

SEL 9/2009

NORTH-WEST TASMANIA

ANNUAL REPORT

for period ending

NOVEMBER 2010

Prepared for:

Gullewa Geothermal Pty Limited
Level 8, Philippine Airline House
49-51 York Street
Sydney, NSW, 2000

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Prepared by:

Lindsay Newnham, BSc, FAusIMM, CPGeo
Newnham Exploration and Mining Services
PO Box 183 Exeter Tasmania 7275
Ph: (03) 6394 3434 Fax: (03) 6394 3435

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- 1. Report “*Geothermal Systems Assessment of SEL 9/2009, north-west Tasmania*”, by Hot Dry Rocks Pty Limited, February 2010**

1. SUMMARY

Special Exploration Licence 9/2009 covers a large area of western and northern Tasmania where the underlying geology is interpreted as having the potential to generate geothermal heat energy suitable for conversion at surface into baseload electrical energy.

The geothermal targets are:

- enhanced geothermal systems (EGS) associated with high heat generating granites 4,000-5,000 m below surface
- hot sedimentary aquifers (HSA) overlying these high heat generating granites, in formations 3,000-4,000 m below surface

Work during the year was focused on completion of a geothermal systems assessment report of the licence area. This report highlighted three priority areas:

- Sheffield region
- Hampshire
- Zeehan-Renison area

The Zeehan-Renison area is interpreted as having both HSA and EGS potential.

The deep hot rock geothermal industry is an embryonic industry and, as it is slowly maturing, a range of technical and financial issues associated with the industry have been identified.

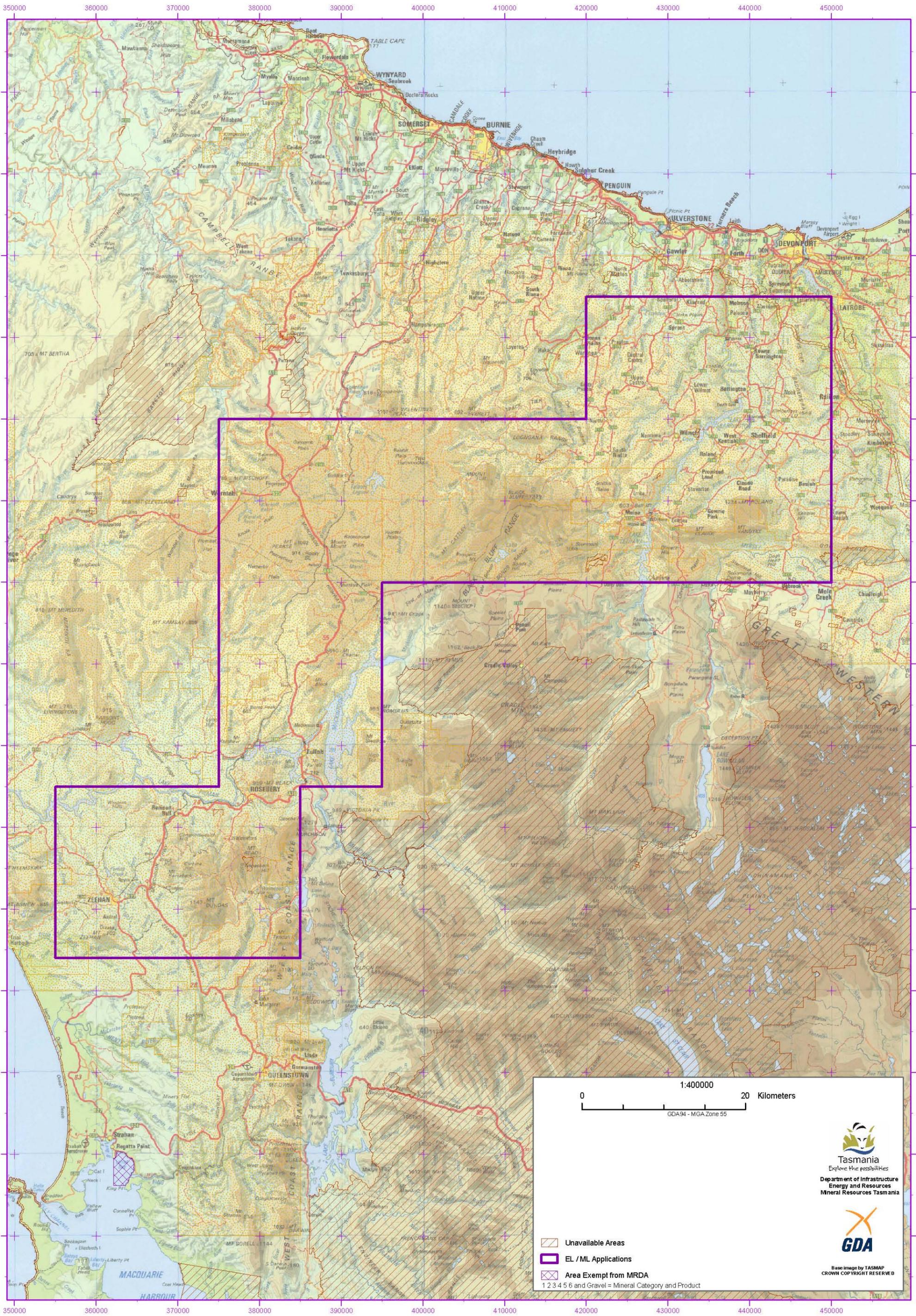
It is unlikely that these issues will be appropriately/effectively addressed within an acceptable investment time-frame without the assurance of significantly higher long-term electricity prices.

In the coming year it is likely that work on SEL 9/2009 will be focused on the Zeehan-Renison area but the nature of this work will reflect investment incentives available for the low greenhouse gas emissions electricity sector.

2. LOCATION and TENURE

SEL 9/2009 covers a 3,028 sq km area of northern and western Tasmania. It is held for geothermal substances and excludes existing Mining Leases (see Fig 1).

The Licence is held by Gullewa Geothermal Pty Limited, a wholly-owned subsidiary of Sydney-based, ASX listed, Gullewa Limited.



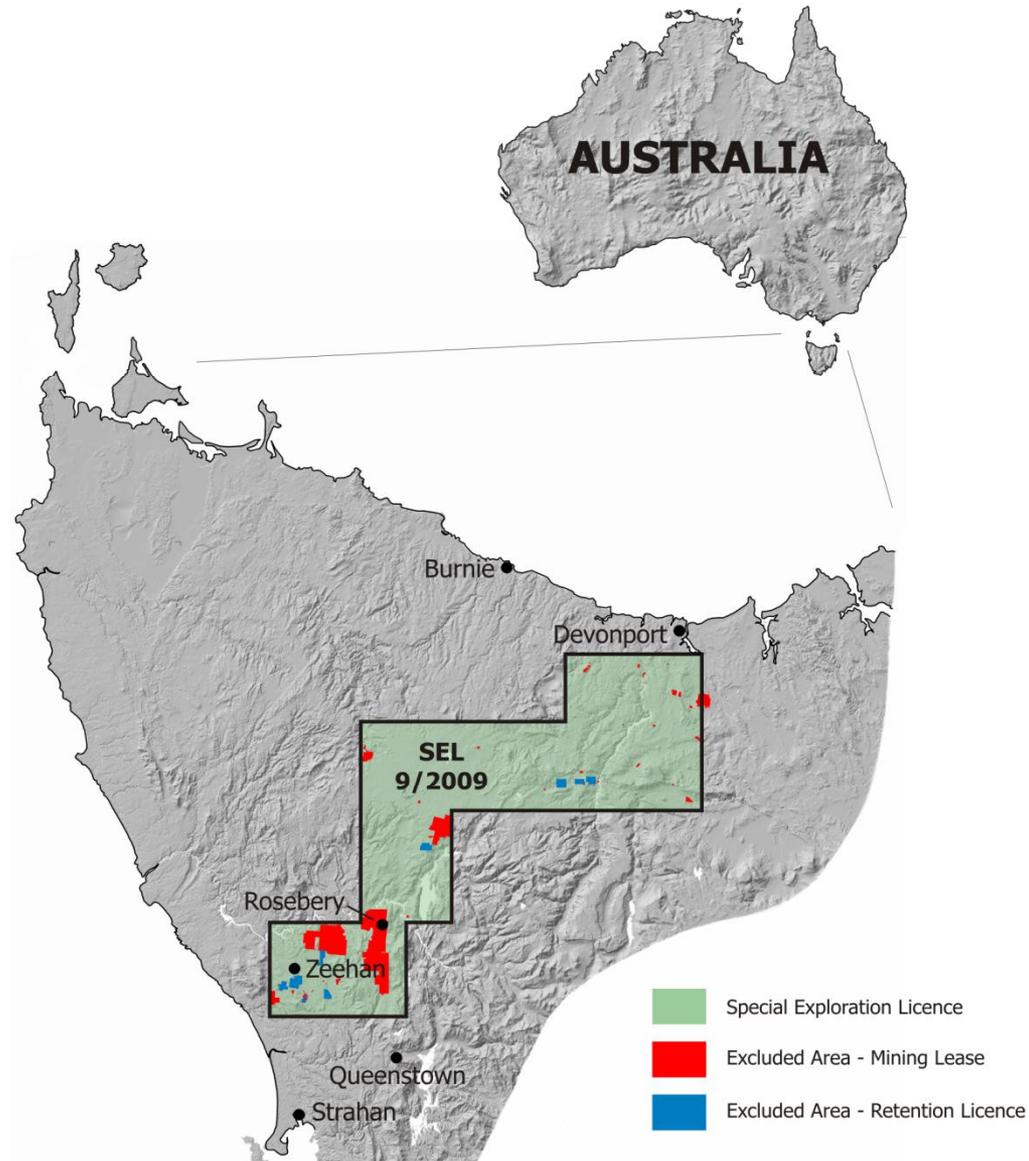
0 1:400000 20 Kilometers
GDA94 - MGA Zone 55

Unavailable Areas
 EL / ML Applications
 Area Exempt from MRDA
 1 2 3 4 5 6 and Gravel = Mineral Category and Product

Tasmania
 Explore the possibilities
 Department of Infrastructure
 Energy and Resources
 Mineral Resources Tasmania
 GDA
 Base image by TASMAP
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TENEMENT LOCATION



3. WORK COMPLETED 2009-10

3.1 Development philosophy:

SEL 9/2009 covers an area regarded as having the potential to produce geothermal energy from deep hot rock geothermal sources.

The geothermal gradient in the region is relatively high because of the thin crustal conditions, and this gradient is further enhanced by the widespread intrusion of high heat generating Carboniferous granites.

To be of potential commercial value, such geothermal heat sources must be in the range of 120-200°C at depths no greater than 5,000 m.

There are two basic target types within the licence area:

- EGS (enhanced geothermal systems) where the hot rocks must be artificially fractured to enhance the permeability to the extent that large volumes of injected water can be suitably heated prior to returning to surface.

Such systems can be developed either within the high heat generating granites or in the heated rocks overlying these granites.

- HSA (hot sedimentary aquifers) where the injected water to be heated is transmitted through formations containing natural porosity and permeability.

EGS systems can be hotter and deeper than HSA systems but are more expensive to develop and present substantial technical challenges.

3.2 Work completed:

During 2009-10 the following work was undertaken on SEL 9/2009:

- A geothermal systems assessment report on the licence was completed by consultants Hot Dry Rocks Pty Limited. Their report is appended to this report.
- Field investigation of the Hampshire target area to locate existing drill holes and determine their value for heat flow studies.

The HDRPL assessment report highlighted three large areas with deep hot rock geothermal potential. These areas were:

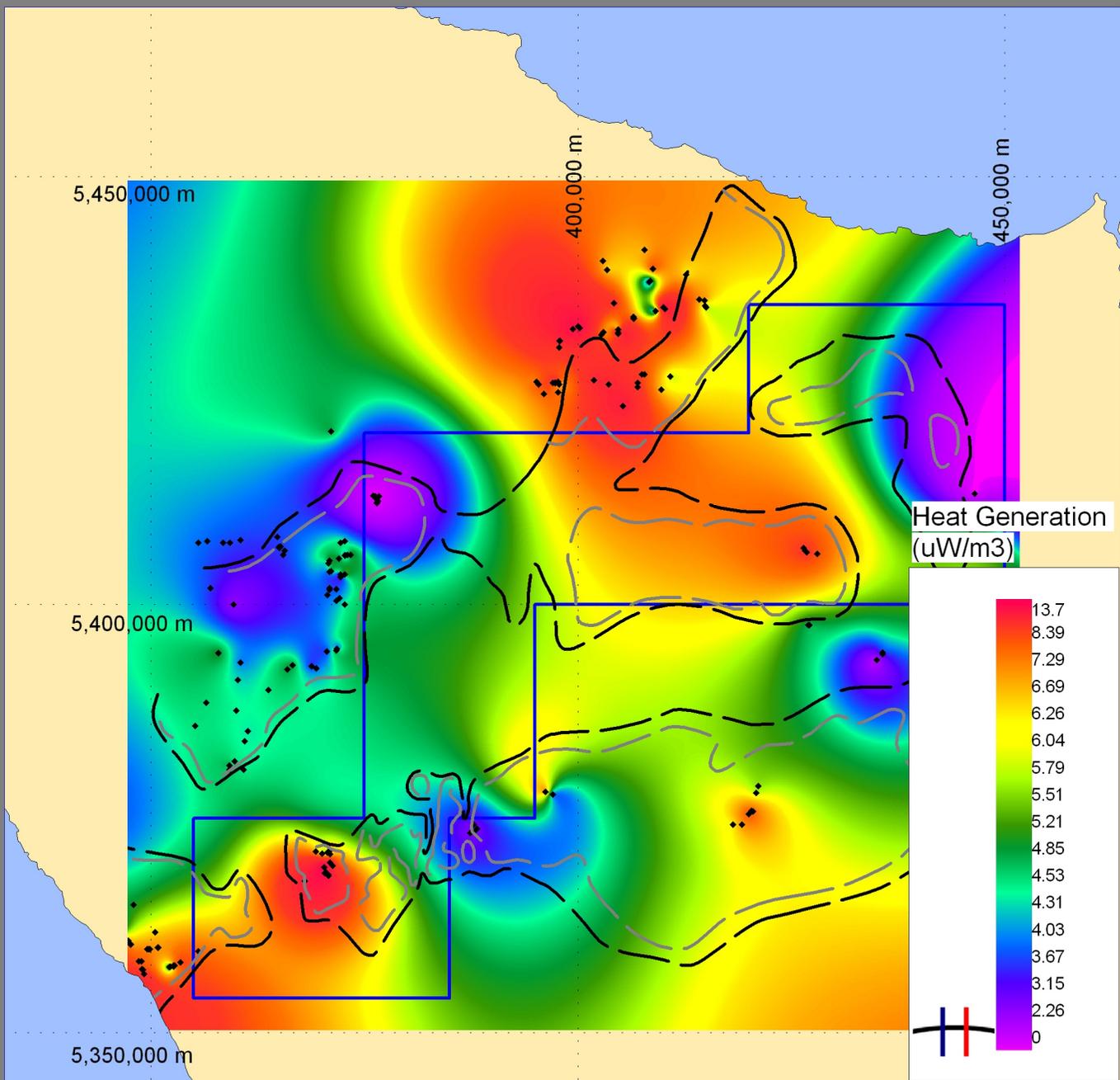
- Sheffield region
- Hampshire
- Zeehan-Renison

All three areas are extensively underlain by high heat generating granites in the 3,000-5,000 m depth range, and temperatures of 150-200°C are predicted at around 4,000 m depth.

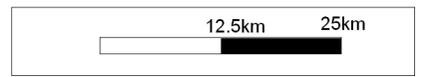
The Sheffield and Hampshire areas are essentially EGS targets. The Zeehan-Renison area is potentially both an EGS and HSA target with interpreted deep sequences of permeable Palaeozoic sediments in the region.

All three areas are ideally located with respect to supportive infrastructure and the State electricity grid.

The search of the Hampshire area for collars of previously drilled exploration holes met with limited success. Only two steel-cased collars were located and it is suspected that down-hole conditions may be poor.



Granite 2km Isobath
 Granite 4km Isobath
 SEL9/2009



4. ISSUES CONFRONTING PROJECT

The deep hot rock geothermal industry is an embryonic industry and, as it slowly matures, it is confronted by a number of substantial challenges, including:

- high cost of initial development
- significant technical risks
- long lead times
- power pricing and grid connectivity

Globally to date only two small deep hot rock geothermal schemes in Germany are in operation.

One is an HSA type, the other an HSA-EGS hybrid. Each produces 3-4MWe. Both relied heavily on government grant development assistance and heavily subsidised power prices.

Elsewhere, small HSA plants (0.25-0.5MW) operate at Birdsville and in western USA.

The high cost of initial development is largely associated with drilling, where each production/injection well can cost \$10-15M. To date the maximum energy derived from a well is about 5MWe.

Significant technical risks have been associated with development of deep hot rock targets. These risks are associated with:

- drilling of wells
- fracturing of EGS targets
- developing and maintaining water flows

These risks are particularly high for EGS projects, and less for carefully selected HSA systems.

Project lead times can be substantial if starting from 'scratch' in a new area. They can be potentially less in existing or abandoned oil and gas fields.

5. PLANNED WORK

In the light of the information about industry challenges, the most attractive target area on SEL 9/2009 is the Zeehan-Renison area, where there is a potential HSA target in lower Palaeozoic sediments at modest depths above a known high heat generating ridge of the Heemskirk Granite.

Recommended initial testing of this target would be a simple slimline drill hole to 2,500 m, estimated to cost \$1M to complete and appropriately temperature log.

Additional background work could include temperature logging of suitable deep drill holes on the Renison Mine, if access could be gained to these holes.

The level of work will reflect power pricing policies for low emission electrical energy introduced by the Federal Government in the near future.

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