



Freitag, 1. März 2024, 11.40 Uhr
Baden Arena Kongress 2 – Oberflächennahe Geothermie

Friday, 1 March 2024, 11.40 am
Baden Arena Congress 2 – Shallow Geothermal Energy



Ageli, two experts cooperating to produce lithium with low environmental impacts from geothermal brine in the French Upper Rhine Graben

Ageli, zwei Experten, die zusammenarbeiten, um Lithium mit geringen Umweltauswirkungen aus geothermischer Sole im französischen Oberrheingraben zu gewinnen

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Électricité de Strasbourg (ÉS), and Eramet have signed a cooperation agreement on January the 23rd 2023 and joined their knowhow and expertise to develop the Ageli (Alsace Géothermie Lithium) project. ÉS is a leading regional company in Alsace, active in renewable energy production, distribution, electricity and gas supply. ÉS is currently operating two geothermal plants in the French Upper Rhine Graben: Soultz-sous-Forêts and Rittershoffen. Eramet is a global mining and metallurgy group developing the critical metals for the energy transition. ERAMET has developed a direct lithium extraction (DLE) process and will start a 24,000 t/year LCE plant at Centenario in Argentina in first half-year 2024. This DLE increases lithium yield to more than 90% and speeds the production process to just days.

The Ageli project aims to produce at least 10 000 t/year of Li₂CO₃ with low environmental impacts from a geothermal reservoir located in the northern part of the French Upper Rhine Graben (URG). Most of the geothermal plants in the URG have a Li concentration over 150 mg/L and feasibility of extracting it under pressurized conditions was demonstrated within a research project (Fries et al, 2022). Previous scoping studies has shown that an approximate flowrate of 1500 m³/h of geothermal brine is required to reach this target. Based on operating data, at least five production wells and five injection wells would be needed to achieve the 1500 m³/h.

ÉS and ERAMET started in 2023 a prefeasibility study (PFS) following best up to date mining standard. This PFS include different workpackages (WP) focused on subsurface engineering, surface engineering, permitting, Corporate Social Responsibility (CSR) and business plan. In early 2024, Subsurface studies will confirm the number of wells and locations, the number of geothermal plants. A pilot plant has been installed at the Rittershoffen geothermal plant, for a long-term testing in order to confirm the stability of the sorbent in operating condition (20 bar and 85°C). Results of the pilot will be completed with lab testing and will provide important data for the surface engineering WP. Energy synergies between geothermal plants and the lithium process will be a key point of the Ageli project. As public acceptability is a key for the success of this project, a communication and Engagement plan dedicated to this project is implemented.

End of this PFS is expected in October 2024 and this collaboration will move to a Detailed Feasibility Study (DFS) early 2025. Start of the execution of the complete geothermal-lithium Ageli project is expected from 2027 and a commercial production of Li₂CO₃ will be achieved by 2030.

Fries, D., Lebouil, S., Maurer, V., Martin, C., Baujard, C., Ravier, G., Boguais, R., Amari, S., Lithium extraction through pilot scale tests under real geothermal conditions of the Upper Rhine Graben. Proceedings, European Geothermal Congress, Berlin, Germany, 17-21 October 2022.