VULCAN ENERGY
ZERO CARBON LITHIUM™

ASX Release 13 September 2022

ASX:VUL
FSE:VUL

Fast Facts

Issued Capital: 143,335,301
Market Cap (@$7.95): $1.14B

Zero Carbon Lithium™ Project Update

Vulcan Energy Resources Limited (Vulcan; ASX: VUL, FSE: VUL, the Company), the renewable energy producer and sustainable lithium developer, is pleased to provide a progress update for its Zero Carbon Lithium™ Project in the Upper Rhine Valley, Germany.

Highlights:

- **Onsite construction of Vulcan's sorption Demonstration Plant (Sorption-Demo Plant) in Landau, Germany commences**
- **3D seismic survey teams mobilising to site this week in the Insheim license area. The survey, surrounding Vulcan's existing geothermal operations, will lead toward an expanded development plan**
- **Second Preliminary EIA approval awarded for Taro license, in the "Taro Golf" zone**

Sorption-Demo Plant

- Led by the Vulcan Energy Engineering (VEE) team, Vulcan has started onsite construction of its Sorption-Demo Plant in Landau, Germany, following off site fabrication which has been ongoing since March 2022.
- The plant is being built on the premises of Energie Südwest AG (ESW), the local energy utility for Landau, following the completion of FEED studies, mobilisation and delivery of key components.
- A key element of Vulcan's strategy to de-risk its Zero Carbon Lithium™ Project, as such technical and operations personnel will train in the demo-plant to develop a comprehensive understanding of the process and its operation prior to the construction of the first commercial plant.
- The plant is scheduled to start cold commissioning in late 2022 and start operation in early 2023.
- Vulcan has chosen a sorption-type Direct Lithium Extraction (DLE) approach for its lithium extraction business due to its current successful commercial deployment globally, and because sorption approaches have been shown to optimally produce lithium chemicals from hot brines with low operating cost and sustainable footprint.
- Sorption-type DLE includes several key advantages compared to traditional brine evaporation including higher lithium recovery, lower water and chemicals consumption, shorter lead time to production and minimal land footprint.
- Critically, since sorption-type DLE typically requires the brine to be hot, Vulcan intends to use the heat already embodied in the waste brine stream from its geothermal renewable energy operations, removing the requirement to heat the brine with natural gas as happens at other commercial operations worldwide. This represents a significant financial and greenhouse gas emissions saving, and enables the technology to be used on lower grade lithium brines compared to salars.
- The Sorption-Demo Plant represents a significant step-up in plant size from Vulcan's Pilot Plant, which has been successfully operating for 18 months, most recently at our commercial geothermal renewable energy plant, Natür[3]Lich Insheim.
- Vulcan's Sorption Demo-Plant will receive the geothermal brine, under a cooperation agreement, from the adjacent geothermal plant Landau of geox GmbH.
- The lithium hydroxide production Demo Plant, (CLP-Demo Plant) also known as "LiLy", is progressing concurrently and is still on track to start commissioning in late Q1 2023.

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Positioning of the prefabricated containers at the Sorption-Demo Plant in Landau, Germany.

Expansion of geothermal operations: 3D seismic survey commencement and environmental approvals

- Vulcan received a positive result for its second preliminary EIA application (UVP-V) in its Taro license, in the "Taro Golf" project area, to drill wells for geothermal energy and lithium.
- This is the second positive environmental approval the Company has received, following the EIA for geothermal-lithium drilling in Taro in July 2022, in the "Taro North" project area.
- The Company has received strong support to carry out a 3D seismic survey from eight local councils in the German state of Rhineland-Palatinate.
- Vulcan is mobilising 3D seismic survey teams around its Insheim license area this week, from which it is currently producing renewable energy on a commercial scale, toward an expanded geothermal and lithium project development.

Drilling division

- Vercana, Vulcan's in-house drilling company, continued the refurbishment of the Company's specialised, electric drill rigs.
- Across the two units, work focused on rig down substructure and repair mast and substructure elements, as well as modification of the substructure and water tanks to allow for the installation of new skidding system and the installation of new electrics.

Project timeline and budget

- Vulcan's internal surface engineering team, VEE, remains on track to start cold commissioning of the Sorption-Demo Plant in late 2022, ahead of starting operation in early 2023.
- In-house drilling company Vercana continues to target operational readiness in early 2023 for the electric drills, which is likely to be early Q2 2023.
- The DFS for Phase 1 of the Zero Carbon Lithium™ Project is progressing, with an updated Pre-Feasibility Study (PFS) for Phase 2 targeted for completion at the same time. While the Company is working hard to achieve its H2 2022 target, the completion date is likely to be in Q1 2023.
- Due to previously flagged, unprecedented global supply chain issues with sourcing certain pieces of equipment, project delays are still possible, and the project timeline is subject to ongoing review by management. Vulcan will keep the market informed of any developments as required.

Vulcan's Managing Director and CEO Dr. Francis Wedin commented, *"We are excited to begin onsite construction of our Sorption-Demo Plant, which is the logical next step for us to continue upscaling towards commercial production of lithium hydroxide with a net zero carbon footprint. We are also encouraged with continuing receipt of environmental approvals from the authorities, and mobilisation of teams for commencement of "on the ground" seismic survey activities, toward our goal of developing a much larger geothermal renewable energy and Zero Carbon Lithium™ business.*

"Vulcan, as with almost every developing project the world over, is being impacted by disruptions to supply chains due to COVID-19 and the war in Ukraine, together with the rising cost of raw materials due to global inflation. I would like to thank the entire Vulcan team who, faced with these universal challenges, are working hard to deliver the Zero Carbon Lithium™ Project at pace and scale. We believe the Zero Carbon Lithium™ project is crucial for Europe, both from an energy security perspective and due to the need to have a local, reliable supply of critical raw materials like lithium. With these macro-policy tailwinds in our favour, Vulcan looks forward to delivering Zero Carbon Lithium™ Project as soon as possible."

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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Corporate Directory

Managing Director and CEO	Dr. Francis Wedin
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Non-Executive Director	Annie Liu
Non-Executive Director	Dr. Heidi Grön
Non-Executive Director	Josephine Bush
Non-Executive Director	Dr. Günter Hilken
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For and on behalf of the Board

Daniel Tydde | Company Secretary

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Please contact Vulcan's Legal Counsel Germany, Dr Meinhard Grodde, for matters relating to the Frankfurt Stock Exchange listing on mgrodde@v-er.eu.

Reporting calendar

FY22 Results	28 September 2022
September Quarterly Activities and Cashflow Reports	27 October 2022

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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. 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. 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.