

УДК 338.9

## COMPARATIVE ANALYSES OF KUZBASS AND TUVA COALS

Салчак Б.Б., студент гр. ГМс-181, I курс  
 Научный руководитель: Широколобова А.Г., к.ф.н., доцент  
 Кузбасский государственный технический университет  
 имени Т.Ф. Горбачева,  
 г. Кемерово

«The coal industry of Kuzbass is the main driver of its economic development. It fills the regional budget (about one third of all payments in the consolidated budget of the region); it creates jobs (approximately 10% of the regional employment); it stimulates the development of infrastructure industries and steadily is the “center of gravity” of investment (almost half of the investment in fixed capital region. In 2013 about 65 billion rubles were invested in the modernization of Kuzbass coal industry). The growth dynamics of Kuzbass gross regional product (GRP) also demonstrates its high dependence on the coal production in the region» [1, p.335]. At present, it is possible to talk about the beginning of the formation of the coal-mining complex in the Republic of Tuva, taking into account the fact that the region is planning to implement major investment projects, including projects for the development of deposits of coal in Tuva.

In general, Russia produces about 70 million tons of coking coal, but, nevertheless, a certain deficit for certain types of coal is associated with an increase in domestic prices for coking coal in Russia. According to the Institute of Coal economic situation, the shortage of “Zh” grade coal in 2015 amounted to 15-17 million tons. The development of the Elegest and Mezhegey fields of the Yenisei industrial company, with a design capacity of 12 million tons, would balance the supply and demand in the domestic coking coal market in Russia.

The aim of the article is to give the comprehensive comparative analysis of the coal industry in two regions - Kemerovo Region and the Republic of Tuva.

### 1. The number of deposits

The Republic of Tuva	Kemerovo Region
Ulug-Khem coal basin; Initial coal-bearing area; Chadani field; Onkashinskoye field; Aktal deposit; Serlighem coal-bearing area; Arguzunsky field and Sagly field, Kaa-Khem coal mine.	In Kuzbass coal basin there are 13 open cuts and 155 mines, the largest of which are: «Kuzbassrazresugol», «Southern Kuzbass», «Siberian Coal Energy Company - Kuzbass» and so on.

### 2. Characteristics of mining methods

The Republic of Tuva	Kemerovo Region
The main coal reserves of the Ulug-Khem basin can be developed by underground mining. For opencast	The extraction of coal is conducted both underground and more progressive - by open and hydraulic

mining, part of the Kaa-Khemskeye coal seams are suitable, where the smoothed relief with a flat coal seam allows for the identification of areas with a stripping factor of about 10, as well as the Chadani deposit.	methods, as well as by the method of underground gasification.
--	--

### 3. Characteristics of coal types

The Republic of Tuva	Kemerovo Region
Various grades of coal were found in these deposits: G - gas, GF - gaseous and fat, F - fat, CLC LM - coke low-caking low-metamorphosed, LC-low-caking (lean), EOS energy-oxidized stone (oxidized stone energy). As of January 1, 2010, in the Republic of Tuva the total balance reserves of coal in category A + B + C1 are 2,091 million tons, categories C2 - 1,580 million tons, off-balance - 413 million tons. The most promising for development is Ulug-Khem pool. Explored by industrial categories, the reserves of coal in the basin of deficient technological grades F, GF and G categories (A + B + C1 + C2) amount to 1,061.6 million tons. In addition, in these areas the predicted resources of fossil fuels of all the above grades are estimated at 12597 million tons	Among Kuzbass coals there are all 15 grades of hard coal, stipulated by the current classification GOST 25543-88, and anthracites. The balance reserves of coal in the Kuznetsk coal basin, calculated mainly to a depth of 600 m (1985), amount to 110.8 billion tons, of which about 67 billion tons explored on the sum of categories A + B + C1 are pre-estimated (category C2) 44 , 0 billion tons. The share of coking coal accounts for 42.8 billion tons, of which the deficient grades F, C, DC are 25.4 billion tons.

### 4. Producers - enterprises

The Republic of Tuva	Kemerovo Region
In the Republic of Tuva 3 coal mining enterprises: <ul style="list-style-type: none"> <li>• LLC "Tuva mining company";</li> <li>• «Resurspromsnab» LLC;</li> <li>• CJSC "Tuva Energy Industrial Corporation".</li> </ul>	In total there are 85 companies, the largest of which are: <ul style="list-style-type: none"> <li>• Kuzbassrazrezugol;</li> <li>• "SUEK";</li> <li>• "SDS-Coal";</li> <li>• Rapsadskaya;</li> <li>• Yuzhkuzbassugol.</li> </ul>

### 5. Consumers

The Republic of Tuva	Kemerovo Region
Coal mined in the republic is mainly sold in the local market and is used to generate thermal energy. Part	Residents of Western Siberia, the Urals and the European part of Russia are active consumers of the Kuzbass

of the coal goes to steel mills in Russia. Due to the lack of railway communication of the Republic of Tuva with other regions of Russia, a special scheme of coal transportation was developed: by road along the A-161/162 road to the transshipment base in the city of Abaza in the Republic of Khakassia, then the railway is sent to the final consumer.	coal in the domestic market. Nowadays, coal exports to Japan, the UK, Turkey are actively practiced, and exports to Finland have been established. Volumes of supplies are growing rapidly. The Netherlands, Korea and China are permanent partners of Russia, who buy coal, but the quantity of supplied products decreases. Recently, exports to Asian countries are increasing.
--	--

## 6. Development problems

The Republic of Tuva	Kemerovo Region
<p>1. Lack of necessary transport infrastructure.</p> <p>2. The volume of production is strictly tied to the volume of consumption of local enterprises and organizations, as well as its population.</p> <p>3. Consumers of coal in Tuva, who are timely calculated with coal mining enterprise, are organizations and various recipients of social transfers (disabled, veterans, etc.), and the structure of coal consumption (25-28% of the total coal supply) is the State order of the Government of the Republic of Tuva.</p> <p>4. The financial and economic situation of the main coal consumers in the republic is in a crisis state.</p> <p>5. It is difficult to find a competent directors, chief engineers, specialists. Support is also needed in the creation of a federal university for the training of specialists in the coal, metallurgical, construction and chemical industries.</p>	<p>1. Kemerovo Region is located in the geographical center of the country at a distance of 4.5 thousand kilometers from the borders, which is in the West, in the East, coal mining requires the constant development of rail transport. It is not enough to mine coal - it still needs to be delivered to the consumer.</p> <p>2. New generation needs to be built for the best quality of coal. So there must be coal enrichment. At the existing and new thermal power plants, no one will build it, so you need to develop enrichment at the place of production. Much has been done in this direction in Kuzbass: 68% of the total coal mined is already being enriched, which is 3 times higher than the national figure. At the same time, there is an acute need for building new modern processing plants, plants, and sorting, which will enrich coal immediately after its production.</p> <p>3. Already repeatedly raised the question to the Russian Government - to stop the coal issuance of licenses for new coal deposits. Auctions are outdated. There are few deposits left. During the development of new large deposits of coal, in addition to the enrichment plants, it is necessary to build enter-</p>

prises for deep processing of coal and thermal power plants right on the spot where the coal is mined. It is necessary to decide what is more profitable: to generate electricity on the spot or to load 8,000 gondola cars daily and send coal from Kuzbass to all parts of the country and abroad.

4. Today, ecology is becoming a completely new indicator, which in our country is not yet operational, and coal is considered dirty fuel. Therefore, environmental factors are already built into the electricity market. In principle, this is the second fuel component in the price of electricity, therefore, it is necessary at the design stage to provide for clean coal technologies at new stations.

5. And one more serious problem - the safety of miners. In 2008 alone, 5 billion rubles were invested in providing security in Kuzbass, which is 1.5 billion rubles more than in 2007. In total, over the past ten years, over 19 billion rubles have been allocated to security. As a result, fatal injuries in our area have been reduced 5 times in 10 years! The number of accidents decreased by 2 times! We need complex changes in the design of mines, in the organization of the processes of mining and maintenance, in personnel training and in many other ways. The main emphasis should be placed on open-cast coal mining, where there are no accidents, and to apply the latest technologies more actively - right up to the deserted ones, such as, for example, at the Rapsadskaya mine.

6. Over the past ten years, not a single graduate of mountain universities in Moscow and St. Petersburg has appeared at the Kuzbass mines, only graduates of our universities work, but

they are sorely lacking.
--------------------------

### Список литературы:

1. Local Production Systems and Regional Economic Development /ed. by A.S. Novoselov and V.E. Seliverstov. – Novosibirsk, Sofia, Lodz, Ternopil, 2014. – 352 p. <http://lib.ieie.su/docs/2014/LocalProductionSystems/FRIDMAN-RECHKO-LOGINOVA.pdf>
2. Дабиев Д. Ф. Состояние и перспективы угледобычи в Туве [Электронный ресурс] // Новые исследования Тувы. 2013, № 4. URL: [https://www.tuva.asia/journal/issue\\_20/6724-dabiev.html](https://www.tuva.asia/journal/issue_20/6724-dabiev.html)
3. Вторая молодость угольной отрасли Тувы // Тувинская правда. Общественно-политическая газета. <http://kizil.bezformata.com/listnews/molodost-ugolnoj-otrasli-tuvi/37219411/>
4. Незаменимый спрос на уголь останется стабильным в течение следующих пяти лет. // Уголь Кузбасса. Федеральный научно-практический журнал <http://uk42.ru/index.php?id=8462>
5. Vasileva, E.V., Cherkasova, T.G., Patrakov, Y.F. et al. Analysis of the Quality of Coking Coal Concentrates from Kuzbass // Solid Fuel Chem. (2018) 52: 1. <https://doi.org/10.3103/S036152191801010X>