East was created and developed under the influence of the accelerated pace of development of the fuel and energy complex of the country; the nature and method of production; the degree of introduction of science and technology achievements; availability of explored and developed natural resources and their assimilation degree. The place of this district in the division of labor, historical trends, foreign policy, the existence of an employment potential [2] has identified its importance for the country. The development of the fuel-energy complex is of paramount importance to the region. The fuel and energy complex is a collection of industries and enterprises, regardless of affiliation and forms of ownership, providing the processing and conversion of primary fuel and energy resources, the delivery of energy and fuel to consumers for their further use.

Energy economy of energy and fuel consumers, as well as a system of "universal" transport (rail, road) is not included in the concept of the fuel and energy complex, although a close correlation and interdependence of them are obvious.

2. Materials and methods
The following methods of study are used in the work: economic-mathematical modeling, data extrapolation, methods of systems analysis.
3. Study of factors influencing efficient structure of fuel and energy complex

A fuel and energy complex is one of the important sectors in the economy of the country and its regions. A large share of gross output creation, major fixed assets concentration, employment of a large number of working-age population are there. A large amount of capital investment was developed and used to maintain and develop production potential every year.

The development of the fuel-energy complex is influenced by many factors. First of all, it is influenced by the scale and pace of productive forces development, especially energy production. At the same time, the fuel and energy complex significantly affects the formation and development of all sectors of the national economy and its main components - industry, agriculture, transport and communications, construction and public utilities [5].

The factors shaping it and determining the rational structure of the fuel and energy complex, affecting its efficiency is divided into classes:

1. Economic - inflation, subsidies, prices of means of production;
2. Organizational - the size of a company, its legal form, system management organization (attraction of innovative solutions), organization of accounting, development of export and import substitution industries in the areas with the most favorable conditions, the formation of special economic zones and technoparks as regional centers for domestic and world science achievements introduction, accelerating economic and social progress.
3. Natural - climatic conditions, territorial disposition of land and water areas for mining and production of mineral resources for the energy sector [4]. Currently, the fuel and energy complex (FEC) of the region is presented by manufacturing and infrastructure companies, distribution and control structures of electric power, heat power engineering, coal, oil & gas, oil refining industries (Table 1). A new branch of economics - production and transportation of gas and primary mineral resources based firstly on the fields on Sakhalin island, has begun to form actively in the region [6]. Possible prospects for this industry are connected with development of resource areas (production - primary processing - export). The tendency of catching-up development of the Far East economy, which had continued since 2000, was overcome in 2011 [7]. Additional incentives for the formation of rapid economic development of the Far Eastern Federal district of the Russian Federation are needed.

| Table 1. Change in producer prices in fuel and energy complex [3] (%) to December of the previous year |
|---------------------------------------------------------------|----------------|----------------|----------------|----------------|----------------|
|                                                               | 2009 | 2010 | 2011 | 2012 | 2013 | September 2014 |
| Industrial production including: the production of fuel and energy minerals | 109.7 | 110.5 | 107.1 | 107.3 | 105.8 | 101.9 |
| Production and distribution of electricity, gas and water     | 94.9  | 118.8 | 100.1 | 132.2 | 107.2 | 101.0 |
|                                                               | 117.4 | 108.0 | 112.1 | 111.0 | 106.3 | 93.1  |

4. Social – the living conditions of the population consuming the products of the fuel and energy complex, working conditions of workers employed in the fuel and energy complex, etc.

The degree of company production resources utilization depends on all these factors. Economic efficiency of rationality is measured by profit and its relation to the full cost of products sold and aggregate funds.

Profit is the difference among revenues, production and sales costs, therefore, it is important to affect primarily the cost for the manufacturer. He can reduce costs, retaining the constant volume of production and sales, increase production at the same cost or increase the volume of production and sales at a faster pace in comparison with rising costs [1].

Factors that influence profit are as follows:
1. The cost of production. It depends on the standard costs and consumption rates of labor, material and technical resources, funds, compliance with the technological requirements for the production of fuel resources and the provision with heat and light. The cost per unit of production impacts unit costs in the unit cost of production.

2. The cost of transportation and direct sales of commercial products, which is an essential element in the full commercial cost. Their share depends on the type of products, distribution channels, intermediaries and other averaging from 5 to 15%. This kind of cost is affected by the development of market infrastructure, road network, tariffs for services (transport, information, insurance, communications and so on);

Selling price is a variable opportunistic category, which is influenced by supply and demand, distribution channels, government policy on prices, quality characteristics of product. Prices of the fuel and energy complex products are formed under the influence of many factors. Inflation expectations and the interests of producers influence strongly. Therefore, price changes in the fuel and energy sector during the review period (2007-2013) were ambiguous [8]. A typical example is Primorsky Kray (Figure 1).

Figure 1. The change of the producer price indices in the fuel and energy complex [3] (% to December of the previous year)

The annual growth of prices (tariffs) is observed in the production and distribution of electricity, gas and water, where the state regulation of tariffs occurs. The minimum increase of prices (tariffs) was recorded in 2013 and amounted to 6.3%; the highest was in 2009 - 17.4% [2].

In Far East electricity tariffs will be cut since January 1, 2017. The baseline will be 3.19 rub. per kilowatt-hour. In Primorsky Kray, electricity tariffs will be reduced by 21%.

According to the law, in Far East electricity tariffs will be lowered to the Russian average level at the expense of premium to the energy price in the 1st and 2nd price zones. The administrator of the assets from premium to the energy price will be a public company “RusHydro”. It can get 29.5 billion rub. for these purposes in 2017-2019.

The reduction in electricity price became possible after amending Federal law №508 “About energetics”, which came into effect on January 1, 2017.

According to the Ministry of Economic Development of the Russian Federation, the average tariff reduction throughout the Far East will reach 30%. The greatest reduction will be on Chukchi Peninsula – 65%, in Yakutia – 50%, on Sakhalin – 46%, in Magadan Region – 34%. In Primorsky Kray, it will be 21%, on Kamchatka – 20%, in Jewish Autonomous Region – 17%, in Amur Region and Khabarovsk Territory – 5%.

RusHydro is suspected to transfer money for tariff reduction in the Far East to regional budgets, then the money will proceed to energy sales companies.

In the draft legal acts, prepared by the Ministry of Energy, it was stated that “the funds, raised by the application of premium in the Far Eastern Federal District, are used for non-repayable goal-oriented contributions to the budgets of constituent entities of the Russian Federation, which are members of the Far Eastern Federal District”, stated.
RusHydro will be a gatherer of premiums, the money will be credited to the special account of a company first, and then for five days they will be transferred to the budgets of the subjects of the Far Eastern Federal District, where tariffs will be reduced to the average Russian level.

Utility companies will receive money in the form of grants directly from the regional budgets. The main supplier of the last resort in the 2nd non-price zone, which includes the Far East, is public company “Far Eastern Energy Company” (FEEC), which is a subsidiary of RusHydro. FEEC has also the status of a single purchaser of the 2nd non-price zone. Major FEEC shareholders are the public company “RAO ES of the East” (100% “daughter” of RusHydro) with a share of 51.03%, Cyprus Donalink Ltd (controlled by joint-stock company ”SUEK”) with a share of 34%.

Price changes in the fuel and energy complex influence the dynamics of the producer price indices of industrial products in general. In Primorsky Kray, the main energy source is brown and hard coal, which is prevalent in almost all administrative districts of the region. For the period of 2009-2013, producer prices in mining of coal and lignite increased 1.6 times, in the production and distribution of electricity, gas and water - 1.7 times [2].

In 2013, the actual electricity tariffs allotted to various categories of consumers have decreased. In 2013, the actual electricity tariffs allotted to various categories of consumers, decreased by 4.1%: by 17.5% of which – for industrial consumers, by 4.1% - for agricultural producers. The actual electricity tariffs granted to the population at regulated tariffs increased by 14.5%, including 14% for the rural population, 14.6% - for the urban one [9, 10].

In 2011, the minimum growth of producer prices for heat in the pair was awarded by 3.8%. In 2013, compared with the previous year, prices for heat in the pair increased by 12%, heat in hot water - by 11.2%, which is close to the price level of 2009 [9, 10].

In the Russian Federation, tariff increases in production, transmission and distribution of electricity amounted to 6.2%, heat - 11.5% in 2013. In the production of fuel and energy minerals prices decreased by 5%.

The share of profitable FEC organizations amounted to 68.3%. This figure still lags behind the regional level, where 80.7% of organizations made a profit in 2013.

4. Conclusion
On the basis of the following factors, affecting economic efficiency, including profit, the authors can conclude that the following aspects contribute to the increase of economic efficiency:
- energy use efficiency increase;
- the productivity of human labor;
- other resources and costs returns increase;
- selection of efficient distribution channels;
- product wastage reducing at all stages of its way to the consumer;
- development of market infrastructure, including wholesale and manufacturing markets;
- financial incentives to increase the economic efficiency at enterprises of the fuel and energy complex;
- product quality improvement.

Quality loss reduces the mass of enterprise profit, therefore, reduces the production efficiency. Production efficiency is the ratio of the obtained effect (result) to the cost of its obtaining or resources used.

Efficiency helps:
- competitiveness;
- expanded reproduction;
- investment into productive and social infrastructure;
- innovation;
- raising of living standards of workers;
- other social outcomes (social efficiency).
Currently, the FEC is one of steadily working industries of the Russian economy. It has a decisive impact on the state and prospects of development of national economy. Energy saving and energy efficiency measures should become a compulsory part of regional socio-economic development of regions, including regional energy programs.

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