

INTERVIEW WITH FOUNDER OF NORGE MINING

Phosphate funding for e-mobility

CONTENT OF

The mining company Norge Mining wants to extract the raw material phosphate, which is so important for e-mobility, in the future. How, founder Michael Wurmser explains in an interview.

Martin Ehrenwetter • 05/22/2022

Car manufacturers in particular have recently felt how vulnerable supply chains can be in times of pandemic and war. Is there a rethink now? Industry and politics must and want to change their strategy in the future. One of the reasons why the EU Commission is trying to find new strategic partnerships with third countries. Currently under discussion: Greenland, Canada – and Norway. At the latter location, the mining company Norge Mining intends to mine the raw material phosphate, which is important for electromobility.

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The Norwegian mining company Norge Mining wants to extract the raw material phosphate, which is important for electromobility, in the future. The EU already classifies phosphate as critical.

Mr. Wurmser, why does industry – especially the automotive industry – need phosphate?

As a basic battery material, phosphate is important for the mobility revolution and also for fertilizer production, i.e. for food security. Phosphate is also a component of the new lithium-iron-phosphate battery, which Tesla, Volkswagen and other car manufacturers are already installing in their vehicles. The phosphate and iron can replace other harmful battery ingredients such as cobalt nickel or cadmium.

One of the things you want to promote in Norway is precisely this phosphate. What quantities are expected there?

Here in Norway alone we are talking about deposits of around 70 billion tons of phosphate rock. To classify: So far, the largest deposits were in Morocco with 50 billion tons, in China with 3.5 billion tons, Algeria with around 2.2 billion tons and Syria with 1.8 billion tons. The mining area is located in southern Norway near Stavanger, and is about twice the size of Paris. We have 61 licenses in an area of 560 square kilometers. At the moment we are calculating with various production scenarios that are between 10 and 35 million tons per year. With a good utilization of the mine, we currently expect an output of 20 million tons per year.

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In order to precisely determine the size and position of the ore body, we first had to carry out so-called electromagnetic reconnaissance flights with a helicopter. With the help of state-of-the-art sonar technology, the area could then be precisely delimited and determined. Thanks to the accurate measurement technology of the measurement data generated and the size of the data set, we were able to create a fairly accurate 3D representation of the orebody in the ground. The ore body of the discovered phosphate rock alone reaches 4.5 kilometers deep. There is at least 70 billion tons of phosphate rock down to a depth of 1500 meters. This also includes globally significant deposits of titanium and vanadium. We can mine critical raw materials locally in southern Norway for at least the next 75 years, without them running out - and this only on an area that accounts for just ten percent of the total potential. If everything goes according to plan, we can start within the next 5 years.

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In Norway alone, Norge Mining expects deposits of around 70 billion tons of phosphate rock. Phosphate is a component of the new lithium-iron-phosphate batteries, which are already being used by Tesla, among others.

In 2020, the EU will again classify phosphate as a "critical raw material". How is iron phosphate actually obtained?

It is mined in open pits. The phosphate is then extracted from the ore using a purely mechanical process. After the ore rock has been ground up, the iron phosphate particles can be extracted from the suspended water using magnetic force and thus recovered. Since there is only magmatic rock in our mining area, in our case, in comparison to other mining processes, this happens without the addition of chemicals. The Moroccan sedimentary rock, for example, contains carcinogenic cadmium, which must first be removed from the rock using a chemical process.

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Is the production largely CO2-neutral – how big is the footprint?

Sustainability and mining is possible and doable. Our footprint will be little to no visible. Overall, our business models completely geared towards sustainability. We will only use renewable energy from water and wind power to power our company. Due to their magmatic nature, the minerals can be completely extracted and separated from the ore rock without chemical additives and huge amounts of water. After the

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extraction of raw materials, we are planning a renaturation of the respective mining area, which is sparsely populated. Excess overburden is sold to the Netherlands, Denmark and Scotland, among others, for landfill on their coasts threatened by rising sea levels, and for offshore wind farms.

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Founder of Norge Mining, Michael Wurmser, believes that phosphate mining can start soon: "If everything goes according to plan, we can start within the next 5 years."

The extraction costs are likely to be correspondingly higher compared to mining methods from other countries – or not?

Although we are more expensive in terms of labor costs, there are no punitive tariffs on Norwegian raw materials, for example, as is the case with Moroccan or Russian raw materials imported into the USA. Safety and sustainability, by the way, with a view to the supply chain law and the 17 global sustainability standards, have a price that is no longer high in comparison when companies are forced to make investments in order to meet minimum sustainability standards. If you also consider the potential costs in the event of an interruption in the supply chain, for example from unsafe countries such as China or Russia, as recently seen with the pandemic and the war in Ukraine, it becomes so much more cost-effective and reliable to rely on Norway anyway. Uncertainty is unpredictable and expensive.

Are there already contractual customers for your project?

There are big expressions of interest from the automotive, aerospace and fertilizer sectors from the automotive or aerospace sectors and the fertilizer industry. And the pressure in the various commodity-dependent industries is growing. In the EU alone, at least 30 million jobs depend directly or indirectly on the import and processing of raw materials.

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Exploratory drilling in southern Norway confirmed the occurrence of the critical raw materials phosphate, titanium and vanadium. Norway could thus become an important supplier of raw materials for the energy and mobility transition in the future.

To what extent is the EU promoting your project – has Russia's war changed anything about the EU's approach?

In the meantime, the EU has recognized the relevance of critical raw materials and we are already holding concrete talks at various levels of the EU, but it would be nice if the EU also understood the topic of critical raw materials and raw material self-sufficiency as an EU-wide industrial policy task. It is about the economic future of Europe and its global competitiveness. The current supply crisis with energy and raw materials affects Europe above all, which currently obtains well over 70 percent of its critical raw materials from China and Russia and has entered into a politically and economically dangerous and negligent dependency. An uncomfortable situation in view of the currently high geopolitical and trade policy dynamics with fragile supply chains. Politics and industry have to completely rethink here, in order to quickly free oneself from this dependency. The EU has no choice but to switch to onshore mining in Europe, which is ultimately much better for the EU because it makes it independent on the issue. The war has not only brought great volatility to the supply chains, but overnight Russia and Ukraine have completely failed as raw material suppliers. This will all accelerate to put the Green Deal into practice.



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And what does Norway think of your project?

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Local and national authorities in Norway stand behind us with a strong commitment and support at all levels. Norway has already made advance payments in this regard and has geographically postponed the planned construction of a motorway from Denmark to Norway to such an extent that the route no longer runs through our area.

Changing the route of this section of the highway will cost the state nearly 330 million euros. In addition, the Norwegian state is currently changing the mining law in order to create opportunities for faster and less bureaucratic extraction of raw materials.

CONCLUSION

We actually have many of the raw materials that we need when switching from combustion engines to electric motors in Europe. Ventures like that of Norge Mining show how Europe can at least partially detach itself from its import dependency on critical raw materials in times of pandemic and war.

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