Newsletter Eleventh Edition on LinkedIn

Vulcan obtains €2.2 billion in financing for the URVLP.

Vulcan are going to have to go hammer and tongs to start production in 2028...

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Published: 4th December 2025

Vulcan's Lionheart Project Area. Source: Vulcan Energy Phase One Financing and FID Presentation December 2025. P34.

Welcome to this eleventh issue of the Lithium Briefing from thelithiumreport.com.

Vulcan Energy have announced that they have secured **€2.2 billion** to finance the first stage CAPEX of their **"Zero Carbon Lithium™"** project in Germany's Upper Rhine Valley. The project will generate geothermal power and extract lithium from the deep underground brines along the Franco – German border. The aim is to produce **24,000 tonnes per year of lithium hydroxide** and generate geothermal electricity to power the DLE extraction process.

Vulcan Energy was formed in 2018 and **first production was intended to be in 2022**. They have announced **six offtake** agreements, with Umicore, Renault, Stellantis, Volkswagen, LG and Glencore. They have also received high-profile investments from Hancock Prospecting (Australia), Chevron and Stellantis. The owner of Hancock, Gina Rinehart, is Australia's richest woman.

To start lithium production of 2000 tpa LHM, Vulcan acquired an **existing 4.8 MW geothermal plant** at **Insheim** in **2021**.

The following map from our report shows the project location area:

The green circles in the above map show the two existing geothermal plants, both now belonging to Vulcan. Landau was shuttered due to fouling of its pipes by salt precipitation. A magnitude 2.7 seismic event was also generated by the Landau reinjection well in 2009. Vulcan's “Lionheart” wellfield will be built in between these two existing plants. The first well was drilled earlier in 2025, somewhat to the north east of Insheim.

To date, **lithium production has not been started from Insheim**. It will in fact be incorporated into the whole larger project. Vulcan probably decided that there was no point building a small DLE plant just for the 80 litres per second of brine flow from Insheim since it would become redundant when the full scale plant, processing **950 l/s**, comes on stream.

Economics

In March 2023, CAPEX was estimated at €1.5 billion. 44% of this was for the geothermal aspect. Later that year, Vulcan reduced the scope pf the project from two wellfields and ORC powerplants to just one, reducing costs by only €100 M. Since then, costs have increased to €1.9 billion and now €2.2 billion. This means the **final bill** could easily be **€2.5 billion** by the time construction is complete.

This gives the project the **highest capital intensity of any lithium mine we are aware of**: €104,000 per tonne LCE.

A year ago, **OPEX** was put at **€4,360** per tonne LHM, or nearly **€5.000 per tonne LCE**.

The brine concentration will fall over time as lithium is extracted – Vulcan estimate a 1.8% drop in concentration per year which is conservative. Over a 20 year mine life they project total production of 595,000 tonnes LHM or 526,000 tonnes LCE. This gives an initial CAPEX component of **€4,200 per tonne LCE** of total production, in today's money, not including sustaining capital. This means the project requires a long term market price of at least €10,000 per tonne LCE to be viable.

Our own production forecast is **more conservative**, using less optimistic plant capacity and recovery factors. This gives a total 20 year LoM production of 313,000 tonnes LCE, which would increase the initial CAPEX component to €7,000/t LCE.

Geothermal

Vulcan intend to drill 11 production wells near Insheim/ Landau. This is nearly as many as the total number of production wells (13) already in operation in the entire Upper Rhine Graben. The **capacity of the ORC powerplant**, 32 MWe, is **3 times larger** than the **total current installed capacity** of the URG geothermal field, including Landau which is now shuttered. Total geothermal electrical capacity in Germany is 45 MWe.

Geothermal power is very **controversial in Germany** and there is significant societal opposition due to the risk of earthquakes, perceived or otherwise. **Seismic events** have already occurred at both Insheim and Landau. Vulcan will of course be keenly aware of this and are sure to proceed cautiously. This may mean the project proceeds more slowly than anticipated. One issue is that until drilling actually starts, they cannot say for certain what they will encounter – **particularly whether flow rates will meet expectations**.

Conclusion

Overall this is a **very ambitious and expensive project**. As a geothermal project, its electrical power output is three times higher than the existing total geothermal capacity of the URG and 70% of total installed German geothermal electrical power. The CAPEX of €926 M (in 2024) for 32 MWe equates to 8.3 cents per Watt, very expensive compared to solar power for instance.

As a lithium project, capital intensity is high: over €100,000 per tonne of capacity and over €4,000 per tonne of lithium carbonate production over the life of the mine.

However, independence from China is critical so Europe will just have to swallow the costs or lose its car industry.

As with all of these lithium mining projects, the original timescale has slipped multiple times: from 2022 to 2023, then 2026; in November 2024 it was then set for 2027 and now **first production is scheduled for 2028** – 10 years after Vulcan was formed.

To achieve first production in 2028, Vulcan are going to have to wield their hammer to build 24 wells, 16 km of piping, a DLE plant and an Organic Rankine Cycle combined heat and power plant in 2 to 3 years.

Let's hope Vulcan remains on cordial terms with Terra Mater.

The Lithium Report 2025 – 2035: The Next 10 Years. Everything you need to know about upstream lithium supply.

Article available on line at

https://www.linkedin.com/pulse/vulcan-obtains-22-billion-financing-urvlp-william-tahil-hnpte