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Queensland Geothermal Energy Project – Development Update

Greenvale Partners with CeraPhi Energy for Ground-breaking Geothermal Feasibility Study

Prominent geothermal consultancy and engineering firm CeraPhi Energy to deliver a feasibility study to unlock the potential of Greenvale's Longreach Geothermal Project

Key Points:

- **CeraPhi Energy to deliver an initial feasibility study on the potential for geothermal power generation at Longreach in Queensland.**
- **CeraPhi Energy has already commenced work on the feasibility study, which is scheduled to be completed in approximately 12 weeks.**
- **Greenvale secures an option to utilise CeraPhi's proprietary down-hole patents for its ground-breaking closed-loop geothermal technology.**
- **Technology offers significant environmental benefits – no fracking & no water use involved.**
- **Connection inquiry submitted to Ergon Energy for potential geothermal power plant at Longreach.**
- **Relinquishment of EPMs & EPGs with little potential.**

Greenvale Energy Limited (ASX: **GRV**, “**Greenvale**” or “**the Company**”) is pleased to advise that it has executed a binding Heads of Agreement (HOA) with prominent geothermal development company, CeraPhi Energy to deliver a feasibility study to unlock the potential of Greenvale's Longreach Geothermal Project in North Queensland.

In addition to outlining the key terms of the feasibility study engagement, the HOA between the two companies gives Greenvale a non-exclusive option to utilise CeraPhi's CeraPhiWell™ proprietary patents for its ground-breaking closed-loop geothermal technology.

Greenvale's technical team sees the CeraPhiWell™ proprietary patents as integral to unlocking the immense geothermal potential of its geothermal exploration permit application areas, specifically those in Longreach and the exciting Millungera Basin region.

CeraPhiWell™'s proprietary patents pertain to the unique design and installation of a down-hole heat exchanger system that innovatively employs existing technologies. This system

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offers remarkable versatility, enabling the recovery of commercially viable heat energy from the sub-surface in a wide range of locations.

Furthermore, the CeraPhiWell™ serves as a dependable contingency for wells that do not meet production expectations.

Commenting about the engagement of CeraPhi Energy, Greenvale CEO, Mr Mark Turner, said: *"We are very excited to be working with the CeraPhi Energy team. Not only will their skills and experience be of great benefit in advancing Greenvale's geothermal project areas, but the option to utilise their proprietary patents will undoubtedly prove invaluable as our geothermal strategy advances."*

Karl Farrow, Founder and Chief Executive Officer of CeraPhi Energy, said: *"Mining companies face significant challenges in decarbonisation due to the remote locations that many of these activities are carried out in. The ability to produce energy from closed loop geothermal virtually anywhere, enables us to place the energy where it is needed reducing the requirement of significant transmission and distribution systems which are not always possible and extremely costly to install. The opportunity to work with Greenvale Energy on this project demonstrates the versatility of our closed loop geothermal approach and its ability to become an anywhere solution for everyone."*

Greenvale is taking bold steps to explore new sustainable energy technologies and opportunities, in parallel with the advancement of its flagship Alpha Torbanite Project (QLD). The Company's commitment to finding an appropriate renewable energy source, is integral to unlocking the immense potential of Alpha.

In line with this commitment, Greenvale has chosen Longreach as the pilot area for its geothermal energy strategy and will partner with CeraPhi Energy to assess the effectiveness of its proprietary patents for the CeraPhiWell™ down-hole heat exchanger system.

Greenvale is continuing to make significant inroads with its renewable energy strategy, with EPG 2029 close to being awarded and plans to build Australia's first geothermal power station in Longreach using CeraPhi Energy's closed-loop technology. This technology will enable Greenvale to produce 24/7 baseload renewable energy with no groundwater usage, making it an environmentally friendly and sustainable option.

Moreover, the Queensland State Government's recent takeover of the CopperString Project is a positive development for Greenvale. The Project runs through Greenvale's EPG applications in the Millungera Basin, putting the Company in a favourable position to pursue geothermal opportunities in the area. The successful implementation of the Longreach Project is expected to pave the way for a larger-scale geothermal energy plant in the Millungera Basin, in line with the advancement of the CopperString Transmission Project.

Greenvale's innovative approach and the adoption of new technologies position it as a significant challenger in the sustainable energy industry, with the potential to drive real change.

About CeraPhi Energy

CeraPhi Energy was established with a clear mission to harness the power of geothermal energy and use it to create a meaningful impact in the global effort to reduce carbon emissions and combat climate change. The company boasts a unique blend of innovation, technology development, and has extensive experience in delivering successful energy infrastructure projects. This expertise is brought to bear on the development, delivery, and operation of projects that maximise returns and benefits for all stakeholders involved. Through its

commitment to sustainability and cutting-edge technology, CeraPhi Energy is a key player in the drive to create a more sustainable and eco-friendly energy landscape.

About CeraPhiWell™

The CeraPhiWell™ technology represents a breakthrough in closed-loop geothermal well systems, utilising a specially selected fluid circulated down a closed-loop well via proprietary systems that act as a down-hole heat exchanger.

Using proven oil and gas techniques and equipment to drill wells up to 5 kilometres deep, higher temperatures can be accessed and brought to the surface. The required heat output and the ground temperature gradient at the site determine the depth of the well.

Once installed and operational, the CeraPhiWell™ system requires minimal maintenance and no further interventions. Notably, the system is fully sealed, with no interaction with below-ground aquifers or permeable formations – and poses no potential hazard for unwanted pollution. Unlike conventional geothermal projects, there is no need for fracking techniques, which significantly reduces the risk of seismic events.

These features of the CeraPhiWell™ technology greatly reduce the risk profile for geothermal projects and increase confidence in their successful development and operation.

Geothermal Closed Loop Technology

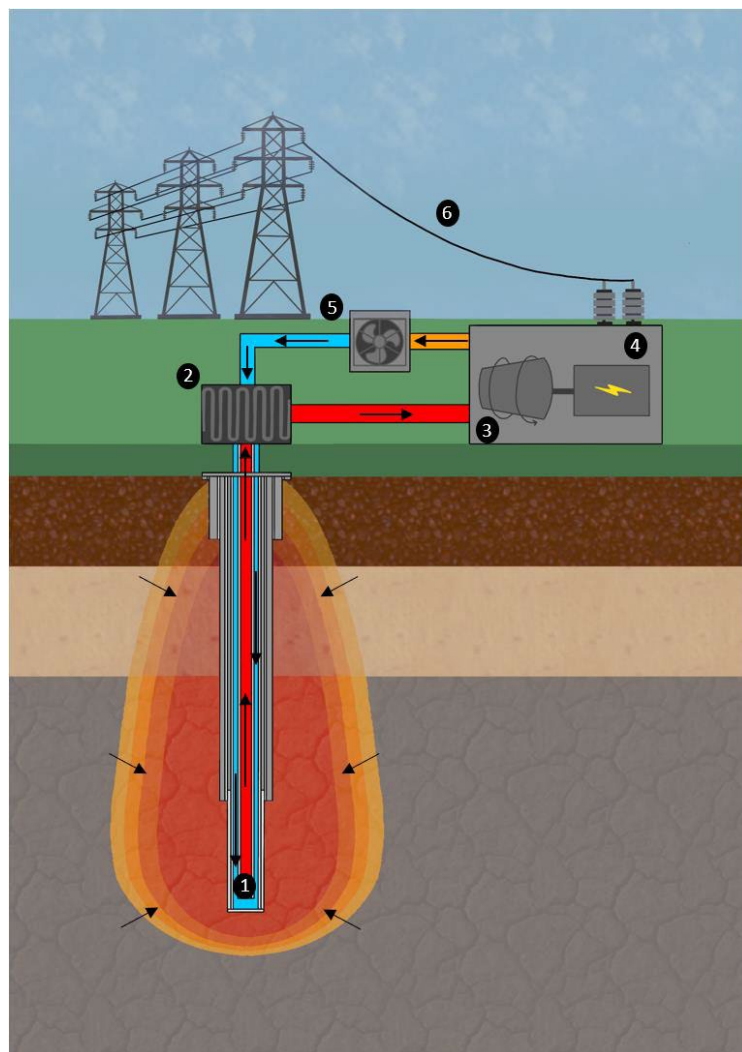


Figure 11: CeraPhi Well co-axial down-hole heat exchanger system

Fluid is circulated through the system (blue) down to the heat exchanger **(1)** where temperatures at the bottom of the well results in the conduction of thermal energy (red), which is returned to the surface heat exchanger **(2)**.

The thermal energy, in a controlled combination of pressure and temperature, is then routed through the surface heat exchanger to another medium within the Organic Rankine Cycle (ORC) plant. This energy expands into the ORC turbine **(3)**, internally turning the generator to produce electricity **(4)**.

The hot fluid is then directed to the coolers **(5)**, condensing into a cooler state and returning to the surface heat exchanger **(2)**, where the well circulation reheats it. Power is sent to the substation **(6)** for transmission to the end user.

Advantages of Geothermal Closed-Loop Technology

Geothermal closed-loop technology offers several significant environmental advantages over traditional geothermal technologies. It requires no fracking, eliminating the risk of environmental damage and the potential contamination of groundwater. It also dramatically reduces the release of harmful greenhouse gases.

Furthermore, closed loop systems involve no water use, no produced brine or solids, and no degradation of aquifers, making it an exceptionally eco-friendly option. Additionally, closed-loop technology is not associated with earthquake risks, making it a safe and reliable option for sustainable energy production.

Geothermal energy is a reliable and flexible source of power that can be easily adjusted to meet changing energy demands. Its continuous supply ensures a constant and stable source of electricity without the need for expensive transmission infrastructure.

In addition, geothermal technology can provide the same steam power as coal-fired power plants, making it a viable replacement option for coal. This means that geothermal energy can play a crucial role in transitioning to more sustainable energy sources, providing a cleaner and more efficient solution for meeting our energy needs.

Ergon Connection Enquiry

In parallel with the engagement of CeraPhi Energy, Greenvale has also lodged a formal connection enquiry with Ergon Energy regarding the potential for a geothermal energy plant at Longreach.

Understanding the grid connection costs will allow Greenvale to assess the potential commercial pathways available better if the Longreach permit proceeds to development.

The Greenvale team has also started investigating the possibility of private off-take partners for any power generated at Longreach.

Relinquishment of Permits

Greenvale has decided to forego the extraction of sub-surface brines and associated elements, including lithium, to focus exclusively on sustainable energy production as part of its geothermal strategy. As a result, the Company has decided not to proceed with the associated EPM applications and has relinquished the two permits that had been granted.

Additionally, after an internal review identified their limited geothermal potential, Greenvale has withdrawn its EPG 2021 and EPG 2022 applications.

Moving forward, the Company will direct its resources towards two key projects: a small-scale power generation initiative in Longreach and a potentially large-scale project in the Millungera Basin. By focusing on sustainable energy production and utilising the latest technologies, Greenvale is positioning itself as a leader in the drive towards a more sustainable and eco-friendly energy future.

Authorised for release:

This announcement has been approved by the Board of Greenvale for release.

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