DIVERSIFICATION OF PRODUCTION AS A CONDITION FOR THE DEVELOPMENT OF INDUSTRIAL ENTERPRISES

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Annotation. This article discusses the development of a strategy for diversification of production of JSC "Uzmetkombinat". Analytical and graphical methods for calculating the working car fleet of the casting and rolling complex of this plant are proposed.

Keywords. Industry, metallurgy, diversification, strategy, casting and rolling complex (CRC), freight flows, transport infrastructure, cars, market, technologies.

ДИВЕРСИФИКАЦИЯ ПРОИЗВОДСТВА КАК УСЛОВИЕ РАЗВИТИЯ ПРОМЫШЛЕННЫХ ПРЕДПРИЯТИЙ

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Аннотация. В данной статье рассматривается разработка стратегии диверсификации производства АК «Узметкомбинат». Предложены аналитические и графические методы расчета парка рабочих вагонов литейно-прокатного комплекса этого завода.

Ключевые слова. Промышленность, металлургия, диверсификация, стратегия, литейно-прокатный комплекс (ЛПК), грузопотоки, транспортная инфраструктура, автомобили, рынок, технологии.

As you know, in order to ensure the efficiency of industrial enterprises and the conduct of sustainable business in the long term, such a system is needed with the help of which it would be possible to implement an increase in the rate of development of economic entities. In this regard, the process of developing a development strategy acts as a modern development tool, an effective means of changes and adaptation of transformations, as well as increasing the competitiveness of an enterprise.

Consequently, the production diversification strategy is an important element of the organization of productive forces. Determining the directions of restructuring in the national economy, diversification serves as a tool for eliminating imbalances in reproduction, including the redistribution of resources.

Significant changes in the economic, social, scientific and technological conditions of industrial enterprises have radically changed the requirements for strategic planning. Fierce competition in the world economy, increased technological progress and a decline in economic growth have caused an expansion and change in production, for which the acquisition of modern technology, as well as the results of scientific research, has become insufficient. This largely explains the fact that diversification has become the most common form of capital concentration. As a result of diversification, enterprises turn into complex diversified complexes or conglomerates.

JSC "Uzmetkombinat" possesses a powerful production potential and if it is not used, deductions for depreciation will become a factor in the growth of the company's costs and reduce its competitiveness. Expanding the range and range of products or using an effective diversification strategy allows you to maintain the use of the enterprise's production capacity at a sufficiently high level and even relatively cheapen metal products, increase the income of the enterprise and the population, better use their potential, create a sales network. Diversification makes it possible to make fuller use of the market opportunities, take into account its changing conditions in terms of demand, and receive additional income by occupying profitable product niches in the market. Its advantages are manifested in the emergence of the ability of enterprises to quickly and efficiently adapt to market requirements, insure themselves against risks, increase the number of sources of income, make fuller use of labor potential, establish trouble-free production.

The main goal of diversification is to maximize profits by achieving competitiveness. However, the ways to achieve competitiveness and incentives for diversification have different specifics.

The metallurgical industry plays an important role in improving the country's macroeconomic performance. At the same time, the enterprises of the industry are increasingly faced with the question of determining the strategy of their development.

At present, the relevance of modern approaches to the development of directions of development for the future for domestic metallurgical enterprises operating in the developing world globalization processes is becoming increasingly important. These conditions are characterized by an unstable competitive environment. In this regard, it is necessary to develop such mechanisms that would help to ensure the effective use of existing competitive advantages and eliminate the factors of the industry's weaknesses.

Industrial transport is an essential element of the systems of transport

services for production, playing a key role in the delivery of goods and in social production in general. Railway transport takes the leading place in the transport service of enterprises in most industries.

In accordance with the decree of the President of the Republic of Uzbekistan No. PP-4937 "On measures to implement the investment program of the Republic of Uzbekistan for 2021 - 2023" dated December 28, 2020. Joint Stock Company "Uzmetkombinat" is implementing a large investment project "Construction of a casting and rolling complex" [2].

When implementing this project in JSC "Uzmetkombinat" the following results are expected [2]:

- doubled production of products, as well as the production of over 1.0 million tons per year of hot-rolled sheet products, of which more than 100 thousand tons for export and 900 thousand tons for the needs of the economy, including the Tashkent Metallurgical Plant;
- development of related industries (construction, machine-building, electrical, car-building) and diversification of the production of import-substituting products (non-standard metal structures, seam pipes, various sheets, building materials);
- reduction in imports of products and outflow of foreign currency (in 2019, 395 thousand tons of hot-rolled steel sheets in coils were imported (an increase of 134% by 2018) in the amount of $ 245 million (an increase of 126% by 2018).

It should be noted that the average annual growth rate of imports of hot-rolled steel in the republic for 2017-2019. amounted to 33% [2].

Along with this, the expected production volumes at the JSC "Uzmetkombinat" necessitate the development of a technological process for the operation of the access road of the plant, taking into account the increased cargo flows. Considering that the commissioning of the casting and rolling complex (CRC) in 2021, the freight traffic at the plant will more than double, it is

necessary today to identify "bottlenecks" in production and revise the transport infrastructure, to develop complex and organizational and technical measures.

The calculation of the working fleet of cars of the casting and rolling complex should be carried out on the basis of the adopted organization of transportation, a clear specialization of trains, assignment of cars to the main transportation and linking the operation of transport with the mode of operation of shops with the obligatory provision of the frequency of operation of transport during the day.

The working fleet of wagons is determined in the projects by the following analytical method: in technical projects - based on the calculation of the wagon turnover according to the enlarged time norms; in feasibility studies - on the basis of the recommended wagon turnover rate. The enlargement of the time norm is calculated taking into account the interoperative intervals.

In our opinion, the calculation of the number of cars can be determined by a graphical method, reflecting the place, time and sequence of operations for processing cars [3].

In this case, the working fleet of cars of the plant (N_p) is determined by the formula:

$$N_P = \sum N_i \qquad (1)$$

where: N_i - is a working fleet for each type of carriage (platforms, dump cars, gondola cars, etc..).

The working fleet of wagons (N_i)is calculated separately for each type of transportation, taking into account the type of cargo and the type of rolling stock according to the following formula:

$$N_i = \frac{N_c \cdot T_{об}}{24}, \qquad (2)$$

where: N_c - is estimated daily loading in wagons of a certain type, determined taking into account the daily coefficient of unevenness;

24 - number of hours in a day;

$T_{об}$ - time of complete revolution in hours, i.e. the duration of a full voyage from the start of loading a wagon to the start of its next loading.

At the same time, the total turnover of wagons in hours ($T_{об}$)is determined on the basis of the estimated (technological) time (T_p)for handling wagons at stations, at points of loading and unloading, staying along the route, taking into account interoperational downtime ($T_{пр}$) [3].

$$T_{об} = T_p + T_{пр}, \quad (3)$$

The estimated technological turnover of cars (T_p)is determined by the formula:

$$T_p = T_n + 2 \cdot T_{дв} + T_в, \quad (4)$$

where: T_n - duration of the processing of the train at the point of loading the wagons

$$T_n = t_n + 2 \cdot t_м + t_{ст}, \quad (5)$$

t_n - time for loading wagons, determined based on the data of the technological part of the project.

$t_м$ - the time for filing the cleaning of wagons, taking into account maneuvers, weighing and regulating the weight (during loading), is taken according to the daily schedule.

$t_{ст}$ - time for the formation (disbandment) of wagons at the loading and unloading station, processing of the train and delays for waiting for the locomotive, when servicing several freight points with one locomotive, and the release of the freight front.

The time for processing the train, forming (disbanding) cars and waiting is taken according to the "Technological process of interaction of the station" Bekabad "of JSC" Uzbekiston Temir Yullari "and JSC "Uzbek Metallurgical Plant".

Here - $T_в$ - the estimated time for processing the train at the unloading point is determined similarly $T_п$.

$T_{дв}$ - the travel time from the loading station to the unloading station, taking into account stops at stations along the route, is assumed to be equal in both directions, and therefore in the formula this time is doubled. $T_{дв}$ determined in accordance with the daily schedule.

The time for interoperational downtime ($T_{пр}$)is determined by the organization of train traffic, the rhythm of feeds and the shift in the work of shops and is taken into account depending on the category of trains.

The total turnover of cars ($T_{об}$)is determined by the category of trains.

For specialized trains ("turntables") and shunting trains, the movement of which is envisaged on the basis of contact graphics, the full turnover, taking into account the rhythm requirement, is calculated in such a way that if the technological turnover ($T_р$)of the turntable provides within a day (three-shift work) the development of the estimated daily loading ($N_с$)for a given number of cars in the train (m):

$$T_{об} = \frac{24 \cdot m}{N_с} = \frac{24}{n}, \quad (6)$$

where: $n = \frac{N_с}{m}$ is number of flights.

If, at the calculated technological turnover and net weight of the train, one turntable does not ensure the development of daily loading, then the required number of "turntables" is set, and then the full turnover is determined:

$$T_{об} = \frac{24 \cdot b}{n}, \quad (7)$$

When determining the required number of trains in circulation, it should be borne in mind that in some cases, the technology of the main production requires the continuous presence of wagons under loading, under unloading or under both cargo operations.

It should be noted that if such a requirement exists, the minimum number of fixed trains must be at least two - with the obligatory presence of wagons under one cargo operation, and at least three with the obligatory presence of cars under both cargo operations.

It should be borne in mind that in some cases it is possible to reduce the number of fixed trains by separating the carry-over of wagons to be at the point of loading (unloading).

For example, the transportation of sawn-off pieces is carried out by two “turntables” of 10 cars each. According to the production technology conditions (sawn-off cuttings are loaded from the mill conveyor directly into the wagons), it is necessary to constantly be under the loading of empty wagons. In this case, in addition to the two trains in circulation, it is possible to secure an additional carry-over of wagons, for example: 3-5 units, which will be loaded during the absence of both trains. With each next run, these cars will be replaced with empty ones, and the loaded ones will be included in the next “turntable”.

The total turnover of wagons ($T_{об}$),following with modular (or transfer) trains should be determined taking into account the intervals in the train schedule.

To do this, directly determining the time for processing groups of cars at loading and unloading stations ($T_п$ and $T_в$) it is necessary to take into account the intervals between the arrival of the group train and the next departure of the train in the opposite direction. This time depends on how the processing time of a group of wagons, including maneuvers and a cargo operation at the point of loading (and unloading), fits into the interval between the arrival of wagons at the station with a groupage train and the return departure of the same or the next groupage train. If the processing of a group of cars at the station does not fit into this interval, then this group will wait for the next train in the opposite direction, i.e. during the set interval between trains. The interval between trains of the same direction is equal to the number of hours per day divided by the number of

pairs of group trains and is 12 hours with two pairs of trains, 8 hours with three pairs and 6 hours with four.

To determine the total turnover ($T_{об}$)of wagons, it is necessary to summarize the values and, obtained taking into account the interiors, and the travel time on the hauls there and back (2) $T_п$ and $T_в$ round the resulting result to a value that is a multiple of the interval between group trains.

When transporting goods for workshops with incomplete daily work (2 shifts or less), it is recommended to take 24 hours for the turnover of groups of cars. The fleet of wagons for industrial transportation is supplemented by wagons used for the transportation of household goods. The number of wagons for economic transportation is accepted in the amount of 5% of the working fleet, but not less than 10 four-axle wagons.

When calculating the working fleet in the feasibility study, the turnover of factory cars is recommended to be taken for reconstructed metallurgical plants with a full cycle - 24 hours; for new, as well as for converting plants - 16 hours.

Currently, the formation of wagons for cargo objects in accordance with the established procedure at JSC "UMK" is carried out on the basis of the experience of the relevant personnel. Therefore, one of the urgent tasks is to improve the process of forming such trains based on the introduction of modern technologies.. The expected production volumes at UMK JSC necessitate a comprehensive calculation of the in-plant fleet of freight cars for the development of an increasing freight traffic after the launch of the timber processing complex CRC.

The revival of the dynamics of domestic demand will contribute to an increase in the share of manufacturing industries in the structure of industrial production. In general, a well-thought-out diversification strategy based on the effect of diversity is a promising way of developing modern large-scale production. At the same time, the diversification strategy is purely individual for

each industrial enterprise, which is the result of a thorough analysis of both internal capabilities and market needs.

List of used literature:

1. Decree No.UP-4947 dated 07.02.2017 No.UP of the President of the Republic of Uzbekistan "On the strategy of actions for the further development of the Republic of Uzbekistan"
2. http://www.uzbeksteel.uz/m/about/328
3. Materials of the report "Study of the correspondence of the processing capacity of the terminals of the new logistics center of JSC" Uzbek Metallurgical Plant "to the expected volume of freight traffic".
4. Decree of the President of the Republic of Uzbekistan dated 09.01.2018 No. PP-3468 "On the development program of Uzmetkombinat JSC for 2018-2020.»
5. Resolution of the President of the Republic of Uzbekistan "On measures to implement the investment program of the Republic of Uzbekistan for 2021-2023" No.PP-4937 dated December 28, 2020.