

**INNOVATION**

Materials prepared by the editorial staff of RBC + partner projects.

"Europe can achieve independence from imports of minerals"

Michael Wurmser, founder and majority shareholder of Norge Mining, spoke to RBC + about how the coronavirus crisis is stimulating European countries to develop their own deposits of strategically important resources.



Photo: press service

- The list of critically important mineral raw materials for the EU countries has increased from 27 to 30 items over the past three years. How strongly does Europe depend on imports of minerals and selected metals?

- Stocks of critical minerals are concentrated mainly in China. The country is the dominant player in the market and supplies 98% of rare earths to the EU. China accounts for 55% of the world's vanadium production and 45% of titanium. Approximately 71% of phosphorus is mined in Kazakhstan; there are

also significant reserves of this mineral in Morocco.

Serious dependence on imports of raw materials has led to the fact that Europe may be extremely limited in the possibilities of developing renewable energy sources.

One of the main goals of China's economic development for the next five years, according to Beijing's next plan, will be the country's technological autonomy. This means that China will restrict the export of strategically important mineral resources due to increased domestic demand.

Therefore, we need to act quickly. The European Commission has recently published a set of measures for critical minerals and it is imperative to start implementing this strategy as soon as possible.

- Has the pandemic made it clear that this dependence should be reduced?

"The problem has existed before, but the pandemic has made it worse. Many supply chains between Asia and the West have been disrupted. The production had to be stopped due to the interruption of supplies from China. Just imagine: in Europe, 30 million jobs depend on access to minerals. The interruption of its supply is causing serious damage to the European economy. For this reason, the EU is trying to achieve independence and independence from imported raw materials.

- The extraction of what resources can be increased by developing deposits in Europe?

- The region is also rich in resources: there are deposits of copper, nickel, some rare earth elements and minerals on land. Extraction of resources in the EU can be increased through the development of deposits of critical minerals such as vanadium, titanium and phosphorus.

Moreover, Europe has everything you need for development, production and transportation. For example, Norway has a very good infrastructure: we do not need to build ports, roads and railways, all this is already there. We can concentrate our efforts on finding and extracting the required resources.

- Norway has significant reserves of vanadium and titanium. What technologies are driving the demand for these metals?

"These valuable resources are needed to develop a wide range of technologies. They are used in, among other things, batteries, fuel cells, robotics, 3D printing, and the design of unmanned aerial vehicles.

Associated with these resources is the possibility of switching to renewable energy sources. For example, vanadium is a mineral that is used to conserve electricity generated. In fact, it is a much more environmentally friendly alternative to lithium used in batteries. As you know, the use of lithium is a big problem for the environment. Its extraction uses a huge amount of fresh water. If not recycled and disposed of properly, lithium continues to contaminate the soil after disposal. Environmentally sound recycling of lithium is a very expensive process.

Certainly the renewable energy market that requires storage capacity for electricity generated by, for example, wind and solar power plants will drive demand for vanadium.

Titanium, in turn, is in demand in the construction of unmanned aerial vehicles. He is already well known in the aviation industry.

- Will the fields developed by your company meet the demand in the region?

- Yes, definitely. This is the largest intrusion of its kind in the world, according to the Norwegian Geological Survey and independent exploration consultancy SRK.

Initial estimates assumed deposits of ore at a depth of 300-400 m. After we

began our deep exploration program, we discovered much more ore deposits than we originally thought. We carried out aeromagnetic reconnaissance and found out that the depth of the deposits reaches 4.5 km.

The production time will be at least a hundred years, taking into account the supply of raw materials not only to Europe, but also to Asia, and around the world. That is, these reserves satisfy not only regional but also international demand and allow the European Union to play an important role in the international supply of these minerals.

- What stage of development are you at?

"After discovering how huge the reserves are, we decided to carry out an extensive drilling program, including the deepest well in Norway. At this stage, we have drilled 45 wells with a total depth of over 20 thousand meters. Before Christmas, we will receive even more accurate reserves estimates. We plan to expand our exploration program as we have identified seven large, potentially commercially viable deposits within the more than 400 sq. km (this is about four times the area of Paris).

- What technologies do you use?

- We carry out airborne geophysical measurements. This is a fairly expensive technology for most start-up mining companies.

Magnetic exploration itself is not new. But we applied an innovative system of electromagnetic analysis of the developed area. Data modeling uses a new geophysical theory and a modern method for analyzing primary information and is considered a high-tech solution.

We also adhere to the principles of responsible investment (Environmental, Social and Corporate Governance, ESG), which is quite rare for a business at the exploration stage, we develop our own database for managing stakeholder engagement.

- The European Union calls for a "green" economic recovery. Tell us about the company's sustainable development strategy.

- The EU Sustainable Development Plan will require a substantial amount of raw materials. At the moment, the supply chains of these raw materials and technologies are poorly regulated and cause irreparable damage to the environment.

Responsible resource extraction is essential for sustainable energy transformation and the transition to electric transport. And this is the core of Norge Mining's business model.

Our strategy consists of two pillars. First, we strive to become a supplier of sustainable raw materials for producers of renewable energy and other technologies. Secondly, to encourage other mining companies to take a more responsible approach.

Many of the customers in the industry are consumer-driven companies that can help improve the sustainability of the entire supply chain and transform ecosystems like a domino effect.

- At what stage are you ready to attract foreign investment?

- We have completely independent private funding. The main investors are private individuals from Switzerland and Germany. In order to more actively develop deposits, taking into account the size of the territory, we are ready to attract external funding at the next stage of exploration.

Our active exploration program is expanding a known volume of fossil resources. This is the most effective way to increase shareholder value, especially during the coronavirus crisis. Moreover, for us, the pandemic has significantly reduced the cost of the drilling process. We are one of the few who are now actively drilling.

You need to understand that investing in our project will allow you to become a participant in the extraction in the very center of Europe of strategically

important resources for the region and in demand all over the world. This is a geostrategic investment.

Not only European capital, but also Asian business, Chinese in particular, is already interested in accessing these resources.