

## The Commercialisation of Geothermal Energy in Australia

An analysis of the recent investment performance, challenges, opportunities and outlook for the Australian geothermal energy sector.

Date 14<sup>th</sup> September 2009

Release HM-00909/02

Author Activated Logic Editorial Team

Location Brisbane

Sector Energy / Renewables / Geothermal

Key-words AltaRock Energy Inc  
Australian Geothermal Index<sup>TM</sup>  
Engineered Geothermal System  
Geodynamics Ltd  
Geothermal Energy  
Panax Geothermal Ltd  
Petratherm Ltd  
Renewable Energy Target  
Torrens Energy

Contact Ms. Naomi Keogh  
+61(07) 5561 7282



**Ms. Naomi Keogh**

M.Arts(Writing), AMAMI, MAICD

Communications Director

# The Commercialisation of Geothermal Energy in Australia

An analysis of the recent investment performance, challenges, opportunities and outlook for the Australian geothermal energy sector.

BRISBANE, AUSTRALIA. A report released this week by strategic research and geothermal advisory firm, Activated Logic - has found that despite the challenging investment climate, interest and investment in the Australian geothermal sector is at an all-time high.

The Australian geothermal sector has not been immune from the downturn in investment, with Activated Logic's benchmark index, the Australian Geothermal Index™ (AGI™) closing at a 12-month low on the 21<sup>st</sup> of November last year. The AGI™, made up of the 9 ASX-listed geothermal companies, valued the sector at \$331 million, less than half the sectors \$700 million valuation back in July 2008.

Despite the challenging investment environment at the beginning of the year, investors remain interested in the sector and are specifically monitoring the advanced projects which are approaching key milestones. With confidence returning to global equity markets in recent months and the Senate having passed the Federal Government's renewable energy target (RET) legislation in August, the AGI™ is hovering at around \$450 million, up 36% from its recent lows.

With market sentiments improving, successful first round Geothermal Drilling Program (GDP) grant recipients, Petratherm (ASX: PTR) and Panax Geothermal Ltd (ASX: PAX) led the capital raising efforts earlier in the year by bolstering their balance sheets by \$7 million and \$9.3 million respectively. More recently Green Rock Energy (ASX: GRK) also managed to successfully place \$1.43 million through a private placement.

With more than 50 private geothermal companies active in Australia and appetite for risk returning to financial markets, a string of initial public offerings are expected in the next 3-9 months, with Sydney based Granite Power likely to be the first to hit the market with an expected \$50 million IPO later this year or possibly early next year.

Activated Logic believes the recent flurry of investment in the geothermal sector is part of a broader theme in investment markets with the global financial crisis proving to be a strong catalyst for the increased interest in both ethical and sustainable investments. The increased interest in renewable energy is also supported by a platform of macroeconomic measures including strong government support for developing and installing sustainable sources of power generation. A report released by HSBC Global Research earlier this year estimated that "more than US\$430 billion out of the US\$2.8 trillion in tax cuts, credits and extra spending by governments has been allocated to climate change investment themes".

All Australian states now have an established framework in place for the licensing and regulation of geothermal exploration activities, however the majority of exploration activity remains firmly focused on South Australia. South Australia already has an established and growing wind-power industry and earlier this year the State Government bolstered its green credentials by committing the state to an ambitious renewable energy target of 33% by 2020, significantly higher than the recently approved 20% by 2020 National renewable energy target.

In an effort to demonstrate the benefits of investing in renewable energy infrastructure, last week the Australian Geothermal Energy Association (AGEA) released a report prepared by energy consultants McLennan Magasanik Associates into the major electricity transmission infrastructure in South Australia. The major finding was "The cost of bringing forward transmission investment compared to the business as-usual case is estimated at \$171 million and is dwarfed by the clear benefits arising from cheaper base load power delivered to the NEM (National Electricity Market)". The report further concluded that "this would result in net economic benefits of \$1.06 billion for SA customers and the geothermal industry from 2011 to 2030".

AGEA is proposing the development of major electricity transmission infrastructure "linking geothermal projects in the northern part of South Australia to the National Electricity Market" as a means to "link Australia's two most advanced geothermal energy projects - Geodynamics' Habanero project in the Cooper Basin and Petratherm's Paralana project in the northern Flinders Ranges".

Activated Logic recognises the potential benefits which may be realised through the development of such an infrastructure initiative, however believes this option needs to be compared and contrasted with other potential options available for the development of the Australian geothermal industry as a whole.

**Activated Logic Managing Director Mr Bahay Ozcakmak said a broader range of initiatives need to be considered to accelerate the development of the Australian geothermal industry.**

“Traditionally, the successful commercialisation of emerging technologies requires significant and enduring technical and financial support during the research, optimisation and demonstration stages of project development. In light of recent challenges faced by the Australian Engineered Geothermal System (EGS) developers, both South Australian based Geodynamics (ASX: GDY) and Petratherm (ASX: PTR) have experienced unexpected issues. A month after Geodynamics demonstrated positive proof of concept results at the end of March this year, the company announced a major “blow-out” at its flagship Habanero-3 well. Petratherm is also experiencing a challenging drilling environment with the Paralana well taking longer to drill than first thought. The EGS arena has been just as eventful in North America with the Google backed geothermal project at the Geysers in California operated by AltaRock being halted earlier this month due to formation issues”.

“We are familiar with the respective projects operated by Geodynamics and Petratherm and obviously share the same hope and optimism the rest of the sector shares, however we believe the industry has more immediate challenges”.

“Given there are around 70 companies in Australia with interests in geothermal energy exploration and development, and the major need for funds to further assist in the optimisation of deep-drilling and reservoir stimulation, I think it would be very difficult to justify the concentration of investment on infrastructure that will largely benefit two particular companies”.

“The proposed “bringing forward” of transmission related investments at a cost of \$171 million needs to be put into context of the Federal Government’s \$50m Geothermal Drilling Program which will provide 7 separate geothermal projects with the opportunity to demonstrate project proof of concept.”

“Our analysis shows a much higher expected return on investment for investment at the earlier stages of project commercialisation by reducing the technical risk associated with geothermal projects in Australia and increasing the likelihood of attracting direct investment and achieving commercial success”.

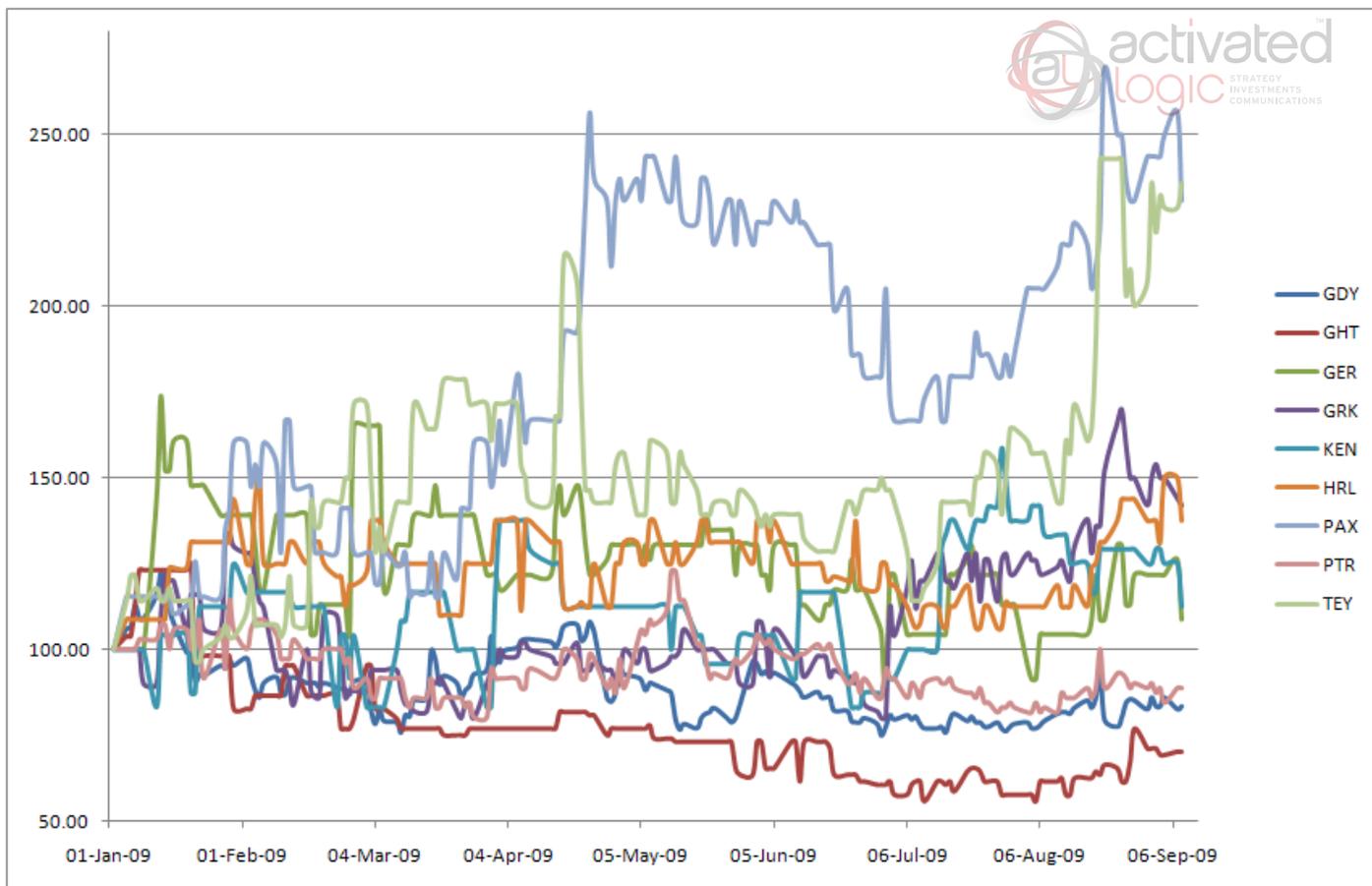
“Our view is consistent with the detailed renewable energy commercialisation study conducted by New York University’s Stern School of Business which found that with US\$3 billion of early stage technology based investment, geothermal energy generation could be competitive with coal by 2012”.

“In a capital constrained environment, prospective investors are heavily discounting the prospects of remote geothermal projects heavily. Investors are asking themselves, if company A is going to need \$300 million of powerlines before they make a penny, what are my chances of achieving a return commensurate with the level of risk I am taking? In many cases, remote projects host very attractive geology, in some cases world-class tenure; however the sheer distance from population centres or industrial customers requires an enormous investment hurdle cautious investors are reluctant to get over”.

By comparing the share price performance of the 9 ASX-listed geothermal “pure-plays” the recent study conducted by Activated Logic concluded that the top-performing geothermal companies are those with major projects in the immediate vicinity of high-voltage powerlines (refer to attached chart). The two companies Panax Geothermal (ASX: PAX) and Torrens Energy (ASX: TEY) shared first place the largest increase in share price this year, both operate advanced projects adjacent to major power transmission infrastructure.

“Not only do we expect this investment trend towards geothermal projects in close proximity to electricity transmission infrastructure to continue, but we expect shallower and more conventional projects to receive increased investor interest. One project which ticks all these boxes is Panax Geothermal’s Penola project with the production well, Salamander-1 expected to spud in the coming month or two”.

## Share Price performance of ASX-listed Geothermal Companies (Jan – Sep 2009)



Share prices of all 9 geothermal companies have been normalised and rebased at 100 on the 1<sup>st</sup> of January 2009 to provide a like-for-like comparison of relative performance of individual geothermal companies over the specified duration.

“Now that the RET has been passed and investors are willing to take a slightly longer view on investments, we expect not only primary listings but also M&A activity to pick-up, with strategic power and REC purchase agreements to be a strong catalyst for the next phase of market activity. Through these channels, Activated Logic is continuing to assist Australian geothermal companies bring forward and crystallise some of the latent value embedded in key projects”.

- Ends -



## About the Australian Geothermal Index™

The Australian Geothermal Index (AGI™) is the benchmark composite index of the 9 solely geothermal focused companies listed on the Australian Securities Exchange (ASX). The AGI™ was based at 100 using Laspeyre's PI methodology (as was the XAO) on the 1<sup>st</sup> of July 2008 to provide an indication of the relative performance of the AGI against the XAO.

Activated Logic also publishes a broader sub-index of the AGI™ which covers ASX-listed companies with equity interests and also the significant private segment of the industry with geothermal projects in Australia.

^ The Australian Geothermal Index was developed by and is owned and managed by Activated Logic Pty Limited. More information is available at [www.geothermalindex.org/agi.html](http://www.geothermalindex.org/agi.html)

## About Activated Logic

Activated Logic is the leading provider of innovative geothermal project development and commercialisation solutions in the Asia Pacific region. Through our extensive interests in the geothermal industry ranging from extensive industry research through to our commercial partnerships, Activated Logic is the ideal partner to take a project from any stage of development through to rapid and sustainable commercial success.

Activated Logic is a member of the Australian Geothermal Energy Group (AGEG).

## Additional Resources

Activated Logic  
[www.activatedlogic.com](http://www.activatedlogic.com)

Australian Geothermal Energy Association  
[www.agea.org.au/](http://www.agea.org.au/)

Australian Geothermal Energy Group  
[www.pir.sa.gov.au/geothermal/ageg](http://www.pir.sa.gov.au/geothermal/ageg)

Australian Geothermal Index™  
[www.geothermalindex.org/agi.html](http://www.geothermalindex.org/agi.html)

Australian Geothermal Industry - Technology Roadmap  
[www.ret.gov.au/Pages/default.aspx](http://www.ret.gov.au/Pages/default.aspx)

Australian Geothermal Industry - Development Framework  
[www.ret.gov.au/Pages/default.aspx](http://www.ret.gov.au/Pages/default.aspx)

## Disclaimer & Disclosure Notice

The publisher of this publication, Activated Logic Pty Limited ABN 62 134 740 293 ("Activated Logic"), its directors, officers, staff and their associates from time to time may hold shares in the securities mentioned in this publication and as a result may benefit from any change in the price of the relevant securities. Activated Logic and its advisers may earn brokerage, fees, commissions, other benefits or advantages as a result of a transaction arising from any research or opinions mentioned in this publication and distributed to existing and future clients. Activated Logic may have provided corporate advice within the past and may continue to provide corporate advice to companies (or related parties) concerned, for which Activated Logic may have received gross fees and/or continue to receive fees.

Any advice contained in this document is unsolicited general advice and is provided for information purposes only. Do not act on this advice without first consulting your financial or investment adviser to determine whether the advice is appropriate for your specific investment objectives, financial situation and particular requirements. Activated Logic believes that any information or potential advice contained in this publication was accurate when issued, however Activated Logic does not warrant the accuracy or reliability of this information. Activated Logic, its directors, officers, staff and their associates exclude all liability whatsoever, in negligence or otherwise, for any loss or damage resulting from the use or circulation of this publication to the full extent permitted by law.

THIS PUBLICATION DOES NOT CONSTITUTE FINANCIAL ADVICE

## Media Enquiries

The Activated Logic Communications Director (CD) is the authorised spokesperson designated and intended as the main contact for companies or individuals seeking additional information about Activated Logic, Media Releases our NDA or Privacy Policy. For additional information regarding this publication or any of our policies, please contact Ms. Naomi Keogh - [naomik@activatedlogic.com](mailto:naomik@activatedlogic.com)

## Contact/Feedback

Activated Logic is committed to the principles of Total Quality Management (TQM) and various other continuous improvement systems.

**T** +61(0)7 5561 7282 **F** +61(0)7 5561 8984 **E** [info@activatedlogic.com](mailto:info@activatedlogic.com) **W** [www.activatedlogic.com](http://www.activatedlogic.com)

## Mailing Address

Attention - Communications Director. PO Box 889, Sanctuary Cove, Queensland 4212, Australia

© Copyright 2009. Activated Logic Pty Limited. All rights reserved.

All contents of this publication including copywriting, original images, illustrations and additional artwork are protected by Australian & International Copyright Laws, specifically by numerous provisions of the Australian COPYRIGHT ACT of 1968 and subsequent amendments and extensions as applicable. The Activated Logic Logo is an Australian Registered Trade Mark, (No. 1281315 - the Atomic Orbit Around Ltrs Device), and use of a substantially identical or deceptively similar trade mark is strictly prohibited by Australian Copyright and Trademark Laws.