ANALYSIS OF CLIMATE-METEOROLOGICAL FACTORS AFFECTING ELECTRICITY CONSUMPTION OF MINING ENTERPRISES

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Abstract. Electricity consumption of mining enterprises depends on many factors. The influence of factors on the process of electricity consumption is complex and diverse, and it is impossible to describe it within the framework of deterministic methods, due to the uncertainty of the conditions that determine the influence of factors. These factors include mining geological, mining technological, climate-meteorological, energetic, organizational, operational and others.

Keywords: energy production, electricity consumption, average monthly consumption of electricity, average monthly resources of electricity, reclaimed man-made water, collection air temperature, mining geological and mining technological production.

In modern conditions, issues of energy resource consumption in mining enterprises are especially important, because one of the main reserves of the country's energy saving potential is located in this field.

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One of the main regions in gold mining is the Navoi region, where about 60% of the local gold is mined.

The territory of Navoi region borders Kazakhstan to the north and northeast, Jizzakh and Samarkand to the southeast, Kashkadarya to the south, and Bukhara to the southwest.

The external temperature range of Navoi region varies from -30 to +60 degrees depending on the season.

The 7th hydrometallurgical plant belonging to the Central Mining Department is located in the desert regions of the city of Zarafshan in the Navoi region, so the outside temperature changes constantly.

Climatic-meteorological factors demand electricitydetermines the seasonality of goods and forms the internal tendency of its change. The change of external air temperature of the 7th hydrometallurgical plant in 2021-2023 years and the average monthly trend of electricity consumption by the 7th hydrometallurgical plant are presented in Table 1 and Figures 1-2.

Table 1. Table 1 shows the monthly average trend of external temperature changes and electricity consumption at the 7th hydrometallurgical plant under the Central Mining Administration for 2021-2023.

Months	2022 year		2023 year	
	The air of the external environment temperature, °C	Average monthly consumption of electricity, a thousand kWh	The air of the external environment temperature, °C	Average monthly consumption of electricity, a thousand kWh
January	-17,2	25755	-19,3	28204
February	-16,7	24908	-17,7	26412
March	5,8	27899	6,5	27041
April	13,6	26844	14,7	27606

May	19,7	27602	21,3	28824
June	34,9	27310	35,7	25864
July	36,2	28069	37,4	27188
August	33,8	27942	34,9	27814
September	28,1	27863	29,3	27451
October	25,3	28867	26,7	28975
November	15,1	28118	16,4	28235
December	-16,9	29050	-17,1	29796
Total		330227		333409

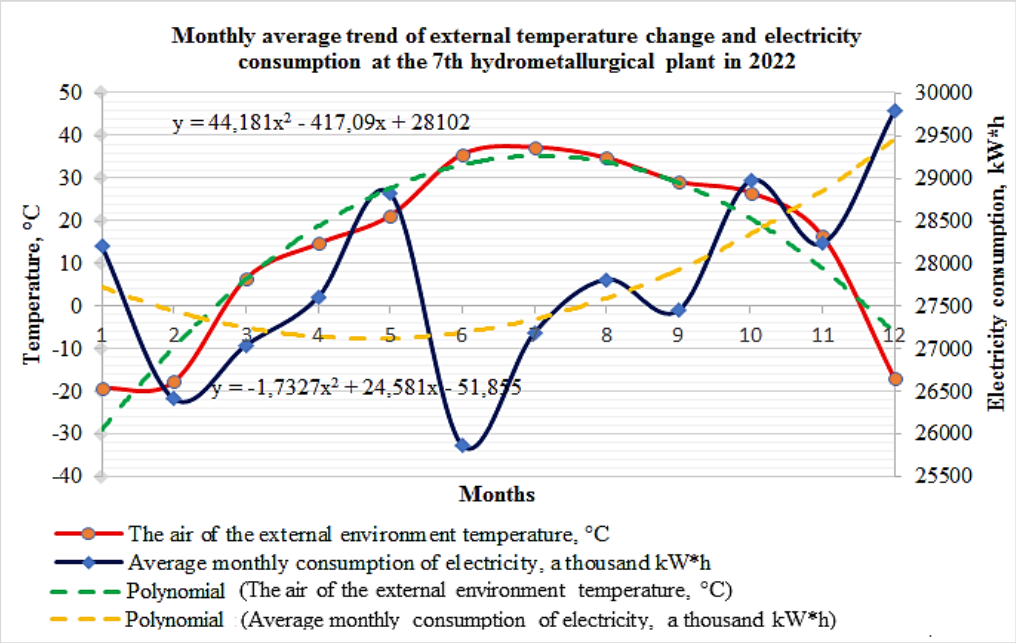

Fig. 1. Monthly average trend of outdoor temperature variation and electricity consumption at 7 hydrometallurgical plant in 2022.

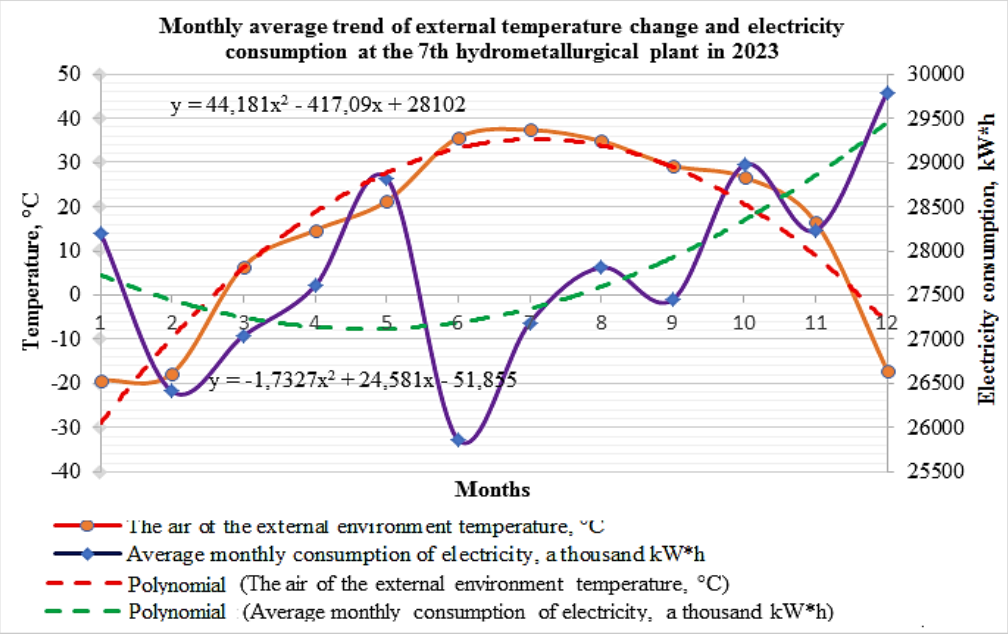

Fig. 2. Monthly average trend of outdoor temperature variation and electricity consumption at 7 th hydrometallurgical plant in 2023.

In the above analysis, we can directly see the effect of air temperature on electricity consumption. The monthly average trend of external temperature variation and electricity consumption at 7 th hydrometallurgical plant shows that the influence of electricity consumption is higher when the air temperature drops and rises.

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