

Norway lithium-ion batteries

Written by Anna-Sophie Hobi, PhD Fellow, NoragricSeveral companies are currently planning to build battery cell Gigafactories in Norway. Although the emerging industry is promising new "green" economic growth for the oil-dependent country, it is reliant on lithium and other raw materials that are extracted elsewhere.

With several Gigafactories planned to be built over the coming decade, Norway is taking strides in the battery business. The country's new "industrial adventure" is promising a "green" and "sustainable" form of economic value creation, bringing jobs and innovation. However, batteries depend on minerals, such as lithium, which are extracted abroad. Therefore, it is important to inquire on what material basis the emerging industry is built, and with what consequences beyond our borders.

Norwegian battery visions

In the past months, electric vehicle (EV) batteries have received enormous attention in Norway - not only due to the country's high percentage of fossil-free cars on the roads. Several companies are developing factories to produce the world's "greenest" battery cells, primarily based on lithium-ion technology.

After a new large-scale battery project was announced last December, the national broadcaster NRK reported that potential hosts were "queuing to become battery-municipalities". The world's largest aluminum producer Hydro, the state-owned former oil and gas - now energy - company Equinor and Panasonic initiated a battery partnership. Their so-called Joint Battery Initiative is looking for a suitable location for their plants - 82 municipalities across the country have applied to host it.

In the meantime, three other projects aspire to deliver lithium-ion batteries within half a decade. One of them is in Mo i Rana, an industrial town just below the arctic circle. Freyr, which recently got listed on the New York Stock Exchange, is constructing four battery plants with up to 43 GWh capacity by 2025. These factories could produce cells for up to 800'000 electric cars a year. The Rana municipality is optimistic: Expecting 1500 new jobs, it bought shares in Freyr worth 10 million NOK last year, and is even considering to build a new airport.

The new battery industry in Norway promises economic growth, up to 30'000 jobs, regional development and technological innovation. In its latest climate action plan, the government identified industries along the battery supply chain as key to "green growth. Battery technology also speaks to desires of mitigating climate change: According to Morten Halleraker, Head of Batteries at Hydro, lithium-ion batteries are "one of the solutions to our generation's biggest challenges: global warming".

The initiatives in Norway are in line with the European efforts to ramp up battery production. More

importantly, however, batteries and other renewable technologies are envisioned by industry experts to guarantee Norway's future as an "energy superpower" in light of decreasing demand for fossil fuels. In other words: "Putting its industrial capacity and financial strength to use in the green transition could turn the country from a "climate villain" to a green giant", a recent UCL policy brief stated.

Even though it remains to be seen how, and if at all, the Norwegian battery dream becomes reality, it is certain that a shift from oil and gas production to renewable energy technology would still depend on forms of extraction. Battery manufacturing relies on vast amounts of minerals such as lithium, which are mostly sourced from abroad.

Critical towards the "green" and "responsible" promise

The battery projects aim to manufacture "green" batteries in Norway. A low carbon footprint is on one hand guaranteed by Norway's electricity supply - 98 percent of its electricity comes from renewable sources. On the other hand, "green" batteries are understood as being based on low-carbon and responsibly sourced raw materials. For instance, on their website, Freyr declares their intention to develop a "green" value chain and to produce "clean" battery cells made from raw materials "with the lowest possible carbon footprint and socially responsible production".

The Norwegian Naturverforbundet is not only questioning how, but also on what scale and intensity, the extractive rush for lithium and other battery raw material are taking place. Their criticism is relevant: Phasing out fossil-fuel driven cars - i.e. Norway bans their sale from 2025 - the demand for "critical raw materials" is rising quickly. The latest International Energy Association report, for instance, expects the demand for lithium in batteries to grow 30-fold until 2030 and more than 100-fold by 2050. As a consequence, lithium mining will inevitably increase.

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