

## Torrens turns up the heat

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**HOT rocks explorer Torrens Energy plans to spud the first well in a nine-hole drilling campaign this week, using funds from a \$3m Federal Government REDI (renewable energy development initiative) grant to prove up the geothermal potential of a 2000-square kilometre area north of Port Augusta, South Australia.**

"We'll be using normal minerals rigs to drill to about 500 metres to map heat flow," chief executive Chris Matthews said.

"That's deep enough for us to be able to assess heat flow and to gauge how hot the site will be at greater depths. It's a cheap way to cover large areas."

The district being explored – the Torrens Project area – is recognised as being an area of high geothermal heat flow, and like the company's other projects it lies in a geological corridor known as the South Australian Heat Flow Anomaly, according to Matthews.

A single drill hole in the area, drilled down to 1000m, has a high temperature reading and that site has been modelled to have a heat of 230C at 5km depth, he said.

"This trend has heat-generating rocks at great depth – deep uranium, thorium and potassium deposits in large diffuse bodies – with overlying sedimentary insulation," Matthews said.

"But just as importantly, our projects are in the heart of infrastructure. They're close to markets and on the electricity grid."

Two projects are also near the coast, and Torrens sees potential to use seawater for direct power generation and cooling, as well as possible synergies in hybrid power generation and desalination.

Matthews said climate change would not only increase demand for desalinated water but also for cleaner energy.

"People are demanding more energy – the energy supply has not been keeping up with peak demand in recent years – but there is also a demand for cleaner energy, particularly for baseload power," he said.

"Hot rocks can deliver baseload power and this is a very good time to be in the sector."

Many investors agree. In April, the company debuted on the Australian Securities Exchange at a 75% premium to its 20c issue price. It has traded as high as 96c, and yesterday it closed at 48c.

Torrens has three project areas and each comprises several geothermal exploration licences (GELs), all on the main electricity grid.

The Adelaide Project consists of four GELs covering 1700sq.km on the Adelaide Plains north of the South Australian capital. The bulk of the project area is flat, barren and undeveloped, yet close to the metropolitan area.

According to Torrens Energy, temperature modelling based on existing data and that collected by has found that a temperature of approximately 200C may exist at a depth of 5000m close to the northern

suburbs of Adelaide.

The Barossa-Clare Project lies inland, east and northeast of the Adelaide Project.

Temperature modelling undertaken so far by Torrens has found one part of this four GEL 2000sq.km area has the highest modelled temperature in Torrens Energy's GELs – around 240C at a depth of 500m.

The company's key project area, the Torrens Project, lies about 100km north of the Barossa-Clare Project and about 25km north of the regional industrial centre of Port Augusta.

It includes seven GELs along the eastern flank of the Lake Torrens salt flats and covers 3500sq.km.

Basement rock in this area is characterised by uranium rich radiogenic iron oxide deposits such as those found at Roxby Downs and Olympic Dam.

"Such deposits have extremely high heat generating capacity," Torrens said.

"There is potentially 3000 to 5000 metres of insulating sediments in this area, including the Wonoka, Bunyeroo, Brachina and Tapley Hill Formations.

"The thermal conductivities of these units have been measured from existing core samples and their good insulating properties have been confirmed."

It is in this area that Torrens will begin drilling this week.

Matthews conceded there was still some scepticism about the potential of hot rocks for power generation, but said the sector was likely to soon have the definitive proof of concept the market has been waiting for.

The Landau hot rock project in Germany is due to come online before year-end.

This scheme involves a small power station generating electricity from an engineered hot rock reservoir and the developers are reportedly confident.

In addition, Australian hot rocks pioneer Geodynamics is drilling its Habanero-3 well. The company is using Australia's largest onshore rig, specifically purchased and imported to meet the challenges of this deep well, and Habanero-3 is likely to be completed successfully.

Once the well has been completed, Geodynamics must use fracture stimulation to connect it with Habanero-1 and create a closed-loop injection well and production well system.

"It's an excellent project. They've got the right underground reservoir and the fractures look good," Matthews said.

Torrens was optimistic that the Habanero project would prove successful and help pave the way for other hot rock companies.

If Torrens' exploration program proceeds smoothly and the hot rocks sector builds momentum, Matthews is hopeful Torrens will have a power plant operating within four to seven years.

"And we don't expect to be the first company in Australia to produce power from hot, dry rocks," Matthews said.

"But we believe in our acreage and our projects, and we think they are well located. We're not the first mover, but we're a fast follower, and we believe we've put ourselves in a good position."

