THE PROBLEMS AND WAYS OF DEVELOPMENT OF METALLURGICAL ENTERPRISES OF UKRAINE

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Abstract. The article deals with problems of development of metallurgical enterprises of Ukraine. The formation of the resource saving mechanism at the metallurgical enterprises is considered. The scientific and practical recommendations of the state support policy of the metallurgical enterprises of Ukraine during implementation of the mechanism of resource saving management are considered.

Keywords: metallurgical enterprises, resource conservation, energy saving, state regulation, resource saving mechanism.

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Introduction

The metallurgical enterprises of Ukraine remain the leading domestic industry. In recent years metallurgical industry needs the modernization of enterprises according to the risks of world market situation and the high resource and energy intensity of metallurgical enterprises.

The development of the metallurgical enterprises of Ukraine has a strategic importance in view of its potential as an important sector of domestic production, the budget-making industry and one of the most powerful export-oriented industries in Ukraine.

The development of metallurgical enterprises of Ukraine

Indicators of activity of metallurgical enterprises of Ukraine for 2012-2016 show that the crisis of production of the last years is expired. According to Table 1, we observe a significant drop in production volumes by main types of products, namely iron production decreased by 18.3% in 2016 compared to 2011, steel without semi-finished products - by 36.4%, semi finished products - by 19.5 % on average, rolled ferrous metals - by 31.8%.

In 2016, the metallurgical industry recovered with an increase in the production of pig iron by 7.8% in 2016 compared to 2015, semi-finished products with continuous casting - by 10.1%, semi-finished products, rolled and forged products - by 3.3% , rolled up of finished ferrous metals - by 9.9%. Since 2014, metallurgical enterprises have lost the opportunity to sell their products in the Russian market.

Therefore, since 2015, metallurgical enterprises work with the markets of the EU, North Africa and the Middle East. Improvement of production indicators in the metallurgical industry was due to the enterprises' activities to find new partners and new markets, further integration into global markets and the transition to world standards of quality and logistics *(Antonenko, 2017)*.

Table 1

Production of the metallurgical enterprises of Ukraine for 2011-2016

Products	2011	2012	2013	2014	2015	2016	Growth rates,%	
							2011	2015
Cast iron processing and mirror in bastards, blanks or forms of primary others, mln. t	28,9	28,5	29,1	24,8	21,9	23,6	81,7	107,8
Ferroalloys, million tons	1,4	1,3	1,1	1,4	1,1	1,3	92,9	118,2
Steel without semi-finished products, obtained by continuous casting, mln	17,6	16,6	15,1	12,7	11,2	11,2	63,6	100,0
Semi-finished products, obtained by continuous casting, mln	17,8	16,9	18,1	14,7	11,9	13,1	73,6	110,1
Rattan and forged semi-finished products, mln	7,2	7,0	6,5	6,1	6,1	6,3	87,5	103,3
Finished ferrous metals, mln	19,5	18,4	17,8	14,3	12,1	13,3	68,2	109,9
Pipes and tubes, hollow profiles, steel, mln. tons	2,4	2,2	1,8	1,6	1,0	0,97	40,4	97,0
The profiles are not closed from unalloyed steel, ths. Tons	117	141	132	128	112	115	98,3	102,7
Sheets are profiled from non-alloy steel, ths	265	231	183	127	118	124	46,8	105,1
Steel wire, thousand tons	419	386	383	318	268	286	68,3	106,7

The metallurgical enterprises is budget-making, we consider the financial result of enterprises. The financial result of metallurgical enterprises prior to taxation in 2011 is negative, and the share of enterprises that have received profits in the total number of enterprises was 57.8%. However, the share of profit-making enterprises in the total number of enterprises increased from 57.8% in 2011 to 75.7% in 2016. A significant problem of the metallurgical enterprises is the decline in the value of products due to global competition, currency regulation, the return of value added tax.

The main share of metallurgical production is exported, which provides the foreign exchange earnings due to the developed export potential: the share of metallurgical products in the structure of exports in 2016 reaches 22.9%; the share of exports amounted to 63.0% of the total volume of sold metallurgical products.

The analysis of export-import of metallurgical products shows a significant drop in export volumes and loss of export potential, and the fall in exports in 2016, as compared to 2011, was 62.2% and imports respectively 58.7%. However, foreign trade surplus of the metallurgical industry is positive; exports exceed imports by 3.9 times in 2011 and 3.6 in 2016. In such commodity groups as nickel, aluminum, zinc, tin and products from them, the foreign trade balance is negative. In the structure of steel exports, the share of ferrous metals prevails, which increased from 83.7% in 2011 to 86.9% in 2016, while the share of ferrous metal products dropped from 12.7 in 2011 to 8, 3% in 2016. This indicates the further raw material orientation of the export of the metallurgical enterprises in Ukraine.

Also, as products with a relatively high added value, volumes of rolled metal in the export of ferrous metals are reduced. In general, metal exports in 2010 declined by 21.2% from 6.1 million tonnes to 4.8 million tonnes compared to 2012. In 2015, export of ferrous scrap and waste amounted to 1.2 million t, having increased by 1.3 times in comparison with the previous year and 3.6 times compared with 2012.

The share of exports of precious metals and their products is gradually decreasing in Ukraine's total exports, which is a decrease from 32.6% in 2011 to 22.9 in 2016. The share of ferrous metal products has decreased in two times, while the share of other non-precious metals is insignificant and is 1.2% and 1.1% respectively in 2011 and 2016.

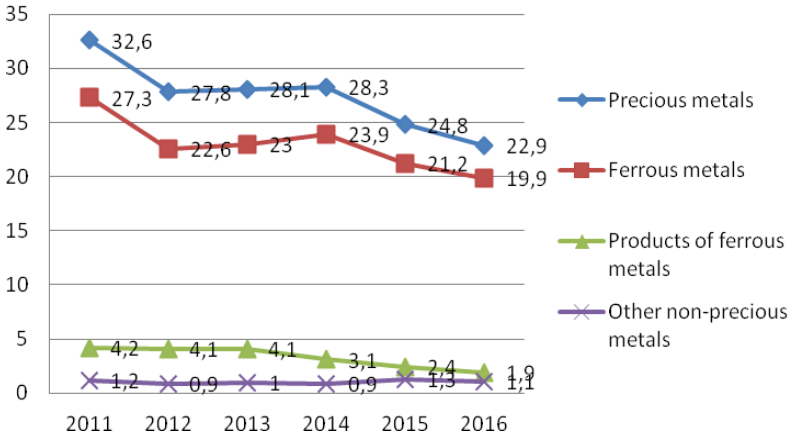

Fig. 1. The share of export of metallurgical products in the total export of Ukraine,%

According to the structure of the sold metallurgical products and the dynamics of exports, the consumption in the domestic market is limited by insignificant demand and, accordingly, insufficient development of related industries. The total demand of metallurgical products is 10.3 million tons of ferrous metals and 3.6 million tons of non-ferrous metals. In 2016, the consumption of metal products on the domestic market of Ukraine, the share of sales of basic metals of domestic production in the structure of their wholesale trade by wholesale enterprises amounted to 84%, including ferroalloys – 85.1%, steel - 92.6%, flat rolled steel bars - 87,7%, flat cold rolled steel products - 74,8%. The indicators of consumption of non-ferrous metals are significantly lower, where domestic production has reached 54.6%/ It's confirms a significant degree of import dependence on this product group. Since 2014, there has been a slight increase in consumption in the domestic market due to the defense industry and enterprises producing dual-use products.

The main problem of development of the metallurgical enterprises is the high energy consumption of production, the lack of funding for the implementation of resource-saving technologies, and consequently, the gradual decrease of exports due to high competition in the world market.

The enterprises of the metallurgical industry and chemical industry accounted for almost 40% of the total volume of natural gas consumption. The largest reserves of energy efficiency are found in ferrous metallurgy during the production of pig iron (reduction of specific costs by about 25%, or 5 million tons of oil equivalent per year by volume of production at 2013 levels) and steel production (reduction of unit costs by about 70%, or 1.5 million tons of fuel equivalent per year by volume of production at 2013 levels). At the same time realization of energy saving in ferrous metallurgy is possible under the condition of investments in energy saving technologies in the amount of about 200 billion UAH *(New energy strategy of Ukraine, 2015)*.

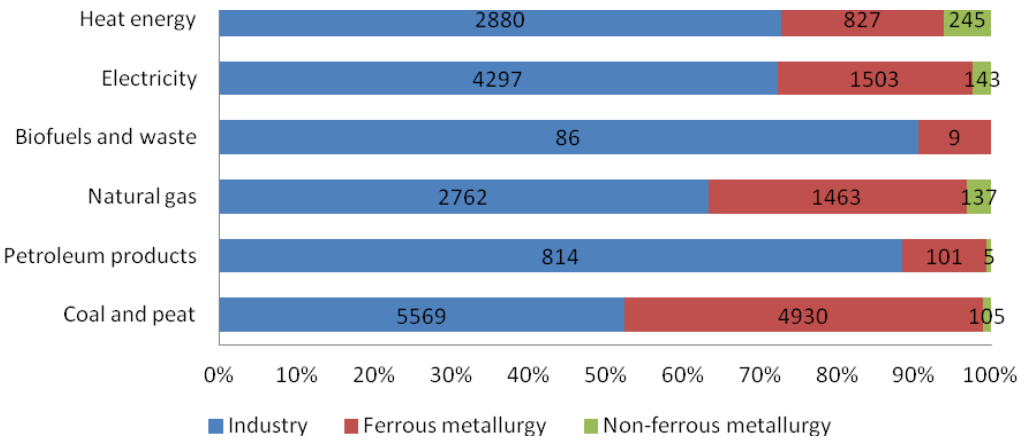

Fig. 2. Energy consumption of metallurgical enterprises, ths. tons oil equivalent

For 2013-2016, industrial energy consumption standards are limited by 30%. At the same time, gas and electricity prices have more than doubled (depending on the region of consumption and service provider) *(Koval, 2016)*. The solving of this problem directly

depends on use of outdated technologies. The most metallurgical enterprises use blast furnaces, which require a significant cost of natural gas that the country imports. The production with using of smelting furnaces will reduce the cost of finished products and harmful emissions into the atmosphere by 70%, and will provide a sufficient level of resource conservation in the industry.

The problems of the metallurgical industry, starting with raw materials and ending with the implementation of finished products are considered. Domestic metallurgical enterprises use iron ore, which is also exported to other countries. In addition, in the production of scrap steel has a lack of raw materials. In the market of scrap metal it is more profitable to export than to sell it within the country.

In 2015, domestic consumption was 4.2 million tonnes (deficit was 25%), and in 2016 – 3.9 million tonnes (deficit was 29%). It is affected on the volume of produced steel and its cost, since companies are import scrap metal. The export duty is increased for scrap from 10 euro / t to 30 euro / tonne, which is introduced in 2017, and the import duty on scrap of ferrous metals has been abolished, which should reduce the cost price of domestic production *(Antonenko, 2017)*.

The metallurgical enterprises remain the basic, the process of its modernization and the implementation of resource-saving technologies are important factors of economic growth both in industry and in the country. Nevertheless, in the metallurgical sector of Ukraine, there are sustaineble negative trends that have deepened as a result of the growth of global competition and the negative the socio-economic situation in the eastern regions of Ukraine. The main problems of the metallurgical industry should be considered as follows:

1. High energy and labor-intensive production of metallurgical enterprises due to technical and technological backwardness. The greater part of technological processes in the metallurgical industry does not correspond to world indicators. Thus, the material production of metallurgical production in Ukraine is 5-7% higher, and energy intensity is 25-30% higher than in competitor countries *(Potapenko, 2012)*.

The most energy-intensive is the open-hearth steel production, in which the energy consumption is almost 5 times, and natural gas - 15 times higher than with converter production. Every year, domestic metallurgy consumes 6-7 billion cubic meters. m gas, while most world producers have long since abandoned the use of this energy source by introducing pulverized coal technology. In addition, consumption of coke per ton of smelting pig iron in Ukraine is 500-550 kg, while the average norm in the world is 270-300 kg *(Sukhorukov, 2012)*.

We consider resource conservation methods at the Ukrainian metallurgical enterprises, which are the most energy intensive ones, including the volume of consumption of natural gas and coke. At present, the metallurgical enterprises use an innovative resource - pulverized coal. The essence of the process of using PVP technology is to use shale charcoal in the blast furnace to reduce the consumption of more expensive energy resources.

The domestic and foreign experience shows that PVP is based on the principle of complete and integrated compensation creates prerequisites for a significant further reduction of the cost of cast iron and the growth of productivity of blast furnaces *(Filatov, 2011)*.

The implementation of PVP plants is accompanied by necessary costly compensatory measures at metallurgical enterprises, the realization of which is impossible without significant additional capital investments.

2. A lack of raw materials at the metallurgical enterprises. The negative impact of metallurgical enterprises has a shortage of raw materials due to the violation of industrial ties

with enterprises located in the occupied territories of the East of Ukraine, as well as a significant increase in exports of scrap metal from Ukraine. The deficit of raw materials for metallurgy in 2015 amounted to 854.4 thousand tons or 21.7% of the total demand of metallurgical enterprises

So, we consider abolition of import duties for scrap metal and restriction of volumes of scrap exports, as well as the introduction of a mechanism for selling scrap with the use of an auction.

3. Low level of ecological safety of metallurgical production requires the introduction of environmentally safe, resource-saving and low-waste technologies in enterprises in order to reduce of natural resources.

The signing of the Association Agreement between Ukraine and the EU envisages harmonization of the legislation in the field of environmental protection concerning industrial pollution and industrial threats, since metallurgical enterprises of Ukraine are among the largest industrial pollutants in the environment. In Art. 363 of the Agreement states that Ukraine is committed to gradually bringing its legislation closer to EU law and policy in the field of environmental protection.

4. The suppliers of raw materials concentrate in the domestic market, which leads to imbalance of production, rising costs and lower quality of raw materials, as well as insufficient use of the potential of the domestic market of consumption of metallurgical products, significantly slowing down and reducing the efficiency of investment processes in the industry.

5. The insufficient of state support of metallurgical industry and mechanisms of protection of domestic producers. The governments of industrially developed countries of the world in the conditions of a prolonged recession in the world market of metallurgical products are taking systematic measures to support metallurgical production as a strategic sector of the economy: delaying environmental payments, reducing rental payments for minerals, introducing special tax regimes, actively using mechanisms of anti-dumping investigations, etc.

In the metallurgical industry, there is a gradual restoration of growth rates, but there are certain problems that hinder its development. There are outdated production technologies, lack of energy and resource saving measures, insufficient supply of raw materials, loss of traditional markets, ineffective strategies for enterprise development, etc. It is necessary to carry out a complex of measures. Firstly, a state regulator should be established. We should to create a commission or committee under the Ministry of Economic Development and Trade. It is possible to use a variety of programs and grants to attract new resource and energy-saving technologies, as provided by the partners of Ukraine.

According to the research, we can identify the priority of the resource conservation strategy in the metallurgical industry of Ukraine, which is aimed at reducing the resource and energy intensity of production. Resource-saving strategy in the metallurgical industry of Ukraine is based on increasing the efficiency of state policy in the field of resource conservation: resource and energy intensity of metallurgical production - tax incentives resource-saving - financial performance of enterprises - level of industry / country development - state policy of resource conservation in the sector - institutional maintenance of resource conservation - public-private partnership in the field of resource conservation - cooperation with EU countries on resources and resources - software resource investment - innovation enterprises - saving technologies and equipment - organizational and economic measures of resource - energy resource and metallurgical production.

Conclusions and suggestions

The main problem of the development of metallurgical enterprises of Ukraine as a budget-making is the high resource and energy intensity of production, as a result, metallurgical enterprises are gradually losing sales markets (there is a decrease in exports of metal products) and lowering financial indicators (there is an increase in losses of industry enterprises since 2011). The implementation of resource-saving technologies, in particular PVP, at metallurgical enterprises in the current economic conditions of Ukraine's development for the own funds of metallurgical enterprises is virtually impossible, therefore, there is a need for state support for the implementation of resource-saving measures (PVP installations, organizational and economic).

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