

**Although Serbia has at least officially abandoned lithium mining, according to the Handelsblat daily, our country is one of those countries that, according to Germany's plan, should be encouraged to exploit lithium, in order to strengthen European battery production and reduce dependence on China.**

It is in question, according to a secret document submitted by Berlin to the European Commission, which lists 20 specific proposals and projects that should start the EU's "Global Gateway" initiative from a deadlock in response to China's "Belt and Road" project and infrastructure investments.

And how are things in the European Union when it comes to lithium mines?

Although it is planned to reach zero carbon dioxide (CO<sub>2</sub>) pollution by 2050, and tens of millions of electric cars will be on the streets by 2030, not a single lithium mine has yet been opened in the European Union. Instead, there are projects that are in the development phase. More precisely, lithium is extracted only in Portugal, but for the needs of ceramics, while the opening of a large mine like the one planned in Serbia is still awaited.

The reasons are expected, namely the negative impact of the mine on the environment.

### **Barroso Project, Portugal**

The Barroso project in Portugal was supposed to be the first large-scale lithium mine in the European Union. It is not known whether it will actually happen. The opening, which was planned several times, was postponed, sometimes for a certain time, and sometimes for an indefinite time.

In 2021, the first temporary permit was obtained after the preliminary environmental impact report. However, it stopped there, because water pollution, energy consumption, steps after digging and crushing were not solved. In addition, the mine is strongly opposed by the local population and environmental associations. Similar to what was seen in Serbia. However, optimists when it comes to the opening of the mine believe that it could start operating in 2023, since the government gave the "green light" at the beginning of this year. However, the municipalities where the mines are to be opened have announced the initiation of the procedure to ban mining.

It was originally announced that 10 percent of the world's reserves were located there, but until today the projection was reduced to one percent. The estimated capacity is 27 million metric tons, and the company that wants to mine in Portugal is Savannah resources.

While there is uncertainty about this mine, the Portuguese government has announced that they will not be in a hurry to grant permits for further research when it comes to lithium.

Apart from Portugal, several more lithium mines are planned in the European Union.

## **Vulcan Project, Germany**

After Portugal, about which there is the most data, perhaps the most famous example is in Germany, where work is being done on a project where lithium would be obtained with the help of geothermal energy for the extraction of lithium-rich salt water from the Upper Rhine. The final product lithium hydroxide would then be obtained by electrolysis. That lithium should have a zero point of carbon pollution, however in Germany they want to avoid water pollution as well.

The entire project was conceived as an isolated system where the water would be completely purified and only then released. This is a new approach with obtaining lithium from water, according to the first estimates it pollutes the environment far less than mines. Research is underway, started in 2021, and this year the State Institute for Geology and Mining determined that the impact of the planned wells on the environment, taking into account their size, scope and intensity of action, cannot be assessed as significant. If everything goes according to plan, the beginning of commercial exploitation is possible from 2025.

## **The Emily Project, France**

The French company Imeris has announced that in 2028 it will start mining a lithium deposit in the Central Massif, which should last 25 years. Since the second half of the 19th century, the site has been home to a quarry that produces 30,000 metric tons of kaolin per year for tile production.

This company states that with 34,000 metric tons of lithium hydroxide per year, they would enable around 700,000 electric vehicles to be equipped with lithium ion batteries.

## **Cinovec, Czech Republic**

The Cinovec project, located 100 km from Prague in the Czech Republic, is being implemented by European Metals Holding. It aims to produce nearly 30,000 metric tons of lithium for batteries annually over a period of 25 years.

According to a 2022 feasibility study by European Metals, Cinovec has the potential to become the cheapest lithium rock producer in the world. The ore could produce at \$5,000 to \$6,000 per metric ton.

It is not yet known whether that will happen, just as it is not known when the mine could start operating. According to their statement, Sinovec is the fourth largest deposit without salt water in the world. With the completion of the investment in April 2020, the project started the work program, but not the production.

An updated Preliminary Feasibility Study (PFS) for the project was completed in June 2019

when the Final Feasibility Study was initiated but not yet complete. This mine is located close to companies that make cars, but also to Tesla's giga battery factory.

### **Wolfsberg Project, Austria**

European Lithium is developing the Wolfsberg project in Carinthia, 270 km south of Vienna. This mine project plans to mine 10,000 metric tons of lithium hydroxide per year.

According to the company, this will equip the batteries of around 200,000 electric vehicles. They hope to achieve an operating rate of 800,000 metric tons per year with a mine life of over 10 years. The company expects to start production in 2025.

### **Project Keliber, Finland**

Finnish mining and battery chemicals company Keliber is currently running a project in western Finland with the goal of reaching production of 15,000 metric tons of lithium hydroxide per year starting in 2025. The company also strives for sustainable production. The lithium they plan to extract will, they say, have a smaller carbon footprint than the competition. This is because the refinery is located 70 km from the mine. More than half of the electricity in the Finnish national grid is produced from renewable energy sources. As a result, the refining process will be more environmentally friendly.

In addition to the above, there are several other projects in Europe that are in the development phase. Also in Serbia, the presence of lithium is being investigated at several other deposits.

As things currently stand, more serious production of lithium in Europe or the European Union will not begin before 2025, when the first shortages of this ore are already being overlooked.

The pressure of industries and large capital will certainly increase, and the rise in the price of lithium, which is expected to increase several times over the next decade, is also certain. Whether the European Union will succeed in reconciling mining projects with environmental standards or whether it will enter the green transition with potential devastation on its own or surrounding soil, will be seen soon. The European Union certainly needs supply chains that are closer to the Continent, but also, as you can see, supply that is not Chinese. The European Green Deal from 2020 indicated that some standards regarding environmental protection will be lowered, while the RipauerEU plan ( REPowerEU ), published after Russia's attack on Ukraine, the European Commission additionally prioritized switching to renewable sources as part of efforts to the use of Russian fossil fuels is rapidly reduced.

In any case, we will look at the mix of political, economic and environmental interests with

the hope that it is possible to achieve sustainability, N1 writes.