

## Vulcan becomes renewable energy producer with geothermal plant acquisition

**1. Insheim renewable energy plant acquisition. 2. Brine offtake agreement with Landau plant. 3. Incorporation of plans into revised DFS**

### 1. Insheim renewable energy plant acquisition

- Vulcan Energy Resources Ltd. (Vulcan, the Company, ASX: VUL), has agreed to acquire an operational geothermal renewable energy power plant in the Upper Rhine Valley at Insheim, Germany (the "Insheim Plant"), through the acquisition of 100% of the shares in the entity which owns and operates the plant. A new Germany subsidiary of Vulcan, based in Karlsruhe, will be the owner and operator of the Insheim Plant.
- Purchased for approximately €31.5 million, utilising a portion of proceeds from the recent A\$200 million capital raise, the acquisition of the Insheim Plant establishes Vulcan as an operational renewable energy business.
- Owned by regional energy supplier Pfalzwerke AG, the plant currently has the technical ability to produce a maximum of 4.8MW renewable power, equivalent to approximately 8,000 households, with an additional ability to produce heating<sup>1</sup>. The plant is producing 2.9 MW of electricity on average.
- It is anticipated that the Insheim Plant will be a source of revenue for Vulcan, having reported sales of €5.8 million and an EBITDA of €2.9 million for the financial year ending 31 December 2020. The plant presently capitalises on the Feed-in Tariff for geothermal power.
- The acquisition also includes 100% ownership of the Insheim production licence surrounding the Insheim Plant. Following an MoU signed in November 2019, Vulcan had already completed the Maiden Indicated Lithium-Brine Mineral Resource Estimation at the Insheim license in January 2020, reporting an Indicated Mineral Resource of 722,000 t of contained Lithium Carbonate Equivalent (LCE), with a lithium brine grade of 181 mg/l Li<sup>2</sup>.
- The Insheim Plant currently pumps lithium-rich brine to the surface for geothermal energy generation before the brine is reinjected into the reservoir.
- Vulcan will formally take over the plant from 1 January 2022 and will retain all existing local employees as part of the transition. Vulcan also plans to invest in the expansion and modernisation of the power plant.

### Highlights

Globally unique **Zero Carbon Lithium™** Project.

**Combined lithium chemicals & renewable energy project** in the Upper Rhine Valley of Germany.

EU's **largest** lithium resource.

Located at the heart of the EU Li-ion battery industry.

Fast-track development towards supplying the EU's battery & electric vehicle industry.

### Corporate Directory

Managing Director  
Dr Francis Wedin

Chairman  
Gavin Rezos

Executive Director Germany  
Dr Horst Kreuter

Non-Executive Director  
Ranya Alkadamani

Non-Executive Director  
Annie Liu

Non-Executive Director  
Dr Heidi Grön

Non-Executive Director  
Josephine Bush

Company Secretary  
Daniel Tydde

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<sup>1</sup> <https://www.thinkgeoenergy.com/webinar-virtual-tour-of-insheim-geothermal-plant-june-11-2021/>

<sup>2</sup> Refer to the section "Competent Person Statement" at the end of this announcement for further information regarding the Insheim resource estimate.

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Vulcan's Managing Director Dr. Francis Wedin commented: *"the acquisition of the Insheim Plant is consistent with Vulcan's strategy to acquire and upgrade existing brownfield renewable energy and brine infrastructure and to de-risk and grow our Zero Carbon Lithium™ Project. Funded with a portion of the proceeds from our recent \$200 million capital raising, which was strongly supported by existing and new institutional investors, the acquisition demonstrates our willingness and ability to capitalise on strategic opportunities to ensure timely project development."*

*This is a significant, first step in establishing Vulcan as a revenue generating, renewable energy producer. German State and Federal policy increasingly supports decarbonising heating and power grids, with a focus on decentralised, renewable energy, and Vulcan intends to build a number of distributed geothermal renewable energy plants across the Upper Rhine Valley region. Vulcan subsidiaries GeoThermal Engineering GmbH and gec-co (Global Engineering & Consulting-Company GmbH) have already been successfully active in Insheim for many years. We will capitalise on our local knowledge and expertise to continue to make a positive contribution to the energy transition in the region, while discussions with multiple local stakeholders to provide renewable heating to communities and renewable power to the German grid are ongoing.*

*Combined with our brine offtake agreement with the Landau plant, we will work to assess the feasibility of integrating lithium extraction from these areas into our development plans. The Vulcan team remains focused on developing our world-first dual renewable energy and Zero Carbon Lithium™ business, with phase 1 production to supply the EU battery market targeted for CY2024."*



*The geothermal power plant in Insheim, Upper Rhine Valley, Germany.*



## 2. Landau geothermal plant brine offtake agreement

- In addition to the acquisition of Insheim, Vulcan Energy has executed a 20-year brine offtake agreement with geox GmbH, the operational Landau geothermal renewable energy plant in the Upper Rhine Valley owned by the IKAV Group, a Luxembourg-based renewable energy fund manager and operator.
- Under the terms of the agreement, Vulcan has the right to purchase and extract the lithium from the brine produced from Landau, and return it to the plant for re-injection, with expected brine volume from the production well of at least 100 l/s, subject to the financing and drilling of a re-injection well which can accommodate the current production well flow, and with an offtake start date of 30 December 2024.
- The existing production well at Landau has the tested ability to produce at a rate of over 100 l/s, but an additional re-injection well is planned to help accommodate this flow.
- In addition, subject to obtaining the relevant permissions from the authorities, the Landau plant will provide access to accommodate Vulcan's demonstration lithium extraction plant, with a target start-up date of Q2 2022. Vulcan has been successfully operating its first lithium extraction pilot plant at Landau since April 2021. Lithium grades in the brine from Landau well GTLA-1 are approximately 180 mg/l Li (Sanjuan et al, 2016). Vulcan will seek, subject to positive feasibility studies, to incorporate this offtake agreement into its Phase 1 development plans.



*Members of Vulcan's Board of Directors at Landau Plant, September 2021. L – R: Annie Liu, Josephine Bush, Gavin Rezos, Dr Francis Wedin, Dr Heidi Grön, Dr Horst Kreuter.*

### **3. Revised, larger DFS and updated target timing**

The acquisition and brine offtake agreement positions Vulcan to potentially expand its Definitive Feasibility Study (DFS) and increase production in response to significant customer demand for sustainable lithium from its Zero Carbon Lithium™ Project. Vulcan will assess the feasibility of extracting and processing lithium from these projects, as part of investment into an expansion and modernisation of these areas, to be incorporated into planned operations. As a result, Vulcan is targeting completion of its Phase 1 DFS in H2 2022, updated from its previous target of mid-2022, to accommodate the inclusion of more project areas into expanded production studies. Vulcan's target of first commercial production of lithium by 2024 remains unchanged.

#### **For and on behalf of the Board**

Daniel Tydde | Company Secretary

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### About Vulcan

Vulcan is aiming to become the world's first lithium producer with net zero greenhouse gas emissions. Its ZERO CARBON LITHIUM™ Project intends to produce a battery-quality lithium hydroxide chemical product from its combined geothermal energy and lithium resource, which is Europe's largest lithium resource, in Germany. Vulcan's unique, ZERO CARBON LITHIUM™ Project aims to produce both renewable geothermal energy, and lithium hydroxide, from the same deep brine source. In doing so, Vulcan intends to address lithium's EU market requirements by reducing the high carbon and water footprint of production, and total reliance on imports. Vulcan aims to supply the lithium-ion battery and electric vehicle market in Europe, which is the fastest growing in the world. The Vulcan Zero Carbon Lithium™ project has a resource which could satisfy Europe's needs for the electric vehicle transition, from a source with net zero greenhouse gas emissions, for many years to come.



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#### Competent Person Statement:

The information in this report that relates to Mineral Resources and Ore Reserves (respectively) of the Company's Zero Carbon Lithium™ is extracted from the ASX announcements made by Vulcan on 15 December 2020 ("Updated Ortenau Indicated and Inferred Resource") and 15 January 2021 ("Positive Pre-Feasibility Study"), which are available on [www.v-er.eu](http://www.v-er.eu). The information in this report that relates to Insheim's Mineral Resources is extracted from the ASX announcement made by Vulcan on 20 January 2020 ("Maiden Indicated Resource Insheim Vulcan Zero Carbon Lithium"), which is available on [www.v-er.eu](http://www.v-er.eu). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.