

ASX Release



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Recent Media Coverage on Petratherm

Attached is an article published in today's EnergyNews entitled "Hot rocks hopes hold" discussing Petratherm and the geothermal sector.

Yours faithfully

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Hot rocks hopes hold

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David Upton

AGAINST all odds Adelaide-based Petratherm could yet prove geothermal energy is a commercial proposition.

This week's budget decision to shut down the Australian Renewable Energy Agency has not affected the company, which long ago locked in two grants worth a total of \$40.5 million.

However, the shutdown of ARENA, combined with highly negative investor sentiment, means it is up to the handful of players left in the sector to make or break geothermal energy with the resources they have.



Hot springs and fumaroles near Panax's Ngebel geothermal project, East Java, Indonesia

It could well be the last chance for geothermal in a generation.

Remarkably, Petratherm could yet pull it off, but its chances of doing so are hanging by a thread.

Some background first. Brisbane-based Geodynamics and its Innamincka project are synonymous with the vision of geothermal energy based on hot engineered rocks.

The company raised more than \$500 million in boom-like conditions, and spent all of it on five very deep, very expensive wells in hard, hot granites.

Geodynamics managed to develop a pilot power generation project putting out 1MW, but it was an underwhelming return on investment.

The only other companies to drill geothermal wells – Petratherm and Panax – lived in Geodynamics' shadow, and that has a lot to do with the negative sentiment still plaguing the sector.

Petratherm and Panax pursued fundamentally different approaches to Geodynamics, but investors did not want to make any distinctions.

Geodynamics' idea was to drill into the hottest rocks it could find and turn them into a reservoir by using brute force.

At the other end of the scale, Panax chose to drill into water-saturated sandstones above volcanic heat in the southeast of South Australia.

The temperature of the water was much cooler than at Innamincka, but hot enough.

All Panax had to do was extract hot water from the existing reservoir and use the steam to run a turbine. Sadly, drilling the well ruined the permeability of the natural reservoir.

Panax is now pursuing traditional geothermal projects in volcanic island chains, as is Geodynamics.

Petratherm was in the middle of these competing approaches. It found hot, deep basement rocks at

Paralana in the Flinders Ranges, but reasoned that naturally fractured shales overlying the basement would be hot enough and much cheaper to drill and engineer compared to Innamicka.

It was right. Petratherm drilled the Paralana-2 deep geothermal well in 2009, and fracture stimulated a number of horizons in mid-2011. On testing, the water temperatures and flow rates were better than predicted.

In fact, the only thing Petratherm did not foresee was the shale would be water saturated, which meant no need to truck water to the site. It could circulate what was already there.

To get to this point, the project has cost \$36 million, which includes the cost of bringing in a specialised rig from the US and sending it home again. The rig drilled the Panax well while it was here, but hopes for recouping more mobilisation costs from third party wells were dashed when investor sentiment turned sour.

Petratherm managing director Terry Kallis is keen to point out that only \$6 million of the \$36 million invested to date has been public money.

"The private sector has done the heavy lifting on this project, which surprises a lot of people who criticise the sector for relying on the government to get anywhere," he said.

"That certainly has not been the case at Paralana.

"The results from the project have exceeded all our expectations. We haven't put a foot wrong, but sentiment about geothermal energy is so negative."

Petratherm has a 79% stake in the project, with Beach Energy holding the balance. Tru Energy (now EnergyAustralia) contributed \$5 million as part of a farm-in deal, but opted out before it was entitled to any equity.

With investor sentiment towards geothermal still in the basement, Petratherm has struggled to raise the funds for a second well to create a flow loop in the hot sedimentary rocks at Paralana.

Last year, the company received a grant under ARENA's Emerging Renewables Program. The federal government will match on a dollar-for-dollar basis the costs of the next phase up to a maximum of \$13 million.

If this grant is taken up, the public contribution to Paralana will still be only \$19 million or only 30% of a total project investment of \$62 million.

Before reaching that point, Petratherm must satisfy two conditions. Beach must stump up its 21% share of the costs for the next phase of the project, which it has approved.

The remaining hurdle is the need to raise additional equity funding of \$5 million.

The deadline for meeting this condition is 19 July – a little over two months from now.

Completing this phase successfully would pave the way to accessing a further grant of \$27.5 million towards the cost of building a geothermal power demonstration plant.

As the deadline closes in, Petratherm is going to extraordinary lengths to preserve its cash in case it is unsuccessful and must meet the costs of putting the project on a care and maintenance basis.

Last month, four of the company's seven directors retired, which follows a decision a year earlier to cut directors' fees in half, pay board fees on a deferred basis and pay in scrip rather than cash.

The directors who retired last month are blue bloods of the resources and utilities sector – the former chief of South Australia's power utility Lewis Owens, petroleum geoscientist and drilling technology guru Professor Richard Hillis, mineral exploration legend Derek Carter and pillar of the Adelaide establishment Richard Bonython.

It would be tragedy if the best hope in Australia – and arguably the world – of proving geothermal power from engineered rocks falters at this stage because of negative misconceptions.



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