

11 November 2009

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PETRATHERM LIMITED
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MD's presentation to the 2009 Australian Geothermal Energy Conference

Petratherm's Managing Director, Terry Kallis, will present later today an update on the company and its projects to the 2009 Australian Geothermal Energy Conference being held at the Hilton Hotel in Brisbane.

The three day conference program includes the Federal Minister for Resources, Energy & Tourism, The Hon Martin Ferguson AM, MP and the Queensland Minister for Natural Resources, Mines & Energy and Minister for Trade, The Hon Stephen Robertson MP.

The conference is expected to have over 400 delegates in attendance.

Key points from the presentation include:

- An update on the Paralana drilling campaign and key factors for success of the Paralana 2 deep well.
- An outline of the economic assumptions underlying the Paralana geothermal energy project.
- An outline of the Paralana joint venture arrangements and an explanation of the mechanics of the joint venture in respect of the 30 MW demonstration project and the recent \$62.8 million Renewable Energy Demonstration Program grant.
- Progress in Spain across Madrid, Barcelona and Tenerife.
- An update on the recent trip by the Chinese delegation to SA and our Paralana project.

The presentation is attached.

Yours faithfully

Terry Kallis
Managing Director

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Petratherm

2009 Australian Geothermal Energy Conference

Company and Projects Update

Presented by Managing Director Terry Kallis

11 November, 2009

**CLEAN
ENERGY
FOR
FUTURE
GENERATIONS**

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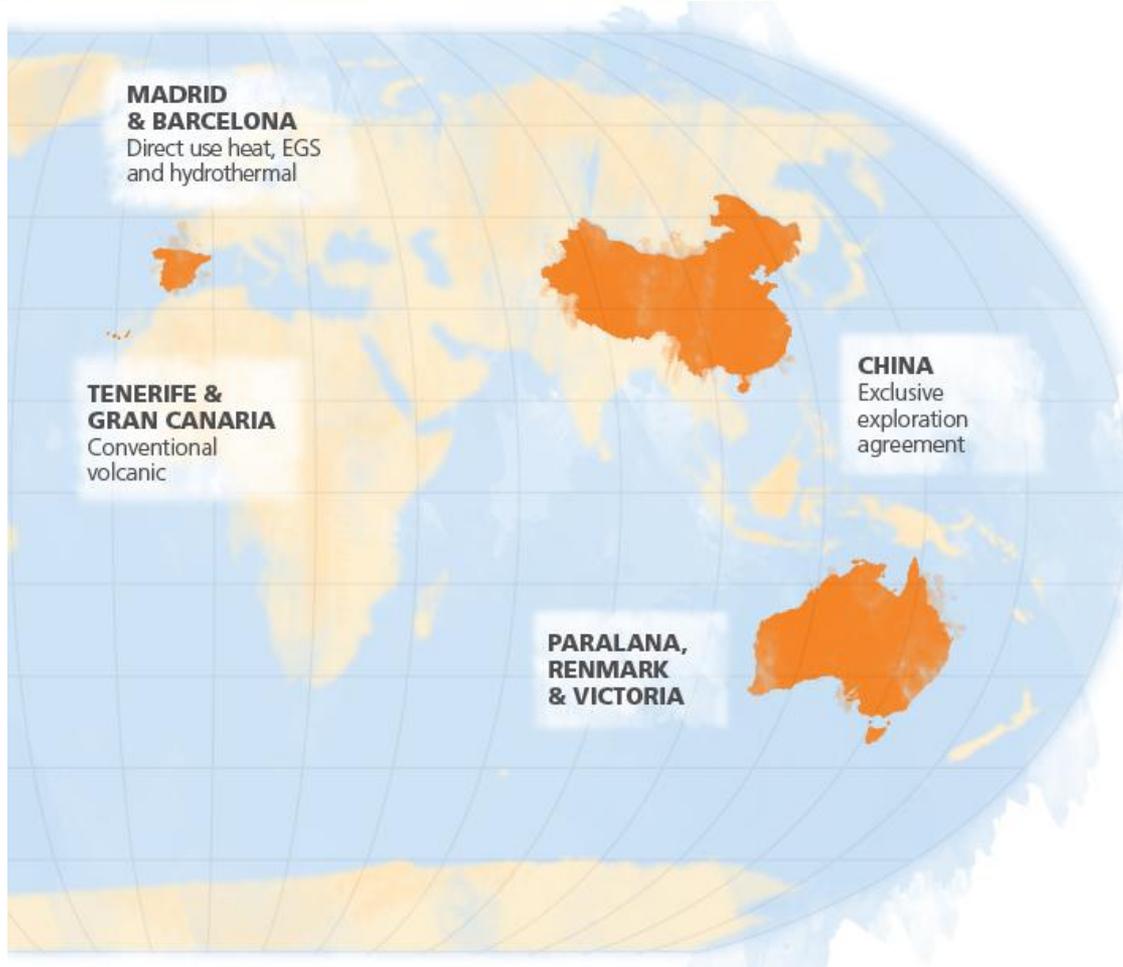
All amounts in Australian dollars (AUD) unless stated otherwise.

Presentation Overview

- > Introduction – Paralana DVD
- > Corporate Overview
- > Geothermal energy technologies and cost drivers
- > Project portfolio
 - > Paralana JV project
 - > East Gippsland
 - > Spain – Madrid, Barcelona and Canary Islands
 - > China

- > Background slides – industry information

Our company



Our company

- > Leading Australian geothermal exploration and development company
- > Projects spanning Australia, Spain and China
- > Flagship project – Paralana

Other growth projects:

- > Madrid
- > Barcelona
- > Canary Islands, Tenerife
- > Victoria's East Gippsland Basin
- > China exploration agreement

Corporate and financial

Listed ASX:PTR

- > Shares on Issue: 94.45 million
- > Share Price: \$0.44 (6 Nov)
- > Market Cap: \$ 41.6 million (6 Nov)
- > Cash Position: \$10.6 million (31 Oct)
- > Shareholders: 3,424 shareholders
 - > Minotaur Exploration 22 %
 - > Australian Ethical Investments 4.8 %

Paralana Funding and Grants

- > Awarded Geothermal Drilling Program \$7 million and a **Renewable Energy Demonstration Program - \$62.8 million**
- > JV Funding: up to \$87 million plus equity share of project costs

Joint Venture Partners and Alliances

- > Paralana
 - > Beach Petroleum (up to 36 per cent for \$30m)
 - > TRUenergy (up to 30 per cent for \$57m)
- > Spain and Canary Islands
 - > Advanced discussions with several parties
 - > Cooperative agreement with Spanish Federal and Madrid Regional governments
- > China
 - > Conventional and Engineered Geothermal Systems
 - > Exclusive government supported exploration agreement

Board of Directors



Derek Carter
Chairman



Simon O'Loughlin
Director



Richard Hillis
Director



Richard Bonython
Director



Terry Kallis
Managing Director



Don Stephens
Secretary

An experienced board with a strong combination of commercial and technical skills

- > Financial management
- > Legal
- > Marketing
- > Project Management
- > Corporate Governance
- > Exploration and development
- > Geology and Geophysics
- > Resources and Energy
- > Government and Stakeholder relations

Our business model

"To explore for and develop emission free geothermal energy projects that are commercially sustainable"

- > To develop a portfolio of quality geothermal energy projects
- > Explore both conventional and engineered geothermal systems – for power and heat
- > Find a favorable combination of geology and market conditions - *"shallow hot rocks close to market"*
- > Introduce joint venture partners with the right skills, risk appetite and funding ability



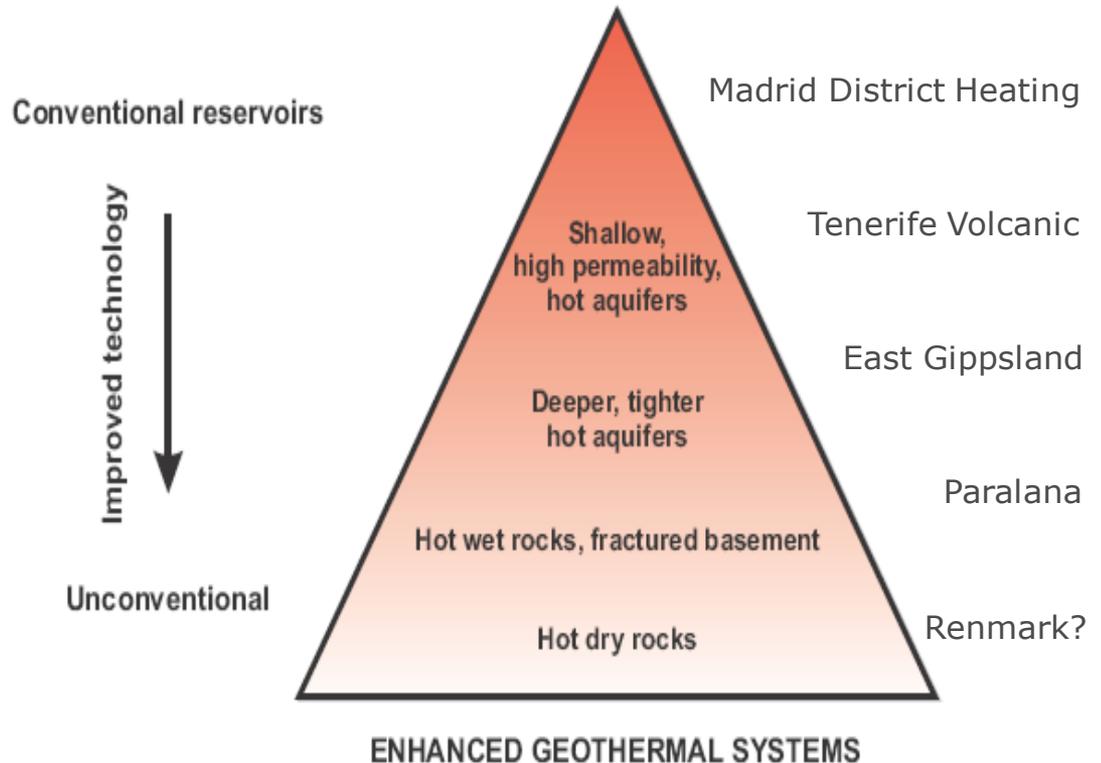
Geothermal energy technologies and cost drivers

Cost Drivers

- > Temperature
- > Drilling Depth
- > Flow Rate
- > Network Connection
- > Generation Plant

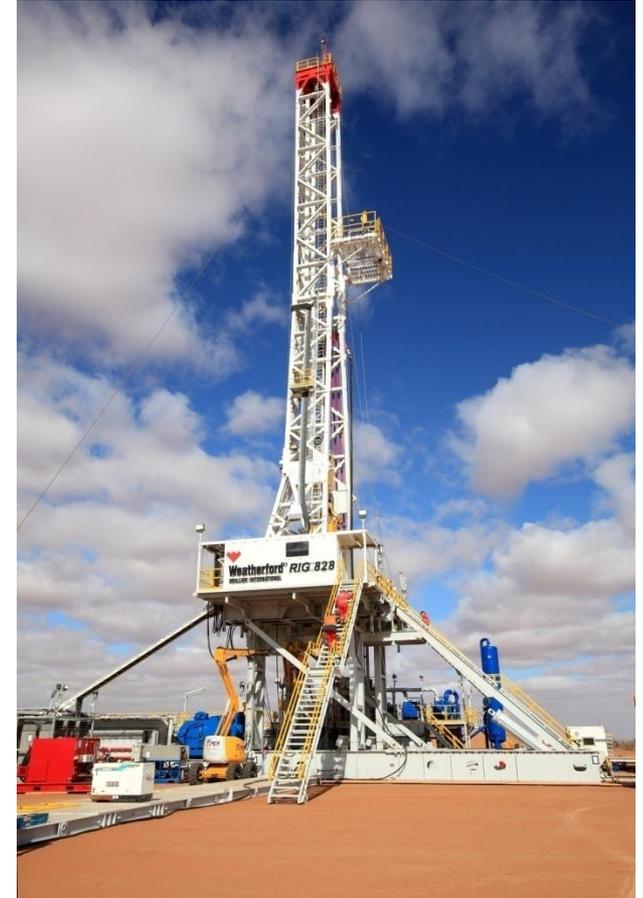
- > **High upfront costs – drilling, fracture stimulation, connection, plant**

- > **Project economics are geology and location specific**



Our Australian projects

- > Our flagship Paralana project
 - > Drilling campaign at our site 600km north of Adelaide is nearing completion
(refer presentation by Peter Reid, PTR Exploration Manager on 12 November at 1:15 pm Stream 1 - Exploration)
- > East Gippsland in Victoria
 - > Awarded a 9,000km² geothermal exploration permit to develop a Hot Sedimentary Aquifer
- > Renmark in South Australia
 - > Two geothermal exploration licenses (GELs), located 26 km northwest of Renmark in the Riverland region
 - > Close to two major transmission lines capable of carrying in excess of 220 MW of power



Paralana geothermal energy JV project - snapshot

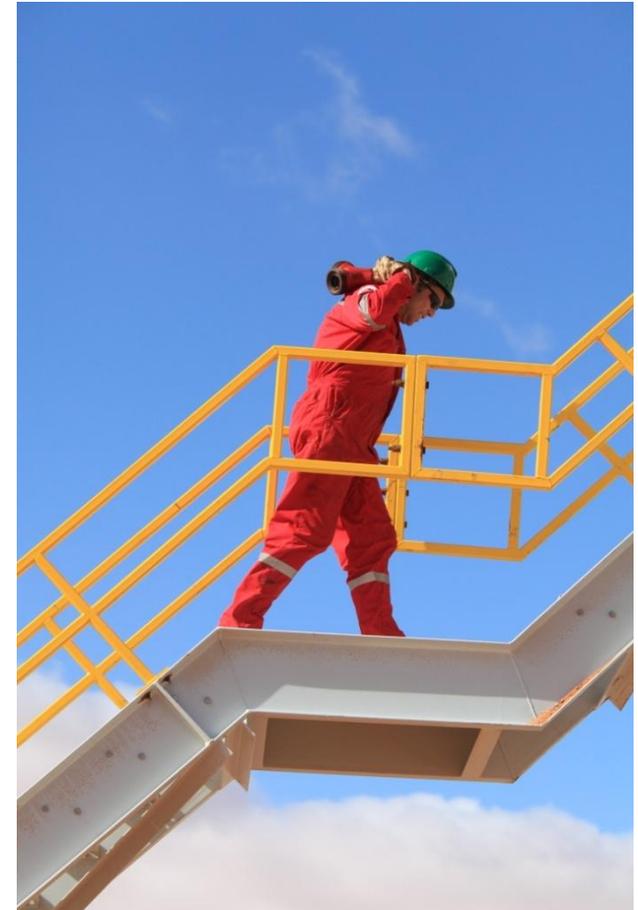


Our Paralana project 600km north of Adelaide in South Australia

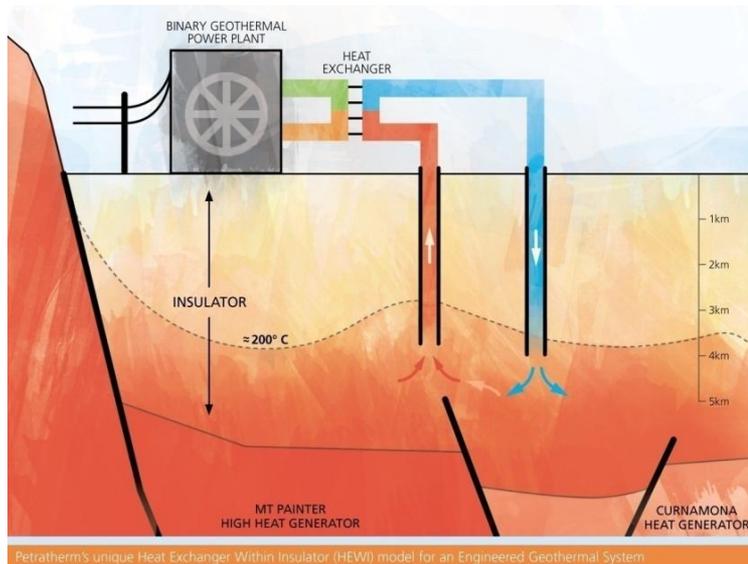
- > Anecdotal evidence from the Paralana hot springs in the nearby Flinders ranges
- > High heat flow - 128 mW/m²
- > Measured temperature of 109°C at 1807m
- > Mature basin, stable formations, no hydrocarbons
- > Inferred geothermal resource of 230,000 PJ – independent assessment by competent person - HDRPL
- > Customer for initial 3.75MW plant at nearby Beverley Mine
- > Potential commercial viability at all stages - scale up plan to 30MW and beyond

Paralana 2 well drilling – key success factors

- > The well is stable with no technical challenges experienced and was terminated at a depth of 4,012m
- > Key success factors developed to guide Paralana project and incorporated in JV decision-making, GDP grant contract and REDP grant application
- > Success factors exclude consideration of grant monies
- > Key success factors for the Paralana 2 well are:
 - > Equal/better industry safety & environment benchmarks ✓
 - > Target a minimum drill depth of 3600m ✓ and maximum drill depth of 4000m ✓
 - > Achieve a minimum temperature of 170°C at 4000m – *expect to meet or exceed (to be measured)*
 - > Formation evaluation and selection of zones for stimulation – permeability/in situ stress field - *observed inflows to well commencing at 3690m (to be assessed)*



Paralana project – HEWI model and economic assumptions



HEWI Model at Paralana

The required heat exchanger is created in the porous insulating layer above the granite heat source. This is expected to reduce risk, cost and time

*(*Long Run Marginal Cost calculation over 20 years, includes all costs, consistent with energy industry comparisons made by the Electricity Supply Association of Australia, McLennan, Magasanik and Associates and the AGEA Economics Committee)*

Key Economic Assumptions:

- > Temp. of 170°C to 200°C at 3,600m to 4,000m
- > Flow rate of 75 litres per sec – conservative compared with other public announcements
- > Net output per production well of 3.75 MW based on flow and inclusive of parasitic loads
- > 20 year project life, includes all costs with 12 wells for a 30 MW development and connection to customer and results in a LRMC* of \$107/MWh (delivered), comparable with independently assessed industry LRMC ranges
- > Bundled price for sale of output black and RECs expected to be > \$140/MWh due to current high off grid price at Beverley mine
- > JV retains the full value of black and RECs – no predetermined price – retain full upside
- > Potential for commercial viability at small scale 3.75 MW, 7.5 MW and 30 MW

Paralana joint venture arrangements

- > Beach Petroleum Farm-in (Jan 2007) for up to \$30M for 36%
 - > \$5M first well and stimulation
 - > \$5M second well and stimulation – earns 21 %
 - > After HEWI – Option to earn a further 15% for \$20M
 - > Plus equity share of project costs at every stage

- > TRUenergy Farm-in (Aug 2008) for up to \$57M for 30%
 - > \$3M first well and stimulation
 - > \$3M second well and stimulation – earns 10%
 - > After HEWI – Option to earn a further 5% for \$7M
 - > After 7.5 MW pilot plant – Option to earn a further 15% for \$44M
 - > Plus equity share of project costs at every stage



Under the Paralana Joint Venture post HEWI

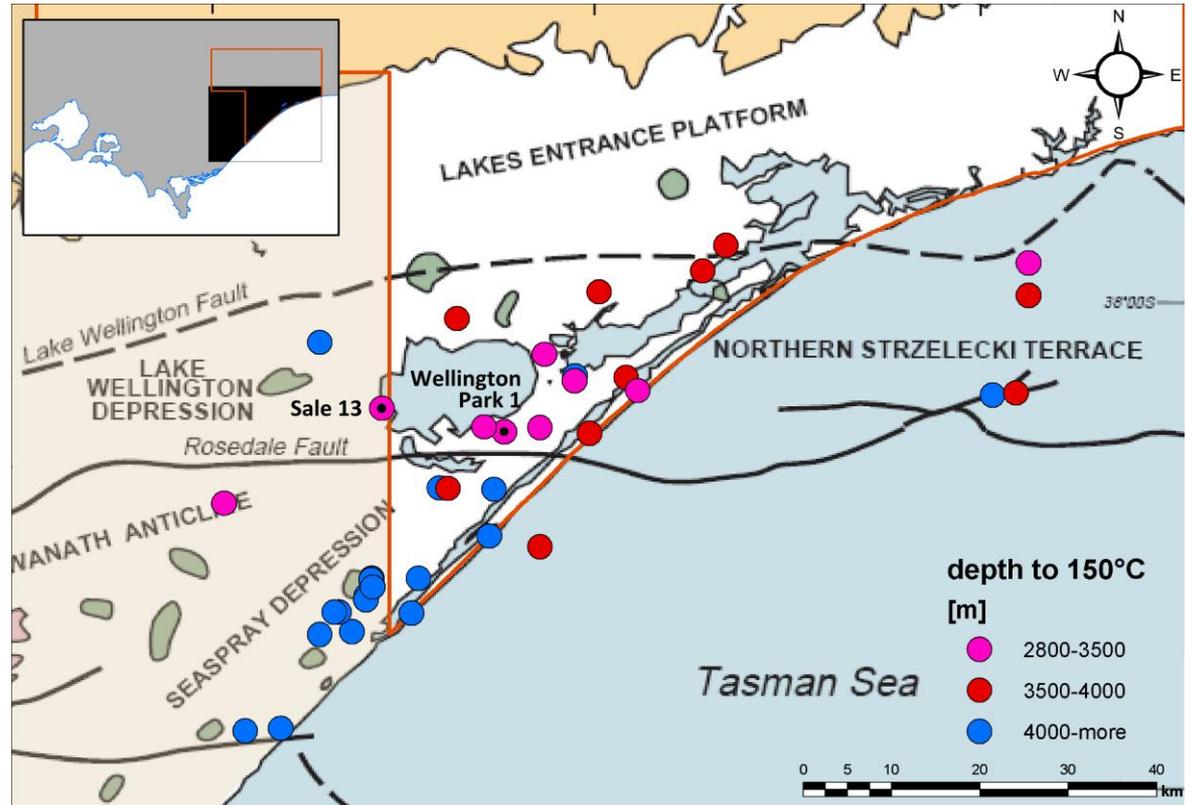
For a \$200m , 30 MW demonstration project with JV options taken up –
Petratherm would require minimal investment - retains 34% of project and resource

Joint Venture Contributions post HEWI* (*assumes all options exercised and cost targets met)

	Forecast Capital Cost (\$m)	Beach Contribution (\$m)	TRU Contribution (\$m)	PTR Contribution (\$m)
Without REDP grant				
7.5 MW (1 well plus plant plus transmission)	\$45m	\$29.0m	\$10.8m	\$5.3m
30 MW (9 wells plus additional plant)	\$155m	\$55.8m	\$90.5m	\$8.7m
Total without REDP	\$200m	\$84.8m	\$101.3m	\$14.0m
With REDP grant				
7.5 MW (1 well plus plant plus transmission)	\$45m	\$25.4m	\$9.3m	\$0.4m
30 MW (9 wells plus additional plant)	\$155m	\$37.1m	\$65.9m	\$0.0m
Total with REDP	\$200m	\$62.5m	\$75.2m	\$0.4m

Australia - East Gippsland, Victoria

- > Petratherm has a 9,000km² geothermal exploration permit for the East Gippsland Basin in Victoria
- > Hot Sedimentary Aquifer Project
- > Favorable transmission connection options to the National Electricity Market
- > Expect fluid in excess of 150°C at economically viable drill depths (3.5–4.0 kms)



Our East Gippsland project east of Melbourne in Victoria

Spain

Madrid

- > Madrid District Geothermal Heating Project
- > Signed cooperative agreement with Spanish Federal and Madrid Regional governments

Barcelona

- > Have four geothermal investigation permits – both engineered geothermal and district heating potential

Canary Islands/Tenerife

- > Magnetotelluric survey of volcanic island
- > Advanced joint venture discussions

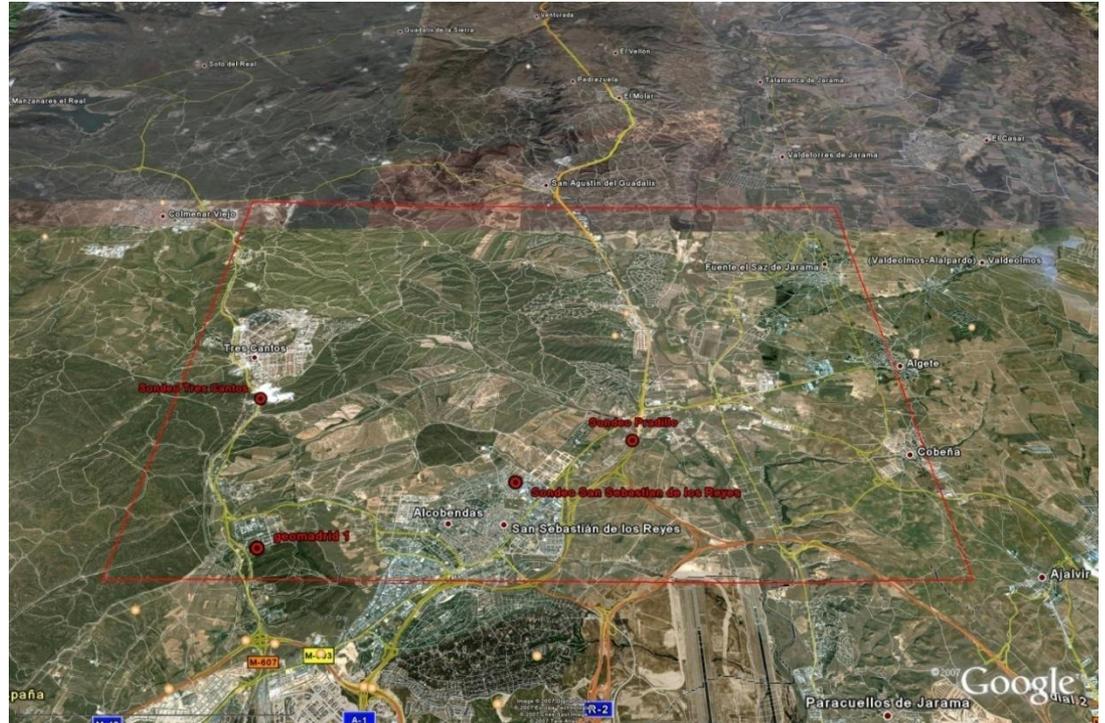


Madrid – home to our promising district geothermal heating project

Spain – Madrid district heating project

“Highlighted as one of six renewable energy projects of interest within the Madrid Regional Government’s Renewable Energy Cluster”

- Large tenement 20km by 20km in the north of Madrid
- Three shallow 2000m wells drilled
- One deep 3.4km well drilled with 156°C
- Study indicates producing 8MW with annual production in excess of 45,000MWh (thermal)
- Cooperative agreement between Spanish Federal and Madrid Regional Government



Madrid tenement area – 25 km north of the city

Spain - Barcelona



Barcelona – Petratherm has four investigation permits 30kms north-north east of the city

- > Petratherm has four geothermal investigation permits covering areas within the Valles and Ebro Basins near the city of Barcelona
- > Close to major electricity transmission infrastructure
- > The geology and market characteristics make the area attractive for geothermal district heating and engineered geothermal systems

Spain - Tenerife

- > Active volcanic island with a population of one million
- > Studies suggest magma chamber 3km to 4km below surface
- > Targeting 50MW to 100MW development
- > Energy prices are over €90/MWh or AUD \$150/MWh - three times prices in Australia
- > Commenced extensive magnetotelluric survey work to pinpoint best well site
- > Advanced joint venture discussions to develop Tenerife project

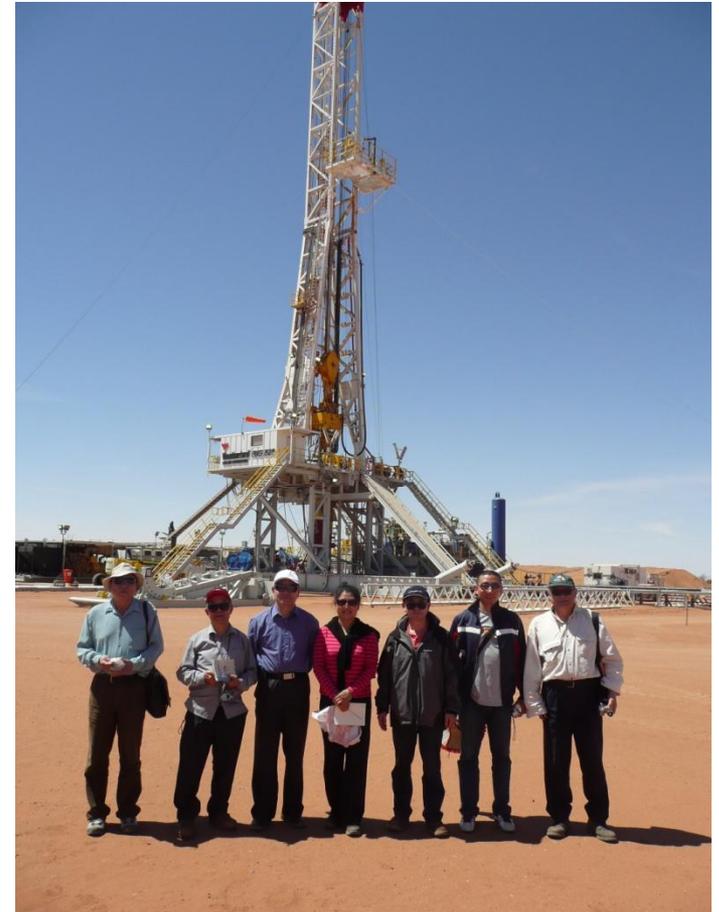


Las Americas in Tenerife

China

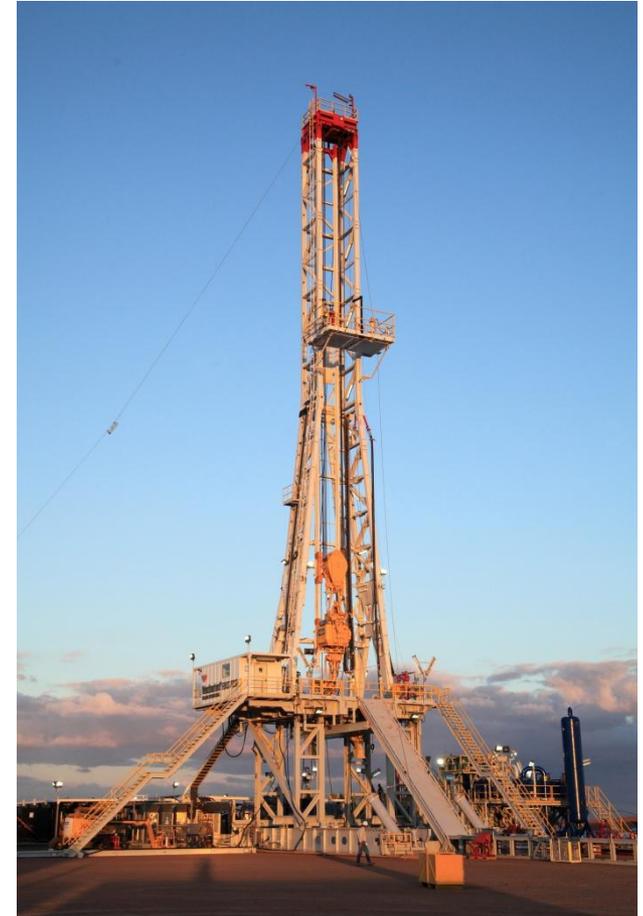
Major Growth Potential

- > Exclusive Cooperative Agreement to identify high prospect geothermal energy projects in China with four Chinese Government Institutions
 - > Chinese Geothermal Energy Society
 - > Geological Survey of China
 - > Chinese Academy of Sciences
 - > China Institute of Geo-Environment Monitoring
- > Two areas in South East China identified for potential future development - Jiangsu Province and Subei Basin
- > Target – Hot Sedimentary Aquifer contained in permeable Limestone at 4km to 5km depth
- > Petratherm recently hosted a Chinese delegation ([refer photo](#)) in Australia – met with PIRSA and SA Mineral Resources Development Minister Paul Holloway, visited Paralana and Innamincka



What makes us different

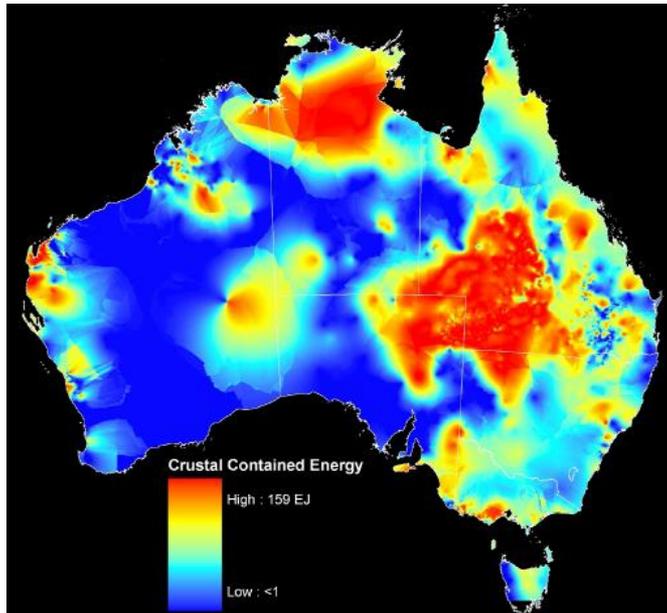
- > Unique approach to exploration for heat
- > Heat Exchanger Within Insulator model (HEWI)
- > Quality international portfolio across the geothermal technologies - engineered geothermal systems, district heating, hot sedimentary aquifer and volcanic
- > Flagship Paralana project has clear commercial advantages
 - > Customer nearby – within 10 kms
 - > Excellent and abundant resource – estimated inferred resource of 230,000 PJ
 - > Unique path to commercialisation – local market then scale up to connect to NEM
 - > Strong and complementary Joint Venture partners – Beach Petroleum and TRUenergy
 - > Strong government support with grant monies amounting to over \$70 million
- > Clear business model



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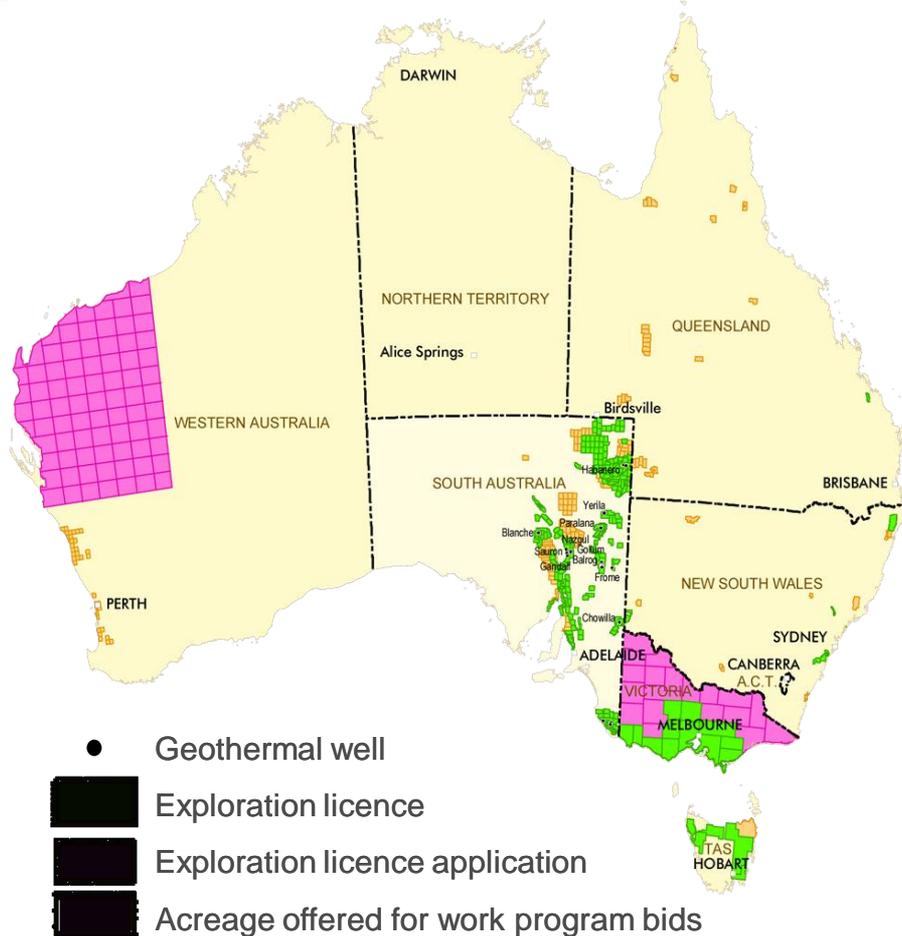
Background slide - Geothermal resource in Australia



Indicative Resource

- › Australia's hot rock energy is estimated to be 150°C to 5km, or about 1.2 billion PJ
- › This is equivalent to about 26,000 times the annual primary energy use in Australia

Background slide - Growth in geothermal energy projects



Industry Snapshot

- > GELS/GELAS
- > Australia 383
- > Expenditure more than \$1,500 Million
- > 48 companies in total
- > 10 ASX listed geothermal
- > 7 ASX listed energy

Background slide - Landmark independent industry reports

- > Independent reports by McLennan Magasanik Associates – 2007 & 2008
- > Geothermal energy is expected to be the lowest cost from renewable energy by 2030 and directly competitive with coal by 2050
- > Geothermal energy is expected to build up to 2,200 MWs of base-load capacity by 2020
- > An estimated \$12 billion investment to develop capacity
- > This represents up to 40% of the Federal Government's 2020 Renewable Energy Target of 45,000 GWh - the equivalent of the output of around 6,000 MW of wind farms
- > Generation costs are expected to move rapidly down the cost curve from around \$120/MWh at small scale (10 MW to 50 MW) and decreasing to around \$80/MWh at large scale (300 MW or greater) by 2020

Background slide - Australian geothermal industry summary and challenges

- > Geothermal energy has the potential to provide large scale, base load and low-cost renewable energy - \$120/MWh (50MW) and \$80/MWh (>300 MW)
- > Australia has the key ingredients for developing successful engineered geothermal systems (EGS) and hot sedimentary aquifer projects
- > While northern South Australia has the best known EGS (hot rock) geothermal resources, Victoria and SE of South Australia have the best known hot sedimentary aquifer resource potential
- > Geothermal projects face a number of challenges, including but not limited to – drilling, achieving adequate flow rates, power conversion efficiency, cost of access to, and delivery to market, induced seismicity and usage of water
- > There is strong government support – federal and state - for geothermal and renewable energy with capital funding, price of carbon and regulatory changes proposed to the NEM

Background slide - Renewable energy policy and geothermal

Strong Federal and State Government support

- > \$50 million geothermal drilling program with a maximum \$7 million per project
- > \$300 million Renewable Energy Demonstration Program
- > Review of electricity and gas networks by the Australian Energy Market Commission (AEMC)
- > Emissions Trading Scheme (CPRS)
- > Renewable Energy Target of 45,000 GWh by 2020
- > An increase in the REC penalty price from \$40/MWh to \$65/MWh and extending to 2030

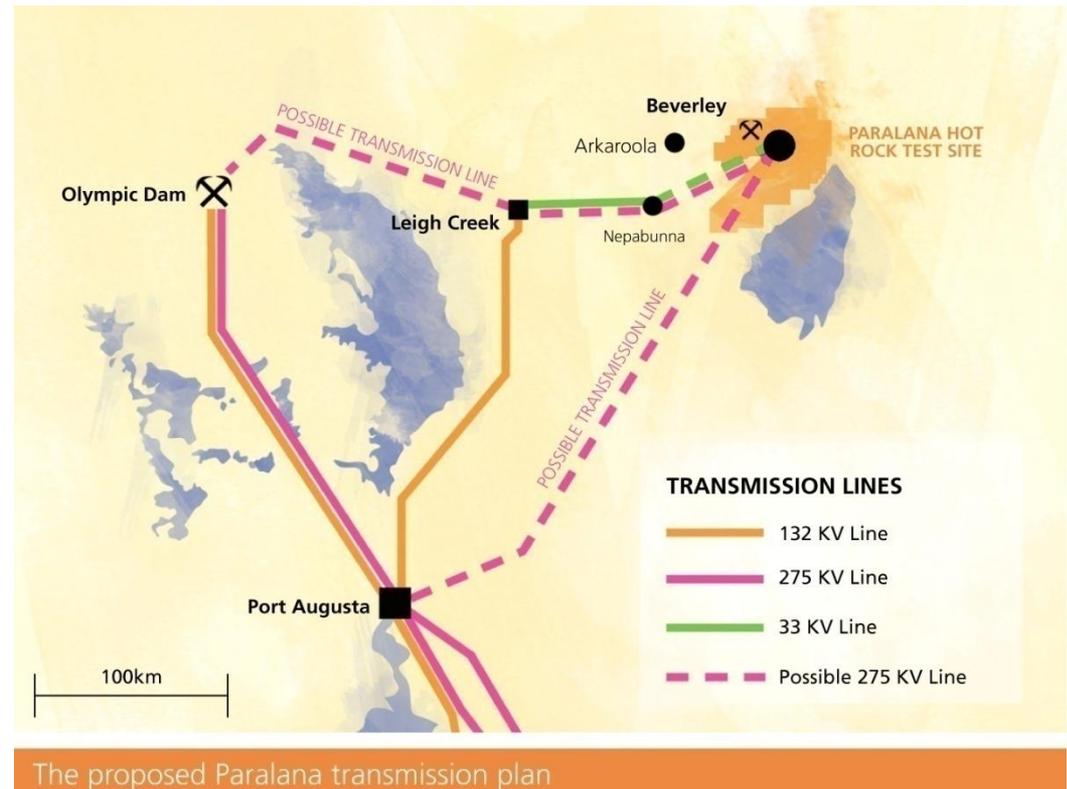
Strong industry networks

- > Geothermal energy industry development framework
- > Australian Geothermal Energy Association (AGEA)
- > Australian Geothermal Energy Group (AGEG)



Background slide - Paralana transmission plan

- > Close to customer at the Beverley mine – only 10 kilometres away
- > Plans for mine expansions - Four Mile deposit and new areas under exploration
- > Longer term plan to supply large-scale base load power through entry points at Port Augusta and Olympic Dam
- > Potentially from plants of 260MW to 520MW capacity and two high voltage transmission lines
- > Consistent with industry network solution and the Australian Energy Market Commission's recent proposal for changes to the National Electricity Rules – to facilitate renewable energy



Background slide - Industry transmission plan – northern SA

- > 2009 independent report by McLennan Magasanik & Associates (MMA) shows savings in linking geothermal projects in the northern part of South Australia early to the National Electricity Market (NEM)
- > MMA estimates benefits of \$860 million for South Australian customers and \$2.8 billion for customers across the Australian market
- > Geothermal energy to displace higher cost forms of renewable energy
- > Potentially the first 'SENE' – *scale efficient network extension* - efficient connection of clusters of generation to be proposed by AEMC

