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Global trends of competitiveness management of coal enterprises

The coal industry is an important component to ensure the needs of the economy in energy. The Republic of Kazakhstan is now among ten largest producers of coal in the world market. and among the CIS countries, has the third largest reserves, the second largest coal extraction rate and the first place for the extraction of coal per capita. In Kazakhstan, this industry provides 74% of electricity production, almost 100% loading of coke production, and is fully able to meet the fuel needs of domestic sector and population.

Key words: competitiveness, management, coal mining, coal mines, coal consumption, coal enterprises, consumption of coal, coal production, price of coal.

Today it is hard to find a sector of the economy, which would not use fossil coal or its derivatives. The main directions of industrial use of coal are energy and technology.

The structure of coal consumption constantly changes. In recent years, usage of coal in power plants, coke plants and agriculture increased, but declined in transport and domestic sector.

The deep processing of coal and production of new products is developing due to the fact that market forces are constantly improving the quality of manufactured products. Getting products of coal deep processing to substantially enhances the ability of coal usage in energy sector, household sector and transport sector. In addition, during the period up to 2030, technology for producing hydrogen from coal «will be released» on practical application [1].

In order to implement a coherent and integrated analysis of competitiveness we suggest to use the following algorithm for evaluation presented in Figure.

Step 1. There are two possibilities at the initial stage of assessment in determining the objectives of the study: If we need to determine the position of goods being valued in a number of products with the same quality and price characteristics, it is enough to identify several main parameters and carry out a comparison on them. If the products are evaluated on their performance from the analogues, the model of an ideal product that best meets the needs of consumers, that will act as a standard (base) for comparison is developed. Estimated products are compared with the base model by the ratio parameter groups (economic, technical, legal and others.).

Step 2. The parameters of products, which are important from the consumers' point of view, as well as from the perspective of the manufacturer are determined. For a product, in order to be interesting to the buyer, it must have certain technical, operational and economic parameters. Terms of the acquisition of products are to meet the main characteristics of the satisfactory need. In the process of buying, a consumer chooses goods, sets the distinctive features that characterize the superiority of the product over similar products of competitors located in the market. When purchasing products, the buyer thus evaluates its appeal, the possible degree of satisfaction of his specific needs and his willingness to bear the costs associated with the acquisition and use of this product. At this stage, the product parameters, which are important from the consumers' point of view (quality and price characteristics, value of transportation costs for the delivery of products), and the criteria that are relevant to the manufacturer (conditions of contracts, expanding the scope and volume of sales, including due to the presence in the foreign market, maximizing profits).

Step 3. Parallel to the step 2, the study of a state coal market is being carried out. In domestic market, it is necessary to determine the share of corporate structures (sales of regulated agreements) and a free trade zone with charcoal (regulation of the level of demand). If the company conducts foreign economic activity, there should be an analysis of the state of the world market and product characteristics of foreign competitors.

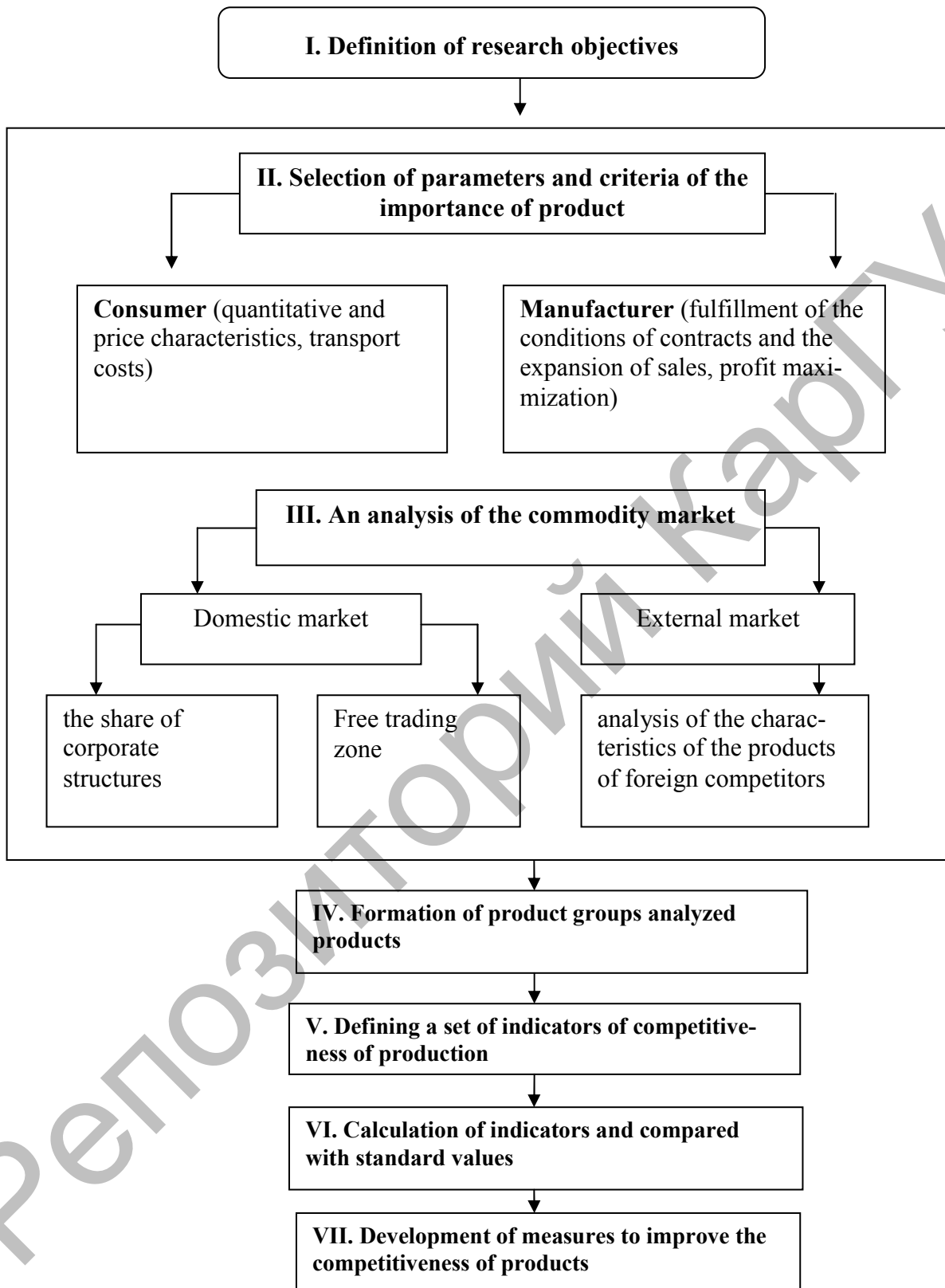


Figure. Algorithm for assessment of competitiveness of a buyer's production

Step 4. Formation of commodity product groups. In order to assess the competitiveness of coal production, its assortment, range, quality and physical characteristics must be analyzed. If products of different

companies have differences in terms of quality and price characteristics, one should put it in a comparable form by referring to a group of similar goods in accordance with the requirements of regulatory documents.

Step 5. Defining the set of competitiveness indicators. In the above methods, the authors suggest to evaluate the competitiveness of the products by calculating the different technical, economic, ergonomic, legal and other factors.

The developed methodology for assessing the competitiveness of coal production is proposed to operate three indicators: the level of profitability per unit of output, the magnitude of transportation costs for the delivery of products to the final consumer and the comprehensive utilization rate of raw materials.

Step 6. Calculation of indicators and comparison with standard values. The calculated values must not exceed the established norms.

Step 7. Development of measures to increase competitiveness. As a result of the market analysis and the calculation of the level of competitiveness conclusions should be made: if the product has low competitiveness, it is necessary to propose ways to improve due to the rationalization of production scheme, cost reduction, quality improvement and other activities.

The proposed algorithm is not universal because of the specific features of different types and kinds of products. However, it can be used in assessing the competitiveness of production sectors of mineral resource complex, allowing to take into account its specificity. Performing the operations described above makes it possible to estimate the proportion of products on domestic market, to carry out high-quality and reliable assessment of the competitiveness of the coal production enterprises, as well as offering reasonable ways to improve.

According to experts, the share of coal in the structure of world's fuel and energy balance is around 27%. Its main consuming industries are metallurgy and electricity. Around 44% of the world's electricity production uses coal [2].

Over 80% of the coal reserves are concentrated in North America, Asia-Pacific and CIS countries. At the same time ninth of the world's coal reserves is concentrated in China, the sixth part — In Russia. Coal reserves in Kazakhstan amount to 35.8 billion. Tons or 3.6% of world reserves.

The main importers are the countries of Western Europe (around 160 million tons) and the Asia-Pacific region (more than 200 million tons, including Japan — 130 million tons, South Korea — about 50 million tons and Taiwan — about 20 million tons).

The leading exporters are: Australia, USA, South Africa, Colombia, Venezuela, Indonesia, Canada, China, Poland, Russia.

More than 90% of the world's import requirements is provided by deliveries from these countries [3].

The problems of coal industry

In our view, 3 major problems in the coal industry of the world can be identified.

1. The unprofitableness of the coal industry.

Since the mid-90s, the world market prices of coal had a distinct downward trend, due to a general cheapening of the cost of energy and reducing the role of coal in the energy balance of the leading consumer countries.

The coal industry in the world itself is unprofitable and subsidized sphere. Its stable existence requires cash infusion from the government. Thus, the decline in coal prices further reduced the profitability of mining and production of coal. In addition, coal is significantly inferior to natural gas and oil by the costly and ecological indicators of its use.

Especially brightly this fact is reflected in the economically unstable countries. For example, Russia had suspended the activities of approximately 2/3 of the coal mines [4]. And the profession of a miner, which was considered prestigious in the Soviet era, has dramatically lost its positions. The state is practically suspended salaries to miners, which caused a huge number of strikes across the country.

2. Injuries at the workplace.

As a consequence, due to the lack of support of the coal industry on the part of some countries, and therefore a sharp decrease in funds allocated for the protection of labor, the growth of injuries at the workplace has increased. The most disadvantaged countries in this regard are China and Russia, each year in the extraction of coal hundreds, if not thousands of people get killed.

3. Environmental problems.

One of the serious problems is also the harm made to the nature caused in the extraction and procession of coal. Firstly, it's the release of methane into the atmosphere during mining. Secondly, for example, coking

coal must be heated to a certain temperature. As a result, it emits large amounts of carbon dioxide and other compounds that adversely affect the Earth's atmosphere and contribute to the greenhouse effect.

The prospects of the coal industry.

Despite the existing problems, the coal industry in the modern world has retained the role of economy's important basic industry. The value of coal as one of the main types of energy at the turn of the third millennium, is driven by the action of the following leading market factors:

1) Energy remains the priority sector of the economy. Consumers are interested in an unconditional maintaining stability power base and a variety of alternative sources of energy raw materials.

2) Stable and extensive resource base. The index of the current consumption of operable reserves of coal supply is one of the highest among all the minerals.

3) The possibility for coal exporters to operate on different markets. For the most of foreign exporters, it is the basis of their own energy. In addition, the geographical position of Australia, Colombia, South Africa, Indonesia, the United States is that in the modern ways of sea transport, they are able to virtually with the same cost to ship coal to both major consuming market — in Europe or in Asia [5]. Therefore, if there are problems with product sales in one of these markets, exporters can always switch to the second consuming market or national consumption (limiting share in the energy balance is usually imported oil or oil).

4) The low cost of coal compared to the cost of direct substitutes, coal price stability. The stability and predictability of the coal price provides consumers with the convenience of planning costs. At the same time, the unit of the calorific value of the fuel when using coal costs to the consumer on average 1.5 times less than with oil.

According to the forecast «Energy Information Administration» (DOE) primary energy consumption in the world by 2020 will increase compared to the current level of 65%. Fossil fuels will remain the main source of energy and will provide up to 80% of global energy consumption. Looking forward to 2020, international experts do not expect a significant reduction in the role of coal as a major energy carriers (Table).

Table

The forecast of world consumption of coal in the period up to 2020, mil. tons

Regions of the World	Years					
	1995	2000	2005	2010	2015	2020
Total	4644,9	4909,8	5367,0	5788,8	6209,8	6865,7
North America	919,0	1057,8	1085,0	1121,3	1157,7	1239,2
Western Europe	550,8	510,8	478,1	457,2	436,4	409,1
The industrialized countries of Asia	233,2	235,0	261,3	264,0	268,5	272,2
Eastern Europe/ The former Soviet Union	847,3	732,1	732,1	686,8	632,3	564,3
Developing countries	2094,7	2374,1	2810,5	3259,6	3696,8	4380,9

Moreover, it is likely due to the reduction in the rate of growth of consumption of oil and oil products and the revision of the relationship to the development of nuclear power in many countries, there may be some increase in its share in the energy mix.

At the current level of consumption of its proven reserves will last about 200 years, compared with nearly 50 years for gas and 30 — for oil. The leading consumers of coal in Asia and the world will continue to be China and India.

By 2020, the share of China and India will account for 33% of growth in global energy consumption and 90% increase in the use of coal in the world. US Department of Energy experts believe that coal in the country will remain competitive with other fuels due to low production costs and tariffs for its transportation [6].

In Canada, increasing in coal consumption is associated with the planned decommissioning after 2010 the significant part of nuclear capacity, which will be replaced by coal-fired power plants.

Japan intends to introduce up to 2020 at least 10 GW of coal-fired power plants of new generation. It is also expected a significant increase in consumption in Brazil and South Korea.

The coal industry is an important component to ensure the needs of the economy in energy. The Republic of Kazakhstan is now among ten largest producers of coal in the world market. and among the CIS countries, has the third largest reserves, the second largest coal extraction rate and the first place for the extraction of coal per capita. In Kazakhstan, this industry provides 74% of electricity production, almost 100% loading of coke production, and is fully able to meet the fuel needs of domestic sector and population.

Analysis of the main problems has shown that today there are a large depreciation, enough is working on updating the mine and quarry Fund. Tariff policy in the transport sector resulting in a significant increase in the cost of coal and, in some cases, to reduce the export opportunities of coal miners.

In recent years, it is the aging of miner's collectives. The average age of miners today is 45–47 years. Due to the lack of prioritization of miners' work, as well as heavy-duty, late retirement (63 years) young people do not go to work in mines and quarries.

Poor developing utilization work of coal mine methane gas and reducing gas content of mines to safe levels. There is the problem of technogenic disasters related to sudden outbursts of coal and gas, high gas content of coal seams in the Karaganda basin, which has led to repeated accidents in the mines.

However, the potential of the coal industry include excess capacity and great potential for increasing production. So the potential technical capabilities of Ekibastuz coal production is estimated at 85.0 mln. tons per year, while the unstable consumption, uneven export, do not allow to produce more than 75.0 mln. tons in 2020.

Potential opportunities of Shubarkol coal up 20.0 mln. tons per year, while the forecast demand for them in domestic and foreign markets in 2020 will amount to only 15.0 mln. tons.

It is necessary to pay attention to replacement of fixed assets of coal pits, the creation of a full complex of coal-chemical production, improve the quality of the coal products, the creation of enterprises for the production of briquettes and semi-coke. It is important to study the issue of a differentiated approach to early retirement for employees of the coal industry. To solve the problem of technogenic disasters related to sudden outbursts of coal and gas, it is necessary to study the issue of new methods of degassing of coal seams during operation [7].

As one of the security increasing methods is currently implementing a project on the use of methane to generate electricity that will not only ensure the safety of the work, but also cover their own needs electricity in mines.

As for the industrial usage of gas, these activities require a long period of research and industrial research with large investments.

The coal industry, being one of the most important branches of economy and energy sector, however, remained unprofitable and requires a large investment of financial resources for its development.

Coal prices can not rise in connection with the direct dependence of the price of its main competitors in energy production — oil and natural gas. And apparently the next 15 years there will not be observe major changes in the coal industry.

It's difficult to predict long-term prospects, but we can assume that if the oil reserves will continue to decline and will not be found new deposits or other alternative fuels by 2030 coal can become a major source of fuel energy, as It has huge reserves than oil and gas.

Humanity will inevitably have to invest in the development of programs to reduce environmental pollution because of the extraction and production of coal. In this regard, the development of the coal industry will take a global scale. There is no doubt that coal prices will rise also, and therefore its production becomes profitable.

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Көмір өнеркәсібінің бәсекеқабілеттілігін басқарудағы әлемдік үрдісі

Көмір өнеркәсібі энергияның экономикаға қажеттілігін қамтамасыз ету үшін маңызды құрамдас бөлігі болып табылады. Қазақстан Республикасы әлемдік нарықта көмір өндіру өнеркәсібі бойынша оныншы орында, сондай-ақ ТМД елдері арасында қорлар бойынша үшінші орында, халықтың жан басына шаққанда өндіру бойынша бірінші орында тұр. Бұл сала Қазақстанда электр қуатын өндірудің 74 % және жүз пайыз коксохимия өндіріс жүктемесін құрайды, яғни, халықты толық коммуникативті-тұрмыстық қажетті отынмен қамтамасыз етуге мүмкіншілігі бар.

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Мировые тенденции управления конкурентоспособностью угольных предприятий

Угольная промышленность является важной составляющей по обеспечению потребности экономики в энергии. Республика Казахстан входит в десятку крупнейших производителей угля на мировом рынке, а среди стран СНГ занимает третье место по запасам, второе — по добыче угля и первое — по добыче на душу населения. Отрасль обеспечивает выработку в Казахстане 74 % электроэнергии, практически стопроцентную загрузку коксохимического производства, имеет возможности полностью удовлетворять потребности в топливе коммунально-бытового сектора и населения.

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