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Lozhnikov O. V., D.Sc. (Technology), Professor, Mosinian M. D., student
(Dnipro University of Technology, Ukraine)

CHALLENGES IN UKRAINE'S LITHIUM RESOURCE SUPPLY FOR BATTERY COMPONENT MANUFACTURING

The global demand for electric vehicles is set to triple, reaching over 31 million units by 2027 and exceeding 74.5 million units by 2035 [5]. Even considering that the above forecast is quite general and due to the unpredictability of events that may affect this market, it can be assumed that the demand for lithium in the manufacture of components for electric vehicles and other electronic devices will only increase.

Despite the growing demand for electric vehicles and stationary energy storage, according to an analysis by BloombergNEF (BNEF) [2], the price of lithium-ion batteries fell by 14% to a record low of $139 per kWh. The reason for this was a drop in prices for raw materials and components as production capacity in all parts of the battery production and distribution chain increased, while demand growth was below some industry expectations. The price of lithium-ion batteries peaked in 2022 and has been falling since then.

Is it possible for Ukraine to become a significant player in the global lithium mining market? Unfortunately, no. In Ukraine, challenges hinder the country's potential in the lithium mining market. Beyond the ongoing war and territorial issues, obstacles include a lack of industry experience, investment, and robust infrastructure for battery production. Regulatory hurdles, such as obtaining mining permits and land rights, further complicate matters [1, 7].

Four lithium ore deposits have been explored in Ukraine. Two are in the Kirovohrad region – Polokhivske and Dobra. Two more are located in the temporarily occupied by Russia territories of Zaporizhzhia and Donetsk regions – Shevchenkivske and Kruta Balka [3]. Currently, only Polokhivske is in the process of preparatory work and the search for a strategic international investor despite the war. Determining the exact reserves of lithium in Ukraine is currently limited, as this information is classified as security sensitive by the SSU [9, 10]. However, in 2018, the State Commission for Reserves of Ukraine estimated the deposits of the Polokhivske deposit at 27 million tonnes of ore with a grade of more than 1%, which is approximately 270 thousand tonnes of lithium. According to Roman Opimakh, head of the State Geological Survey of Ukraine, Ukraine has enough lithium to produce almost 20 million electric cars or similar electronic devices [6].

It is worth noting that the ores of Ukrainian lithium deposits are petalite or spodumene-petalite, which are difficult to process, so the cost of development will be higher than that of South American competitors, where lithium is found in hydromineral ores in salt lakes. Today, the largest exporters of lithium in the world are China, Latin America's Argentina and Chile, and Australia. The distribution is uneven: the last two countries are responsible for almost 75 % of all lithium production [8].

None of the Ukrainian companies can successfully integrate into global production chains on their own. However, to attract international partners and investors to each stage of lithium production development, preparatory work that worth tens of millions of dollars is required. And Ukrainian business is taking action [4]. To contribute to the global lithium market, Ukraine aims to produce high-value products like petalite concentrate, lithium carbonate, and lithium hydroxide. UkrLithiumMining LLC, owner of the Polokhivske deposit, plans to re-evaluate reserves, construct a mine and processing plant, and integrate into international production chains. Exploring the option of producing only petalite concentrate could positively impact Ukraine's economy, creating new workplaces and increasing export revenues [1].

These steps are crucial for attracting international partners and investors. The path ahead may be challenging, but the commitment to overcoming obstacles and harnessing the full potential of its lithium resources positions Ukraine as a participant in the dynamic landscape of the global energy transition.

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