

Cradle moves into renewable energy sector with proposed geothermal acquisition

Cradle Resources Limited (“Cradle” or the “Company”) has entered into a binding agreement to acquire Volt Geothermal Pty Ltd (“Volt”) and Within Energy Pty Ltd (“Within”), with geothermal assets in Queensland and South Australia (the Projects).

Geothermal energy is widely used throughout the world and is one of the only renewable energy solutions capable of operating continuously irrespective of the weather conditions. The proposed Managing Director of the Company will be Matt Kay, an equity holder in both Volt and Within and the former Managing Director of ASX 200 company Beach Energy Limited (ASX:BPT).

Highlights

- **The Company is transitioning into the renewable energy sectors, by signing a binding agreement to acquire 84% of all the issued shares in Volt Geothermal Pty Ltd (“Volt”) and Within Energy Pty Ltd (“Within”)**
 - *Consideration for the acquisition is 220,360,329 Cradle shares*
- **Geothermal energy is a renewable energy solution that creates energy from heat sourced from within the earth. Unlike other renewable energy sources, geothermal energy is available 24 hours per day**
- **The Australian Government has set a renewable energy target of 82% by 2030. Renewable energy accounted for 35.9% of country’s total electricity generation in 2022**
- **The Projects comprise of prospective geothermal exploration licences in South Australia and Queensland. These areas are surrounded by key existing infrastructure for electricity generation, including powerlines and sub power stations**
- **Cradle plans to undertake a capital raise of \$6 million to fund the Projects work programme and for working capital purposes, subject to shareholder approval for the transaction**
 - *Prior to the re-listing, the Company has successfully raised \$850,000 at \$0.02 per share. These funds will be used to complete the transaction*
- **As part of the transition into the energy sector, the Company will appoint Mr Matt Kay as Managing Director and Dr Trey Meckel as Head of Subsurface**
 - *Mr Kay is a seasoned energy industry executive with more than 30 years of experience, most recently as Managing Director of Beach Energy, an AX 200 company*
 - *Dr Meckel is a senior geologist with more than 30 years of experience in the global energy sector. He is Secretary of the Australian Geothermal Association and a Global Ambassador for the Geothermal Energy Advancement Association*
- **The Company’s securities will remain suspended until after shareholder approval has been obtained and the Company re-complies with Chapters 1 and 2 of the ASX Listing Rules as an energy company**

Overview

Cradle plans to focus on systematically exploring early-stage geothermal targets and developing geothermal resources. This will involve a fit-for-purpose exploration programme analysing subsurface geology to identify thermal resource potential at different well depths, undertaking preliminary survey and resource assessments based on offset well data, exploration location definition and exploration drilling. This will determine priority targets for exploration drilling for geothermal resources.

The Company's strategy is to follow a typical path for the maturation of an exploration play through the following stages:

1. Exploration and appraisal activities to confirm existence of the resource and demonstrate the commercial viability;
2. Study work such as pre-feasibility and definitive feasibility as part of the commercialisation of the resource; and
3. Project development which involves drilling of production wells and installation of surface facilities for delivery of energy to market.

Success with the strategy outlined above will determine future exploration and funding programs to advance the projects being acquired.

The proposed acquisition will be the platform on which the Company grows its resource base, with the strategy to participate in the significant growth opportunities in the renewable energy industry via a focus on geothermal opportunities, given its unique ability to provide a base-load alternative that produces energy 24/7. Geothermal energy therefore plays an important role in the future energy transition towards zero carbon emissions given its ability to provide system's security and reliability.

The Company is proposing to acquire geothermal projects in South Australia and Queensland (collectively the "Projects").

Cradle intends to explore and exploit geothermal energy for the purpose of generating renewable energy to be connected to regional electricity grids or supporting standalone developments.

The Projects comprise highly prospective geothermal exploration licences with significant discovered resources in South Australia at G1 + G2 (P50) of 5.2PJth and potential future developments in the discovered area of G1 + G2 of 842 PJth. Prospective Resources in exploration areas U50 (G4.1 + G4.2) is estimated at 235,102 PJth classified in accordance with UNFC Geothermal Specifications¹. For reference, a 10MW plant would require approximately 1.5 PJth of geothermal resource per annum.

Geothermal energy is a carbon neutral renewable energy from the natural source of heat contained within the earth. It can be extracted for uses including heating, drying and electrical generation. Unlike other renewable energy sources, geothermal energy is available 24 hours per day. The geothermal energy industry has a more than 100-year history and is used for electricity generation across 30 countries.

Given Australia's historical abundant supply of fossil fuels, there have been limited attempts to develop a geothermal energy industry in Australia.

Cradle will apply proven technology which has become widely adopted over the last few years with the use of binary cycle systems which can use lower temperature reservoir water of between 80-180°C via a heat exchanger process to operate a turbine in a closed loop. Binary cycle geothermal plants have been operating for over 70 years. Binary cycle power plants are most suited to Australia's low fluid temperature.

¹ Independent geothermal assessment by THREE60 Energy in January 2022 classified according to the UNFC (United Nations Framework Classification) scheme.

Geothermal overview

About Geothermal Energy

The geothermal energy industry has been active globally for over 100 years and geothermal power plants have been installed in 30 countries². While well developed in other countries, the Australian geothermal industry is in infancy, given Australia's historic abundance and acceptance of fossil fuels.

Geothermal energy has seen a strong increase in demand over the past decade as the world moves towards zero carbon emission targets. Compared to other renewable energy solutions, geothermal energy is unique given it provides a base-load alternative that produces energy 24/7, which is the major challenge for alternative renewable energy solutions, such as solar and wind. Geothermal energy therefore plays an important role in the future energy transition towards zero carbon emissions given its ability to provide network security and reliability.

Geothermal energy is estimated to contribute more than 8% of the world's electricity generation capacity. As of January 2023, global geothermal power generation capacity stood at 16,127 MWe with 154 MWe capacity installed during 2022.

Geothermal energy background and use

Geothermal energy is a renewable energy from the natural source of heat contained within the earth. It can be extracted for uses including heating, drying and electrical generation. Geothermal has become established as a reliable and environmentally benign source of power.

Given Australia's historical abundant supply and acceptance of fossil fuels, there have been limited attempts to develop a geothermal energy industry in Australia. Most notably, the Cooper Basin had a project circa 15 years ago with targeted drilling at deep depths of greater than 4,000 m and targeting rock temperatures greater than 250°C. The Target's projects are positively differentiated by proven technological improvements resulting in potential developments at lower temperatures and lower depths, along with their location closer to existing infrastructure.

There is an increasing number of countries not seen as "traditional geothermal countries" with access to low-enthalpy resources and with lower temperature that are also generating geothermal electricity today. The predominant example is Turkey with an installed power generation capacity of around 1,663 MW (as of August 2021).

Today, there are roughly 400 geothermal power plants (often consisting of several units/ plants) and they can be found all around the world.

² <https://www.thinkgeoenergy.com/geothermal/geothermal-energy-production-utilisation/>

The largest producer of geothermal energy is the USA, with power generation capacity of approximately 3,700Mwe as at the beginning of 2022. The top 10 producing countries around the world are highlighted in Table 1 below.

| Ranking | Country | Capacity (MWe) |
|---------|---------------|----------------|
| 1 | United States | 3,794 |
| 2 | Indonesia | 2,356 |
| 3 | Philippines | 1,935 |
| 4 | Turkey | 1,682 |
| 5 | New Zealand | 1,037 |
| 6 | Mexico | 963 |
| 7 | Italy | 944 |
| 8 | Kenya | 944 |
| 9 | Iceland | 754 |
| 10 | Japan | 621 |

Table 1: Top 10 power generators for geothermal energy³

Geothermal energy is becoming a major part of multiple countries total power solution. A total of seven countries produce 10% or more of their power from geothermal energy, as highlighted in table 2 below.

| Ranking | Country | % of geothermal in total electricity generation |
|---------|------------------|---|
| 1 | Kenya | 46% |
| 2 | El Salvador | 29% |
| 3 | Iceland | 27% |
| 4 | New Zealand | 17% |
| 5 | Nicaragua | 17% |
| 6 | Philippines | 11% |
| 7 | Costa Rica | 10% |
| 8 | Papua New Guinea | 7% |
| 9 | Guatemala | 2% |
| 10 | Mexico | 2% |

Table 2: Percentage of geothermal in total electricity generation by country⁴

Advantages of geothermal energy in Australia

As Australia transitions to a net zero economy and reduces its reliance on fossil fuels, there are significant advantages from the use of geothermal energy, including:

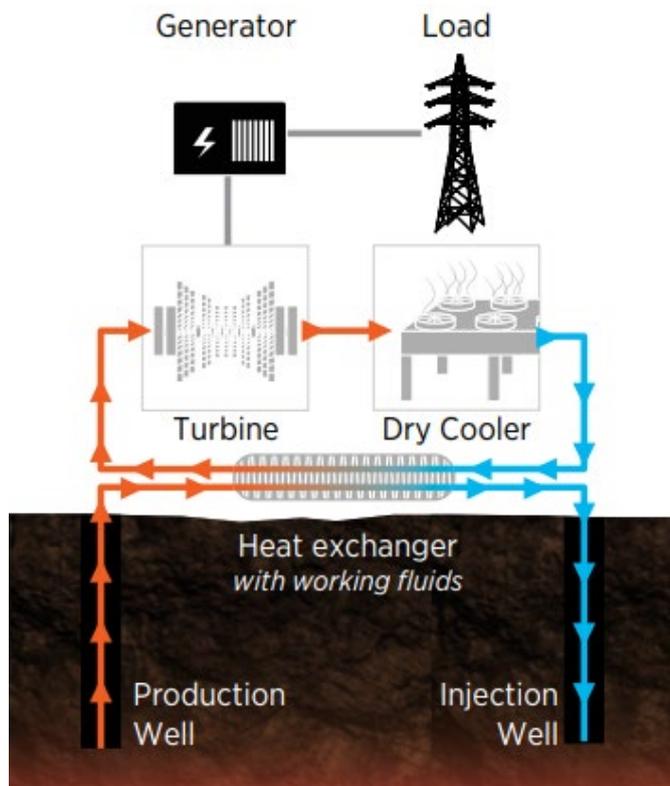
- reliable and dispatchable source of energy - available 24 hours per day
- clean energy with low environmental impact
- small acreage area required for geothermal plant and facilities
- no storage or transportation requirements
- energy extraction without the use of fossil fuels
- broad public support in countries in which it operates
- the highest renewable energy capacity and generation of all renewable energies

³ Think Geoenergy - 2021

⁴ Think Geoenergy - 2020

Binary-cycle Geothermal Plants

Binary cycle power plants



Technology which has become widely adopted over the last few years is the Binary Cycle System, which uses much lower reservoir temperature water of between 80-180°C via a heat exchanger process to operate a turbine in a closed loop. Binary cycle geothermal plants have been operating for over 70 years⁵, with the first plant constructed in Italy in 1940.

There are more than 150 binary cycle plants operating worldwide. The major developers include Turkey, Europe and the US. The US has 93 binary plants in operation, and this represents >90% of geothermal capacity added since 2010. Volt/Within have had discussions with contractors from these regions to bring developed knowledge, skills and experience to Australia. The Company is also assessing closed loop systems that circulate fluids within the well bore rather than extracting reservoir fluids.

In the binary cycle system, warm geothermal water is pumped to the surface and passed through a heat exchanger that contains a fluid such as a butane or pentane hydrocarbon with a much lower boiling point than water. The heat

from the geothermal water causes this secondary or 'binary' fluid to flash into vapor.

The vapor created by heating the pentane is what spins the turbine powering the generator, while the cooled steam from the geothermal source is injected back into the formation where it heats up again and is available to eventually re-circulate through the heat exchanger.

⁵ <https://www.sciencedirect.com/topics/engineering/binary-cycle>

Resource temperatures required for binary geothermal power plants

Binary geothermal power plants are suitable for low temperatures ranging from approximately 80° Celsius to 180° Celsius. There are many applications for geothermal use in Australia.

Geothermal energy can be found all over the world. Its feasibility as an energy source however depends on the depth of the resource, the temperature found, the geological settings, the resource type and closeness to energy demand.

Geothermal energy can be harnessed from underground reservoirs, containing hot rocks saturated with water and/or steam. Boreholes of between a few hundred metres to several kilometres are drilled into the reservoirs.

The temperature of the geothermal resource then dictates the most appropriate use. Historically temperatures of more than 150° Celsius were required to produce electricity. However, technological advancements can now see power being generated from temperatures as low as 70° Celsius.

Lower temperatures (less than 70° Celsius) are still useful for a range of applications such as for heat in industrial applications, district heating systems or for heating houses, for aquaculture, food dehydration and many more.

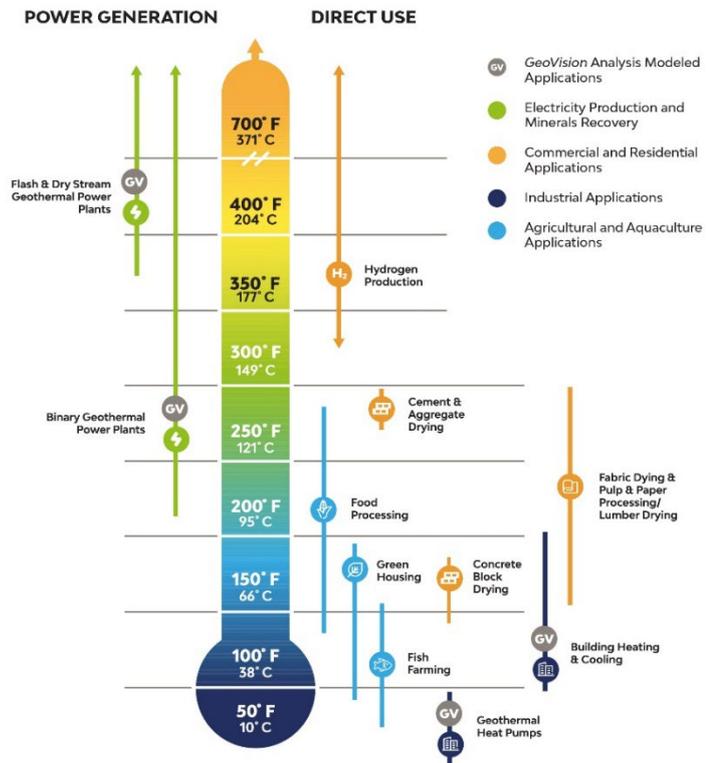


Figure 3 Geothermal energy power generation and uses⁶

⁶ US Department of Energy, https://www.energy.gov/sites/default/files/2019/06/f63/0-GeoVision-ExecSummary-v2-opt_0.pdf

Project overview

Cradle is proposing to acquire geothermal projects in South Australia and Queensland, led and supported by proven leaders in the resources and energy industries. The strategy is supportive of Federal and State government policies to reach Australia's climate targets and reduce the East Coast energy challenges.

Initial work will focus on preliminary survey and resource assessments based on offset well data, exploration location definition and exploration drilling. Subject to exploration success, the focus will shift to resource estimates, field development and production drilling.

It is expected that the future development plans will focus on multiple 10 MWh facilities with scalability and regional diversification to manage risks. The "cookie cutter" approach to these projects will manage financing risks by staggering capital requirements. For reference, a 10 MWh development can power approximately 7,000 homes.

The Company will release further details on the Projects and work programs in the notice of meeting and prospectus to be sent to all Shareholders - refer to the indicative timetable on page 9.

Commercialisation pathway

Advantages of geothermal energy in Australia

As Australia transitions to a Net Zero economy and reduces its reliance on fossil fuels, there are significant advantages from the use of geothermal energy, including:

- reliable and dispatchable source of energy - available 24 hours per day
- clean energy with low environmental impact
- small acreage area required for geothermal plant and facilities
- no storage or transportation requirements
- energy extraction without the use of fossil fuels
- broad public support in countries in which it operates
- the highest renewable energy capacity and generation of all renewable energies

The pathway for the maturation and potential commercialisation of geothermal assets are not dissimilar to an onshore oil and gas project, with total project risks diminishing through each phase:

1. preliminary survey and inferred resource assessments based on offset well data;
2. exploration location definition and basic design;
3. verification drilling to feed into detailed design;
4. project review and planning;
5. field development and production drilling;
6. construction; and
7. start-up and commissioning.

As an example, in a 10 Mwh development scenario with a circa A\$50 million total spend, only approximately 15% of that spend is prior to Final Investment Decision and development/construction, i.e. during the highest risk phase.

Acquisition structure

The Company is seeking to acquire 84% of all the issued shares in the target companies with the consideration to be paid being 220,360,329 Cradle shares.

Cradle will also have the right to acquire, and require each Seller to sell, their respective proportions of shares retained by them ("**Retained Shares**") at any time from the third anniversary of Completion.

The Shareholders Agreement will contain a 'drag-along' mechanism whereby if a Seller or Sellers holding more than 50% of the Retained Shares wish to exercise this option, the holders of the other Retained Shares will be required to sell to the Buyer on the same terms. Any exercise of this option must be in respect of all of the Retained Shares.

The Shareholders Agreement to be entered into to reflect these matters will also provide a mechanism for cash-calls to the Sellers to fund the work programme on the basis that:

- (a) Cradle will contribute the first \$15,000,000 towards the work programs following Completion before cash calls are made in respect of the Retained Shares (such that the Retained Shares will be free carried during this period); and
- (b) from the time Cradle has contributed the amount of \$15,000,000, the cost of the work programs and all other activities shall be borne by the Sellers on a proportionate basis.

Capital raising

The Company will undertake a 2 tranche capital raising as follows:

1. Tranche 1: Placement to raise up to \$850,000 to fund the costs associated with the re-compliance process and working capital purposes, by way of the issue of 42,500,000 new shares at \$0.02 plus a free attaching option with an exercise price of \$0.05 and expiry of three years from date of issue. The issue of these options is subject to shareholder approval. This placement has been successfully completed; and
2. Tranche 2: Prepare and lodge a notice of meeting to seek, amongst other things, shareholder approval for the transaction and a capital raise of \$6 million to fund the work programme for the Projects and for working capital purposes.

The Company intends to undertake the Tranche 2 capital raising ("**Public Offer**") under a prospectus to raise A\$6 million. The Company does not expect that the Public Offer will be underwritten. Shareholder approval will be sought for the issue of shares pursuant to the Public Offer.

Detailed information on the offer of securities under the Public Offer, the capital structure and an indicative timetable will be included in a prospectus that will be made available after lodgement with the Australian Securities and Investments Commission ("**ASIC**"). Investors should consider the prospectus (when available) in deciding whether to acquire securities in the Company. Applications for securities can only be made by completing the application form which will accompany the prospectus.

If the conditions of the Public Offer are not satisfied, or the Company does not receive conditional approval for re-quotations on the ASX on terms which the board of the Company reasonably believes are capable of satisfaction, then the Company will not proceed with the Public Offer and will repay all application monies received (without interest).

The pro forma capital structure of the Company assuming completion of the Acquisition and Public Offer, is shown below:

| | Number of shares | Number of options |
|--|--------------------|-------------------|
| Existing securities on issue | 187,464,218 | - |
| Issue of Shares – Placement at \$0.02 plus a free attaching option with an exercise price of \$0.05 and expiry of three years from date of issue | 42,500,000 | 42,500,000 |
| Consideration shares to vendors | 220,360,329 | - |
| Issue of Shares at \$0.02 under the Capital Raising Offer | 300,000,000 | - |
| Issue of performance options ¹ | - | 11,018,016 |
| Total | 750,324,547 | 53,518,016 |

¹50% of the options are subject to a 2 year ongoing employment requirement from the date the Company's shares are reinstated to quotation following its re-compliance with chapters 1 and 2 post completion of the transaction and 50% are subject to a hurdle based on the Company's market capitalisation being 4 times the Company's market capitalisation immediately post completion of the acquisition of the geothermal assets held by Volt Geothermal Pty Ltd and Within Energy Pty Ltd, calculated using a 30 day VWAP.

Note that the Company will seek shareholder approval for the issue of the three year options exercisable at \$0.05 and options to the Company's management team at the General Meeting expected to be held in October 2023 as part of the approvals for the Acquisition and Public Offer.

Indicative timetable

| Event | Indicative Date |
|---|-----------------|
| Dispatch Notice of Meeting to shareholders | September 2023 |
| Lodge Prospectus with ASIC and ASX | September 2023 |
| Public Offer opens | October 2023 |
| General Meeting | October 2023 |
| Public Offer closes | November 2023 |
| Completion of the Acquisition | November 2023 |
| Satisfaction of Chapters 1 and 2 of the Listing Rules | November 2023 |
| Recommence trading on the ASX | November 2023 |

The dates in this timetable are indicative only and subject to change.

Board and management

As part of the transitions into the energy sector, the Company will appoint Mr Matt Kay as Managing Director. The Company will look to strengthen the Board over time and as part of regularly reviewing the skills and experience of each director to ensure it is appropriate to the Company's size and complexity.

Mr Matthew ("Matt") Kay – Managing Director

Mr Matt Kay BEc, MBA, FCPA, GAICD is a seasoned energy industry executive with more than 30 years of experience. Most recently he was the Managing Director of Beach Energy, having quadrupled the size of the company over a 6-year period, to a circa A\$4 billion listed ASX company. Matt had oversight of more than 500 staff working across 10 locations in Australia and New Zealand with an annual capital expenditure of approximately \$1 billion. Despite the growth during his tenure, Matt drove material sustained improvements in Beach's HSE performance and a commitment to Net Zero Emissions targets.

Matt is also a former member of the APPEA (Australian Petroleum Production and Exploration Association) board and was chair of the Executive Committee. Matt has extensive experience in dealing with government policy and relationships through to Prime Minister / President level.

Prior to Beach Energy, Matt was the Executive General Manager of strategy and commercial at Oil Search, where he led the strategy, commercial, supply chain, economics, marketing, M&A and legal functions. Prior to Oil Search, Matt worked at Woodside Energy for over a decade in various leadership roles including Vice President of Corporate Development and also General Manager of Production Planning overseeing 80 production professionals including the operations reservoir management, HSE, operations finance, operations HR, engineering optimisation of LNG, domestic gas and oil production facilities and product shipping and offtake.

Dr Lawrence ("Trey") Meckel – Head of Subsurface

Dr Meckel has more than 30 years of experience at the forefront of the global energy sector, including significant experience in decarbonised energy solutions, petroleum E&P, and energy R&D.

Before joining the Company, Trey was the Subject Matter Expert for Strike Energy's geothermal resource assessment in the North Perth Basin, the Storage Program Manager at CO2CRC (Australia) and Vice President of Global Exploration, New Ventures, & Geosciences for Pluspetrol, Latin America's most successful private, diversified energy company. Earlier in his career, Trey worked for Shell Global and Woodside Energy, and was a co-founder and managing partner of a SE Asian E&P start-up.

Trey is the Secretary of the Australian Geothermal Association, a Global Ambassador for the Geothermal Energy Advancement Association, and a tutor for the University of Cambridge (UK) Institute for Sustainability Leadership.

Trey received his PhD from the Swiss Federal Institute of Technology (ETH Zürich), his MA in Geology from the University of Texas at Austin, USA, and his BA with Honors from Williams College, USA.

Change of company name

The Company intends, subject to shareholder approval, to change its name in order to better reflect the Company's new focus as a energy company, particularly its near-term emphasis on exploraton success and resource development opportunitites at the Project.

Re-compliance with ASX Chapters 1 and 2

The Acquisition will result in a significant change to the nature and scale of the Company's activities. Accordingly, the Company will seek shareholder approval under ASX Listing Rule 11.1.2 at a general meeting and will also seek to re-comply with Chapters 1 and 2 of the ASX Listing Rules in accordance with ASX Listing Rule 11.1.3. ASX has absolute discretion in deciding whether or not to re-admit the Company to the official list of ASX. The Acquisition may not proceed if ASX exercises that discretion, if the requirements for re-compliance with Chapters 1 and 2 of the ASX Listing Rules are not satisfied or if shareholders do not approve the Acquisition. Investors should take account of these uncertainties in deciding whether or not to buy or sell the Company's securities.

At a proposed general meeting, the Company will need to obtain shareholder approval for, among other things, a change in the nature and scale of the Company's activities as a result of the Acquisition. The Company will also need to seek shareholder approval for the issue of the Tranche 1 options. To give effect to these changes, the ASX requires the Company to re-comply with Chapters 1 and 2 of the Listing Rules. A prospectus will be issued to assist the Company to re-comply with these requirements. There is a risk that the Company may not be able to meet the requirements of re-quotations on the ASX.

Competent Persons Statement

The information in this release that relates to resource estimates through the mapping of prospective areas and gross rock volumes, review of reservoir temperature and properties of rock formations, pore fluids and fracture systems within the metasediments and basement rocks of WITHIN Energy's South Australian assets is based on analysis of data provided by WITHIN and sourced from open-domain databases. These analyses have been performed by Dr. Arnout JW Everts who holds a PhD in Geology from VU University Amsterdam and has 32 years of industry experience and a proven track record of technical leadership, project management, and technical task and project delivery. His areas of expertise include techno-commercial project due-diligence, field (re)development, oil & gas reserve and resource assessments and geothermal resources and exploitation viability.

Through his career, Dr Everts has participated in and/or led over 100 energy projects spanning the entire project life-cycle, from frontier exploration to late field-life including unconventional. In recent years his focus has shifted to renewables, mostly geothermal. Dr Everts is an Active Member of AAPG (American Association of Petroleum Geologists), EAGE (European Association of Geoscientists and Engineers) and GSM (Geological Society of Malaysia), a Professional Member of AGA (Australian Geothermal Association) and he has contributed as lead author or co-author to around 30 research papers and extended abstracts in international scientific journals. As EuroGeologist title holder (registration no 1435) Dr Everts is entitled to sign off on Company Reserves and Resources reports submitted to regulatory bodies.

Dr. Everts has consented in writing to the inclusion in this release to the matters based on his information in the form and context in which it appears. Dr. Everts is engaged by WITHIN as an independent consultant and is not employed by the Company.

Authorised for release by the Board of Directors.