RESOURCE SAVING AT FERROUS METALLURGY ENTERPRISES

[1]Xashimova Salima Nigmatullayevna

[1]Candidate of economic sciences

Associate Professor of Tashkent State Technical University

Article history:
Received: 10 th January., 2022
Accepted: 11 th January., 2022
Published: 12 th January., 2022

Abstract: ***This article describes the key areas for rational use of material resources and resource conservation. It is enlightened the example of the APO "Uzmetkombinat".***

Key words: ***ferrous metallurgy, steel production, development priorities, resources.***

In conditions of a high level of industrialization of the economy, the production process is accompanied by the consumption of a significant amount of resources. Due to the fact that material costs account for more than half of production costs, the reduction of the latter is the most important qualitative indicator of economic development. Saving raw materials, fuel, and energy contributes to reducing the cost of production and capital investment needs, introducing scientific and technological achievements, establishing new balance sheet relationships and economic balance, increasing production, and improving the financial situation of enterprises. The struggle for the conservation of natural resources is one of the main prerequisites for the implementation of measures for the introduction of scientific and technological achievements. The relationship between the latter and resource savings is determined by an increase in the technical level of production-its decisive factors of saving raw materials. Saving resources means significant savings in capital investments: saving resources reduces the need for the development of extractive industries-the main producers and suppliers of resources. At the same time, it is necessary to take into account that the products of these industries are the most energy-intensive, so their savings in related industries ensure a reduction in the need for fuel and energy resources, which in turn has a positive effect on the ecology of the region.

Uzbekistan, as a country rich in natural resources, is also interested in the development and widespread introduction of energy-saving technologies, the application of innovative approaches to the rational use of material resources. The principle of resource saving can not only save the country's material resources for the future generation, but also reduce the cost of production, as well as increase the competitiveness of domestic enterprises in domestic and global markets, which in turn will contribute to economic growth. Today, favorable conditions are being created in Uzbekistan for the development of innovative activities aimed at resource conservation, radical renewal of the production and technological base.

One of the industries to which humanity makes serious claims in the field of resource conservation and ecology is metallurgy. For example, a full-cycle metallurgical plant producing 10 million tons of steel per year, before the introduction of strict control measures, annually emitted more than 200 thousand tons of dust, 50 thousand tons of sulfur compounds, 250 thousand tons of

ISSN 2277-3630 (online), Published by International journal of Social Sciences & Interdisciplinary Research., under Volume: 11 Issue: 01 in January-2022
https://www.gejournal.net/index.php/IJSSIR

carbon monoxide, nitrogen oxides and other substances into the atmosphere. The operation of factory units is accompanied by noise and vibration.

Metallurgical production is accompanied by the formation of a large amount of slag. This mass of slag, if it is sent to slag heaps, occupies significant areas, which is associated with the rejection of land, soil and water basin pollution, requires the organization of a network of railway tracks, etc. The costs of environmental protection, including water and air basins, noise and vibration control, extraction of valuable industrial waste, etc. are continuously increasing. They have exceeded 5% everywhere, and during the construction of some plants they reach 20% of total capital investments.

The metallurgical industry has not yet had time to completely switch from the traditional technology that has been established for decades to the modern one, based, for example, on the replacement of casting steel into mills by continuous casting, on the widespread use of rolled steel (followed by stamping, welding, etc. and a corresponding reduction in the use of metalworking machines with the formation of millions of tons of chips), on the widespread use of out-of-furnace processing methods in order to obtain metal of a high degree of purity and quality.

Ferrous metallurgy is one of the most energy- and material-intensive industries. It is characterized by a high level of concentration of production, the presence of stable diversified intersectoral and intra-sectoral relationships, the consumption of a significant amount of production-related products, the complexity of the process covering mining and processing industries, the multi-operability of technological conversions [1].

Most types of material and fuel and energy resources necessary for ferrous metallurgy are produced at the enterprises of the industry itself and serve either as raw materials and semi-finished products for subsequent conversion, or are used as auxiliary materials and energy necessary for conducting technological processes and the functioning of production.

With the current cost structure, the largest reserve is a reduction in the cost of material resources per unit of output or per 1 sum of national income produced.

The nature of the types of raw materials and fuels used, technological features of metallurgical production determine the high material consumption of ferrous metallurgy.

On average, 1.15-1.25 tons of ferrous metal scrap and 3.5-4.5 tons of raw materials, main and auxiliary materials of secondary scrap, fluxes, deoxidizers, fuel are consumed per 1 ton of steel, and 1.05-1.07 tons per 1 ton of finished rolled products. steel 1-2 tons of raw materials of basic and auxiliary materials. material costs account for the production of products in industry as a whole – 79.1%, ferrous metallurgy - 78.4%, non-ferrous metallurgy - 57.8%, and mechanical engineering - 84.6%. With such costs, the importance of saving material resources increases many times, the need for which will continuously increase. Meeting these needs only on an extensive basis becomes practically impossible and economically inefficient [2].

In connection with the above, the problem of reducing the consumption of energy and material resources is very important and is part of state policy. With such costs, the importance of saving material resources increases many times, the need for which will continuously increase. Meeting these needs only on an extensive basis becomes practically impossible and economically inefficient.

ISSN 2277-3630 (online), Published by International journal of Social Sciences & Interdisciplinary Research., under Volume: 11 Issue: 01 in January-2022
https://www.gejournal.net/index.php/IJSSIR

Reducing the cost of steel and finished rolled products in the association is to reduce the cost of raw materials by reducing their specific consumption per unit of production, as well as by using them most fully.

In accordance with the program for modernization, technical and technological re-equipment of production in JSC "Uzmetkombinat" completed work on the following projects: -modernization of the electric steelmaking furnace DSP-100 UMK No. 4 with the replacement of the furnace transformer; -modernization of the ball rolling mill; -reconstruction of the methodical heating furnace of the rolling mill; -reconstruction of the DSP-100 UMK pumping and storage station [3].

As a result of the modernization of production, the consumption rates of metal in rolling shops, as well as the cost of production, have significantly decreased. The reduction of material consumption contributes to an increase in the efficiency of the use of fixed assets, as it allows you to receive more finished products from the same amount of material resources per unit of time. This ensures an increase in the return on funds.

Economical and rational use of material resources entails a decrease in the demand of enterprises for these resources, which allows us to establish more correct economic proportions in the development of related branches of material production, for example, between metallurgy and mechanical engineering, between the smelting of cast iron or scrap metal and the extraction of fuel.

Reducing the needs of enterprises in material resources makes it possible to reduce the size of production stocks and working capital for their acquisition. This is especially important because, on average, in the structure of working capital of industrial enterprises, more than half of them account for production stocks. Saving material resources contributes to the release of significant funds, improving the financial condition of enterprises, industries and the national economy as a whole.

However, many enterprises still allow the formation of excess, excessive and unnecessary stocks. This leads to the deadening of material resources, the termination of financing of various activities, the delay in payments to suppliers for materials. All this negatively affects the financial condition of the enterprise, slows down the turnover of funds and increases the cost of production.

The nature of the types of raw materials and fuels used, technological features of metallurgical production determine the high material consumption of ferrous metallurgy. The problem of providing the country's economy with ferrous metallurgy products is quite acute.

Ferrous metal is necessary for many sectors of the national economy - be it rolled products, earthquake-resistant construction, laying of railways, mechanical engineering, agriculture, etc.

Scrap metal resources are of the greatest importance both at present and in the future for the development of ferrous metallurgy in the republic. The resources of iron should include stubs and scrap. Due to the high demand for sulfuric acid in the Republic, the development of sulfuric acid production on a significant scale is planned. In the production of sulfuric acid on pyrites, cinders will be obtained in the form of waste, which can be used as iron ore raw materials.

Ferrous scrap is an important component of the steelmaking charge. In terms of its technological value, it is equivalent to pig iron.

Due to metallomom, steel produced in the country is smelted. The study of the sources and extent of the formation of scrap metal is necessary, since the amount of scrap and its use affects the structure of ferrous metals production, the development and placement of advanced metallurgy.

ISSN 2277-3630 (online), Published by International journal of Social Sciences & Interdisciplinary Research., under Volume: 11 Issue: 01 in January-2022
https://www.gejournal.net/index.php/IJSSIR

The total amount of scrap metal produced includes circulating and depreciation scrap, as well as metal waste obtained at machine-building plants of the republic.

Currently, there is a significant amount of unaccounted resources and depreciation scrap metal at industrial and agricultural enterprises and social and cultural facilities in the republic. Their volumes exceed the amount of scrap metal harvested by 1.2 times.

These scrap metal emissions pollute not only the territory of enterprises, but also residential quarters and streets of settlements. Therefore, an important problem facing scrap processing organizations of the republic is to strengthen control over the accounting of existing scrap metal at enterprises and old equipment to be replaced, as well as the collection, delivery and procurement of scrap metal.

Economical and rational use of material resources entails a decrease in the demand of enterprises for these resources, which allows us to establish more correct economic proportions in the development of related branches of material production, for example, between metallurgy and mechanical engineering, between the smelting of cast iron or scrap metal and the extraction of fuel.

Reducing the needs of enterprises in material resources makes it possible to reduce the size of production stocks and working capital for their acquisition. This is especially important because, on average, in the structure of working capital of industrial enterprises, more than half of them account for production stocks. Saving material resources contributes to the release of significant funds, improving the financial condition of enterprises, industries and the national economy as a whole.

There are still large reserves of saving material values hidden at Uzmetkombinat OJSC. They are laid down in the further improvement of the preparation of raw materials, materials and the maximum use of waste and returns (dust, slag, scale, etc.). The use of waste and returns reduces the need and size of working capital in "fresh" types of raw materials, fuels, materials.

The experience of using resource-saving mechanisms at metallurgical enterprises in leading countries (Japan, USA, Germany, Great Britain, France, Italy) has shown a long-term purposeful state policy using a wide range of organizational and economic mechanisms, creating conditions and incentives for the activation of resource-saving activities of industrial firms (both private and public).

The state policy of resource conservation in Western countries was based on the following priorities:

- combining resource-saving and environmental goals;
- phased implementation of the resource-saving program (at the first stage, efforts were concentrated on a rapid increase in the scale of known resource-saving technologies: replacement of open-hearth production in electric furnaces, the use of scrap steel, instead of cast iron).

Priority attention was paid to the modernization of existing production facilities, and then the commissioning of new enterprises and workshops.

The program covers all technological changes in the production of metal products and includes specific activities directly related to the solution of these tasks. The main ways to solve them are:

- complex use of raw materials and waste generated in the process of metallurgical production.
- deeper enrichment of ores in order to reduce energy costs during subsequent processing, improving the quality of ore raw materials and scrap metal prepared for further technological processing;

ISSN 2277-3630 (online), Published by International journal of Social Sciences & Interdisciplinary Research., under Volume: 11 Issue: 01 in January-2022
https://www.gejournal.net/index.php/IJSSIR

- changing the structure of steelmaking: replacement of open-hearth furnaces with converters and electric furnaces;
- non-aggregate processing of steel and cast iron in order to obtain the necessary quality of the final product and reduce production costs;
- continuous casting of steel, especially with the use of technology for obtaining thin sections.

Taking into account the resource-saving mechanisms developed in the developed countries of the West, the following elements of state influence on solving resource-saving problems in the conditions of Uzbekistan would be the most acceptable and appropriate:

- price regulation (regulation of energy prices);
- tax and depreciation incentives for the use of progressive resource-saving technologies, machinery and equipment;
- legal support of long-term resource-saving policy;
- regulatory support that sets standards for the consumption of critical resources;
- concessional lending and targeted financing of the most important resource-saving measures;
- information support in order to disseminate best practices in resource conservation;
- creation of a branch scientific and technical center that provides coordination of work on the program of energy-saving measures, collection, testing and analysis of technical and economic parameters characterizing heat consumption in the metallurgy of Uzbekistan.

These are the main ways of rational use of material resources and acceleration of turnover of working capital, and consequently, improvement of their use in ferrous metallurgy.

Ferrous metallurgy has achieved impressive results in its development, having solved the task of a truly historic scale - meeting the needs of the world economy in cast iron, steel and rolling. This achievement is epochal and confirms the effectiveness of the processes underlying metallurgy and based on the use of carbon as a basic energy source and reducing agent. The natural price for this is the "greenhouse effect", the main "supplier" of which is the same carbon.

REFERENCES

1. https://ru.m.wikipedia.org/wiki/%D0%A3%D0%B7%D0%B1%D0%B5%D0%BA%D1%81%D0%BA%D0%B8%D0%B9_%D0%BC%D0%B5%D1%82%D0%B0%D0%BB%D0%BB%D1%83%D1%80%D0%B3%D0%B8%D1%87%D0%B5%D1%81%D0%BA%D0%B8%D0%B9_%D0%BA%D0%BE%D0%BC%D0%B1%D0%B8%D0%BD%D0%B0%D1%82
2. Xashimova Salima. Economic Security Of Ferrous Metallurgy. NOVATEUR PUBLICATIONS JournalNX- A Multidisciplinary Peer Reviewed Journal ISSN No: 2581 – 4230 VOLUME 7, ISSUE 2, Feb. - 2021 https://staff.tiiame.uz/storage/users/203/articles/gs9j34BIuL4J2X3VGiPzg9MYWspU4KMwwEDQYyVc.pdf#page=77
3. Khashimova S.N. Development of ferrous metallurgy in Uzbekistan in the context of modernization of the national economy.Abstract of the dissertation of Candidate of Economic Sciences T. TSTU, 2011.
4. Khashimova S. N. Development of the ferrous metallurgy of Uzbekistan in the context of modernization of the national economy. Young scientist # 1 (135) January 2017.

ISSN 2277-3630 (online), Published by International journal of Social Sciences & Interdisciplinary Research., under Volume: 11 Issue: 01 in January-2022
https://www.gejournal.net/index.php/IJSSIR