

# Geothermal lithium in Alsace at the heart of the energy transition in France

DR. ROMAIN MILLOT, PHD

Lithium de France

As the first independent French operator of geothermal heat and lithium, Lithium de France aims to achieve two primary goals: 1/ make the use of geothermal heat a cornerstone of the energy transition and 2/ create and promote a low-carbon French and European geothermal lithium production industry. With four exploration licenses, over 320 km<sup>2</sup> of high-quality 3D geophysical data acquired, processed, and interpreted, a purpose-built lithium laboratory, and a positive completed prefeasibility study, Lithium de France is now preparing its drilling campaign and starting the construction of a demonstrator plant.

The combined production of heat and lithium from hot and deep geothermal waters could be a local and sustainable solution for reducing our carbon footprint to produce energy and critical raw materials. The geothermal lithium concept is based on the combined use of heat from hot, deep water and the extraction of lithium naturally present in the brine. Lithium is an alkaline metal with interesting electrochemical properties that make it an essential mineral resource in the battery industry. On Earth, lithium is concentrated in the Earth's crust in solid form (rocks and minerals) or liquid form (salt lakes and geothermal waters).

The supply risks are particularly important for lithium and concern both economic and geopolitical criticality, as well as societal, ethical, and climatic impacts. In such a context, the development of a local industrial sector for lithium production from geothermal resources can have a strong impact on our territories. Coupling heat production and lithium extraction from geothermal water should allow the Upper Rhine graben area in Germany and France not only to develop a competitive industrial sector but also to contribute to the reduction of environmental impacts by producing, at a local scale, renewable energy and lithium with a low carbon footprint.

In this presentation, I will focus on several aspects of collaboration between research institutions and industry.

