

Cradle to acquire Australian geothermal assets and appoint Matt Kay as Managing Director

Highlights

- **Cradle signs binding share sale agreements to acquire 84% of all the issued shares in Volt Geothermal Pty Ltd ("Volt") and Within Energy Pty Ltd ("Within") (together, the "Acquisitions").**
- **Consideration for the Acquisitions is 220,360,329 Cradle shares.**
- **Cradle has also entered into a Joint Venture Agreement with Volt and Within in respect of two projects comprising five granted geothermal exploration licences and one licence application in South Australia and one granted geothermal exploration licence and three licence applications in Queensland.**
- **Geothermal energy has seen a strong increase in demand over the past decade as the world drives towards zero carbon emissions. Geothermal provides a renewable base-load alternative that produces 24/7 energy, a major challenge for other renewable energy solutions such as solar and wind.**
- **The Acquisitions allow Cradle to grow its resource base and provide opportunities in the renewable energy industry via a focus on geothermal opportunities, with unique base-load potential.**
- **Cradle will appoint former Beach Energy MD Matt Kay as its Managing Director.**
- **Cradle will complete a A\$6 million capital raising (before costs) to fund a work program and for working capital purposes.**
- **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 a renewable energy company.**

Transaction overview

Cradle Resources Limited ("**Cradle**" or the "**Company**") is pleased to announce it has entered into binding agreements ("**Sale Agreements**") to acquire 84% of the issued share capital in Volt Geothermal Pty Ltd ("**Volt**") and Within Energy Pty Ltd ("**Within**"), respectively (together, the "**Acquisitions**").

Subject to the satisfaction of certain conditions precedent, completion of the Acquisitions will result in the Company acquiring:

- an indirect 84% ownership interest in the Volt Project, which comprises five granted geothermal exploration licences and one application for a geothermal exploration licence in South Australia; and
- an indirect 84% ownership interest in the Within Project, which comprises one granted geothermal exploration licence and three applications for geothermal exploration licences in Queensland, (together, the "**Projects**").

Following completion of the Acquisitions, the Company plans to focus on systematically exploring early-stage geothermal targets and developing geothermal resources. This will involve a fit-for-purpose exploration program that includes analysing subsurface geology to identify geothermal resources at commercially viable well depths, which will lead to:

- a) surveys.
- b) defining exploration well locations; and

c) exploration drilling.

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

1. exploration and appraisal activities to confirm the required geothermal heat-in-place and demonstrate the commercial viability of the project.
2. development work such as pre-feasibility and definitive feasibility as part of the commercialization of the geothermal resource; and
3. project development which involves drilling of production wells and installation of surface facilities for the delivery of energy to the market.

The Company's success with the strategy outlined above will determine future exploration and funding programs to advance the Projects being acquired.

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 12.

Geothermal overview

About Geothermal Energy

The geothermal energy industry has been active globally for more than 100 years, since the first geothermal power plant was built in 1904 at the Larderello field in Tuscany, Italy. Since then, Geothermal power plants have been installed in 30 countries. 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 is a renewable energy from the heat contained within the earth. It is extracted by drilling into the ground and bringing the hot fluids to the surface. Uses include heating, drying and electrical generation. Geothermal energy is a form of clean and reliable heat and electricity that can be extracted on a constant 24-hour basis. It has been established as a reliable and environmentally benign source of power and will play a critical role in the sustainable and clean energy transition, alongside other renewable energy sources.

Geothermal energy has seen a strong increase in demand over the past decade as the world drives towards zero carbon emissions. Compared to other renewable energy solutions, geothermal is unique as far as it provides a base-load alternative which is the major challenge for alternative renewable energy solutions, such as solar and wind. Geothermal energy therefore plays a key role in the energy transition given its ability to provide system's security and reliability.

One advantage of geothermal energy power plant developments is that they require a small land footprint of about 33-463m²/GWh, which is up to 45 times smaller than legacy fossil fuel developments and up to 66 times smaller than wind or solar¹.

Geothermal energy background and use

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 was 16,127 Megawatts electric (Mwe) from 400 geothermal power plants (often consisting of several units/ plants)².

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

¹ Hadian & Madani (2015). Ecological Indicators 52.

² Think Geoenergy – 2021. <https://www.thinkgeoenergy.com/thinkgeoenergys-top-10-geothermal-countries-2022-power-generation-capacity-mw/>.

Geothermal energy is used for electricity generation across 30 countries³. There are also an increasing number of "non-traditional" geothermal countries with access to low-enthalpy resources with lower temperatures that are generating geothermal electricity today.

The largest producer of geothermal energy is the United States of America, with power generation capacity of approximately 3,800Mwe as at the beginning of 2023. The top 10 producing countries around the world are highlighted in **Table 1**.

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 energy⁴

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**.

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 country⁵

Geothermal Plants

Traditionally, there are three primary power plant technologies used to convert the energy in geothermal resources to electricity: (i) dry steam, (ii) flash steam and (iii) the binary cycle. Most legacy geothermal energy plants in operation for electricity generation are dry steam or flash plants that harness geothermal resources at temperatures of more than 150°C. However, medium temperature resources are increasingly being developed for electricity generation or combined heat and electricity, using binary cycle technology.

More recently, technological advancements over the past decade have created closed loop system developments to deal with low temperature reservoirs and any lack of permeability (see Figure 1). In a closed loop system, the working fluid is contained in a closed loop that transports heat from the reservoir to the

³ <https://www.thinkgeoenergy.com/geothermal/geothermal-energy-production-utilisation/>

⁴ Think Geoenergy - 2021

⁵ Think Geoenergy - 2020

surface, an emission-free operation that does not require permeability of hot rocks. This technology has been proven and is currently being scaled.

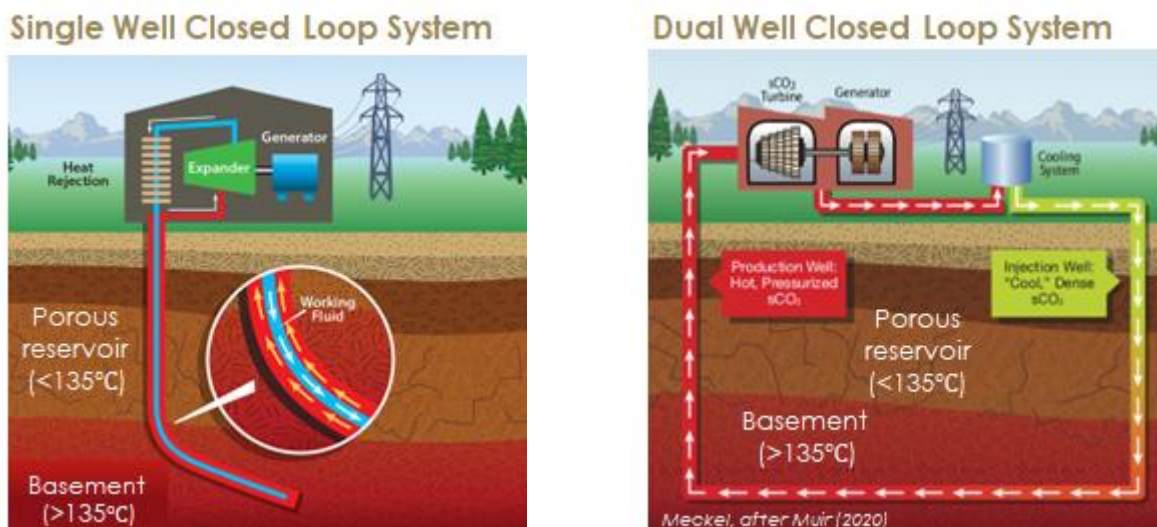


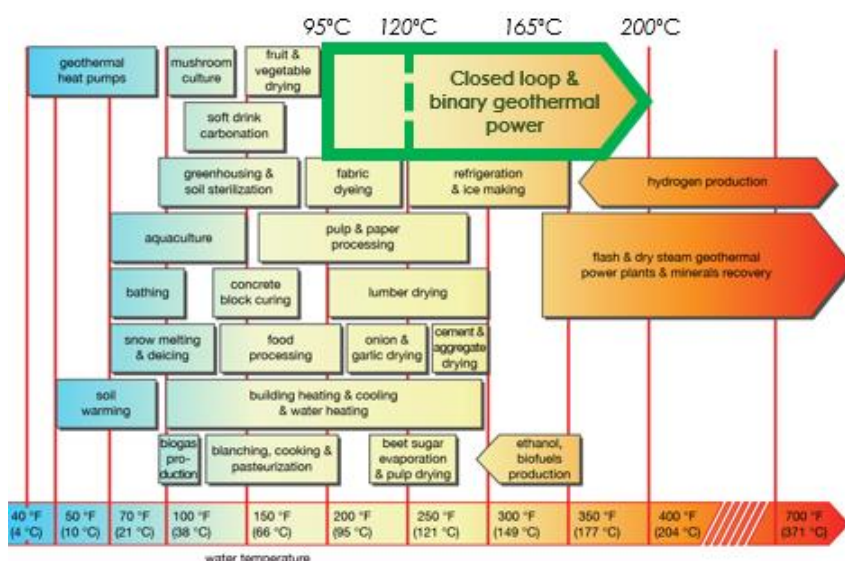
Figure 1 – Closed loop geothermal power plant systems, source: Meckel after Muir (2020)

Resource temperatures required for closed-loop geothermal power plants.

Closed loop geothermal energy power plants are suitable for low to medium temperature ranging from 80°C to 180°C (refer to Figure 3 for further details). Geothermal energy is modular and scalable, allowing decentralised power generation that has many applications in Australia. In contrast, historic geothermal energy projects in Australia focused on high temperature reservoirs above 200°C which exist only in remote and deep formations.

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

Advances in heat exchangers, drilling techniques, closed-loop materials and systems management are all driving efficiencies and applicability.



After <https://www.energymining.sa.gov.au/industry/energy-resources/geology-and-prospectivity/geothermal>

Figure 1 Geothermal energy power generation and use

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, dispatchable, flexible, scalable source of baseload energy – available 24 hours per day
- 100% renewable
- Low environmental impact
- Small areal footprint required for surface power plant and facilities.
- Low water requirements
- No storage or transportation requirements
- Energy extraction without the use of fossil fuels
- Broad public support in countries in which it operates.
- The highest energy capacity and generation of all renewable energies.

The pathway for maturation and potential commercialisation is not dissimilar to that of 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 well design.
4. Project review and planning.
5. Field development and production drilling.
6. Construction; and
7. Start-up and commissioning.

A final factor to consider is that geothermal projects have low costs during high-risk phases of exploration. In a typical development, only ~15% of that spend is prior to FID and development/construction, i.e., during the highest risk phase.

Acquisition structure

The Company has entered into binding Sale Agreements to acquire an 84% interest in Volt and Within, respectively.

The consideration for the Acquisitions is 220,360,329 Cradle shares, which will be allocated between the vendors of Volt and Within as follows:

Vendor	Number of CXX Shares
Mimo Strategies Pty Ltd as trustee for Mimo Trust	79,363,223
Ninety35 Pty Ltd as trustee for 2Gen Family Trust	26,476,744
Stephen Biggins as trustee for The Rescap Family Trust	70,447,615
Jadematt Investments Pty Ltd as trustee for K Upstream Trust	44,072,747

Completion of the Acquisitions is subject to, and conditional upon, the satisfaction or waiver of (amongst others) the following conditions precedent:

- The parties having obtained all regulatory consents and approvals which are necessary for the Acquisitions, including all approvals required from the ASX.
- Cradle having received a conditional re-admission letter from ASX on terms acceptable to the Company; and
- Completion of the Capital Raising Offer.

If the above conditions are not satisfied or waived by the date that is four months from the execution of the Sale Agreements, the Sale Agreements may be terminated by written notice by either party.

In addition, either the Company or the Vendors may terminate the Sale Agreements if the other party is in breach of an obligation under the relevant Sale Agreement and has not rectified that breach within five business days of notice to the other party setting out the substance of the breach.

Subject to the Vendors providing sufficient evidence of expenditure (to the Company's satisfaction) and ASX approval (if required), the Company has agreed to reimburse the Vendors for expenditure on the Projects up to a maximum aggregate amount of \$350,000, and any such reimbursed amount will reduce the Company's obligations to expend, or procure the expenditure of, a minimum of \$3,016,978 on the Volt Project and/or the Within Project in accordance with the Joint Venture Agreement.

The Sale Agreements also contain other standard clauses customary to an agreement of this nature, including representations, warranties and indemnities by the parties.

The Company has entered into a joint venture agreement with the Vendors⁶ ("**Joint Venture Agreement**"), which governs the terms and conditions upon which Volt and Within will operate and the conduct of the joint venture which encompasses the Projects ("**Joint Venture**"). The terms and conditions of the Joint Venture Agreement are as follows (amongst other matters):

- The Vendors will have no obligation to contribute funds to the Joint Venture from the completion of the Acquisitions until the earliest to occur of:
 - Completion of a feasibility study in respect of the Volt Project and/or the Within Project.
 - Expenditure in respect of the Joint Venture equalling \$15,000,000 less any amounts reimbursed to the Vendors or otherwise provided to Volt or Within in accordance with the Sale Agreements.
 - The fifth anniversary of completion of the Acquisitions, (**Free Carried Period**).
- The Company has agreed to expend, or procedure the expenditure of, a minimum of \$3,016,978 on the Volt Project and/or the Within Project in accordance with an approved work program and budget by the second anniversary of completion of the Acquisitions.
- After the Free Carried Period, Volt and Within may issue cash calls to the shareholders of Volt and Within requiring them to contribute funds to the Joint Venture in proportion to their respective Joint Venture interests, and a failure to answer a cash call will result in the dilution of the relevant shareholder's Joint Venture interest.
- From the date of completion of the Acquisitions, the board of directors of Volt and Within will comprise two nominees of Cradle unless otherwise unanimously agreed by the Shareholders.

⁶ Excluding Jadematt Investments Pty Ltd ACN 617 788146 as trustee for K Upstream Trust who will no longer be a shareholder of Volt and Within from completion of the Acquisitions.

- Decisions relating to certain reserved matters will only be valid if approved by the board of directors of Volt and Within.
- Subject to applicable law, any decision approved by the operating committee that requires an action to be taken by Volt and/or within will be approved and ratified by the board of directors of Volt and/or Within (as applicable).
- The Company and the Vendors⁶ will form an operating committee which will be responsible for the overall management and operation of the Joint Venture, including the approval of work programs and budgets. The operating committee will comprise of:
 - three nominees of Cradle.
 - one nominee of the Volt Vendors' and
 - one nominee of the Within Vendors'
- The decisions of the operating committee will be made by simple majority approval, excluding certain reserved matters which will require the unanimous approval of the operating committee.
- The quorum for a meeting of the operating committee is two members, with one having been nominated by the Company and one having been nominated by the Vendors⁶.
- The Company will be appointed as the manager of the Joint Venture. The Company's appointment as manager may be terminated if (amongst other matters), the Company's Joint Venture interest is reduced to less than 25%. The Company's appointment as manager may be terminated by:
 - the Vendors⁶ if the Company's Joint Venture interest is reduced to less than 25%.
 - the Company with 30 days' written notice.
 - by any shareholder of Volt and/or Within if the Company has been determined by a court to have committed fraud or negligence or has wilfully defaulted on its obligations under the Joint Venture Agreement or the Company is subject to any insolvency event.
- The Company's obligations as manager are to use all reasonable endeavours to, among other duties:
 - prepare a work program for consideration and approval by the operating committee.
 - determine the nature, location, times, and manner of activities in accordance with the work program.
 - prepare proposals (including Project plans or management plans) for consideration by the operating committee.
 - conduct the Joint Venture operations in accordance with the work program and budget approved by the operating committee; and
 - be responsible for all day-to-day operations of the Joint Venture.
- The Company has an option to purchase the Joint Venture interests held by the Vendors⁶, which may be exercised at any time following the third anniversary of completion of the Acquisitions.
- The Vendors⁶ have an option to require the Company to purchase all their Joint Venture interests, which may be exercised at any time prior to the third anniversary of completion of the Acquisitions.
- The Company and the Vendors⁶ agree to jointly investigate and explore for geothermal resources in Queensland and South Australia (or such other region as agreed between the parties) (**Area of Interest**).

- If either the Company or the Vendors, or their respective related bodies corporate, acquire or propose to acquire an interest in any geothermal resource project, geothermal or exploration licence or application or similar within the Area of Interest (**New Business Opportunity**), then the relevant party must bring the New Business Opportunity to the operating committee for consideration and the operating committee may resolve by simple majority approval:
 - to bring the New Business Opportunity within the scope of the Joint Venture, in which case the New Business Opportunity will be deemed to be a part of the Joint Venture; or
 - that is not interested in the New Business Opportunity, in which case the New Business Opportunity may be pursued by the party bringing it to the attention of the operating committee.

The Joint Venture Agreement also contains other standard clauses customary to an agreement of this nature, including drag and tag provisions, representations, warranties and indemnities by the parties.

Board and Management

As the Company transitions into the renewable energy sector, the Company will appoint Mr Matthew (“Matt”) Kay as Managing Director on and from completion of the Acquisitions, and Dr Lawrence (“Trey”) Meckel as head of the Company's subsurface division. 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.

Matt Kay – Proposed 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 six-year period, to a circa \$4 billion ASX-listed company. Mr Kay 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, Mr Kay drove material sustained improvements in Beach's HSE performance and a commitment to Net Zero Emissions targets.

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

Prior to Beach Energy, Mr Kay 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, Mr Kay 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 Trey Meckel – Head of Subsurface Division

Dr Trey 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, Dr Meckel was the Subject Matter Expert for Strike Energy Limited'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 largest private, diversified energy company. Earlier in his career, Dr Meckel worked for Shell and Woodside Energy and Tately (a subsidiary of the Usaha Tegas Group), and was a co-founder and managing partner of a SE Asian E&P start-up.

Dr Meckel 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.

Dr Meckel 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.

Capital raising

The Company intends to undertake a capital raising under a prospectus to raise A\$6 million (before costs) (**Capital Raising Offer**). The Capital Raising Offer is an offer of up to 300,000,000 fully paid ordinary shares in the Company (**Shares**) at an issue price of \$0.02 per Share to raise \$6 million (before costs). The funds raised from the Capital Raising Offer will be used to, amongst other matters, fund the work program for the Projects and for working capital purposes.

The Company also intends to make secondary offers of options, subject to shareholder approval, as follows:

- 42,500,000 options to each sophisticated or professional investor that participated in the Company's placement undertaken on 7 July 2023 (**Placement Options**). Refer to the Company's ASX announcement on 7 July 2023 for further details. Each Placement Option will have an exercise price of \$0.05 per Placement Option and expiring three years from the date of issue;
- Up to 24,000,000 options to Directors, Messrs Grant Davey, Chris Bath and David Wheeler (**Director Options**). The Director Options have a nil exercise price, a term of five years and are subject to vesting conditions;
- The offer of up to:
 - 11,018,016 options to Mr Matt Kay, proposed Managing Director on completion of the Acquisitions (**Class A Management Options**). The Class A Management Options have a nil exercise price, a term of three years and are subject to vesting conditions; and
 - 24,000,000 options to Mr Matt Kay and Dr Trey Meckel (**Class B Management Options**). The Class B Management Options will be issued in three tranches, each with varying exercise prices (\$0.05, \$0.10 and \$0.15) and expiry dates (three years, four years and five years); and
- The offer of up to 15,000,000 options to be issued to Canaccord Genuity (Australia) Pty Ltd, as lead manager of the Capital Raising Offer, for services provided in connection with the Capital Raising Offer (**Lead Manager Options**). The Lead Manager Options will be issued in three tranches each with varying exercise prices and expiring three years from the date of issue, (together, the **Additional Offers**).

The Company will prepare and lodge a notice of meeting to seek, amongst other things, shareholder approval for the Acquisitions, the Capital Raising Offer and the Additional Offers.

Detailed information on the offer of securities under the Capital Raising Offer and the Additional Offers, 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 Capital Raising Offer are not satisfied, or the Company does not receive conditional approval for re-quotation 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 Capital Raising Offer and will repay all application monies received (without interest).

If the Capital Raising Offer does not proceed, the Company will not make the Additional Offers.

The pro forma capital structure of the Company assuming completion of the Acquisitions and Capital Raising Offer, is shown below:

	Number of shares	Number of options
Existing securities on issue ¹	229,964,218	-
Consideration shares to Vendors	220,360,329	-
Issue of Shares at \$0.02 under the Capital Raising Offer	300,000,000	-
Issue of Placement Options		42,500,000
Issue of Management Options ¹		35,018,016
Issue of Director Options ²		24,000,000
Issue of Lead Manager Options ¹	-	15,000,000
Total	750,324,547	116,518,016

Notes:

- Assumes no further securities are issued prior to the completion of the Acquisitions, other than as detailed in the table. Includes 42,500,000 Shares issued to sophisticated and professional investors under the placement undertaken by the Company on 7 July 2023. Refer to the Company's ASX announcement on 7 July 2023 for further details.
- Subject to Shareholder approval, the Company will issue the Placement Options to sophisticated and professional investors who participated in the placement undertaken by the Company on 7 July 2023. Refer to the Company's ASX announcement on 7 July 2023 for further details.
- Subject to Shareholder approval, the Company will issue the Management Options to Messrs Kay and Meckel comprising of:
 - 11,018,016 Class A Management Options to Mr Kay; and
 - 18,000,000 Class B Management Options to Mr Kay and 6,000,000 Class B Management Options to Dr Meckel.
- Subject to Shareholder approval, the Company will issue the Director Options to Messrs Davey, Bath, and Wheeler.
- Subject to Shareholder approval, the Company will issue the Lead Manager Options to Canaccord Genuity (Australia) Pty Ltd for services provided in connection with the Capital Raising Offer.

Indicative timetable

Event	Indicative Date
Dispatch Notice of Meeting to shareholders	Monday, 6 November 2023
Lodge Prospectus with ASIC and ASX	Wednesday, 8 November 2023
Capital Raising Offer opens	Wednesday, 15 November 2023
General Meeting	Wednesday, 6 December 2023
Capital Raising Offer closes	Friday, 8 December 2023
Completion of the Acquisition	Friday, 29 December 2023
Recommence trading on the ASX	Tuesday, 16 January 2023

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

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 renewable energy company, particularly its near-term emphasis on exploration success and resource development opportunities at the Projects.

Re-compliance with ASX Chapters 1 and 2

The Acquisitions 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 Acquisitions 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 Acquisitions. Investors should take account of these uncertainties in deciding whether or not to buy or sell the Company's securities.

Authorised for release by the Board of Directors.