

ASX Release



PETRATHERM LIMITED
ABN 17 106 806 884

MD Presentation to Resources & Energy Sector Infrastructure Council

Petratherm Managing Director, Mr Terry Kallis, will later this morning present on the Industry's and Petratherm's progress on matters relating to electricity transmission network infrastructure for northern SA

The primary focus of the presentation is to provide an update on the following recent reports and activities;

- The Australian Energy Market Commission's Review of the Energy Market in light of Climate Change Policies.
- The McLennan Magasanik Associates report into the Assessment of a new 275 kV transmission line to connect geothermal resources to the National Electricity Market in SA.

The presentation also outlines the way forward for proposed rules changes to the NEM that would assist the Geothermal Industry, Petratherm, and the power needs of customers in the region

Refer attached presentation.

Yours faithfully

Terry Kallis
Managing Director

MEDIA CONTACTS:

Terry Kallis
Kieran Hall / Tim Hughes

Petratherm Ltd
Hughes Public Relations

08 8274 5000
08 8412 4100

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ASX Code: PTR

ABN 17 106 806 884

Level 1, 129 Greenhill Road
Unley SA 5061

T: +61 8 8274 5000

F: +61 8 8272 8141

W: www.petratherm.com.au/

E: admin@petratherm.com.au

CLEAN ENERGY FOR FUTURE GENERATIONS

Petratherm

RESIC Presentation

Presented by Managing Director Terry Kallis

21 October , 2009

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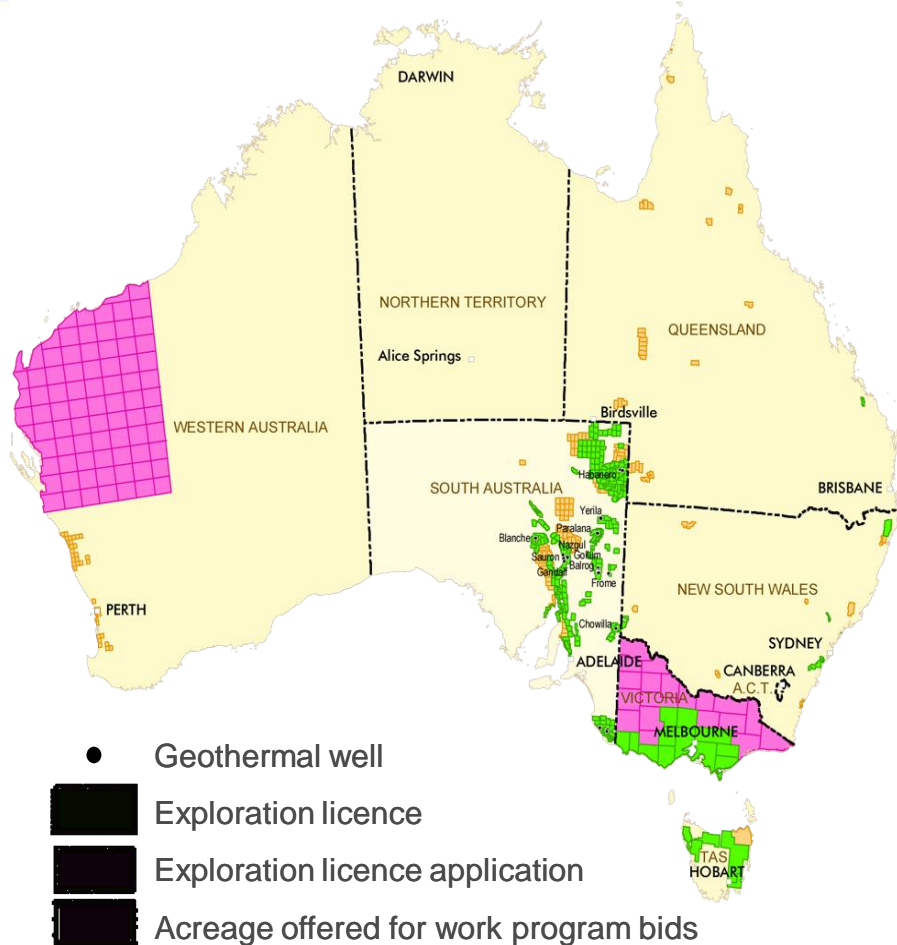
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All amounts in Australian dollars (AUD) unless stated otherwise.

Presentation Overview

- > Industry background
- > Geothermal energy cost drivers
- > Industry reports from MMA
- > Industry summary and challenges
- > Renewable energy policies and geothermal
- > Network connection issues
- > Petratherm network solution
- > Industry network issues
- > MMA report and AEMC – industry network solution
- > Where to from here?

Growth in geothermal energy projects



Industry Snapshot

- > Resource potential is huge 26,000 times the annual primary energy production of Australia
- > GELS/GELAS
- > Australia 383
- > Expenditure more than \$1,500 Million
- > 48 companies in total
- > 10 ASX listed geothermal
- > 7 ASX listed energy

Geothermal energy cost drivers

Cost Drivers

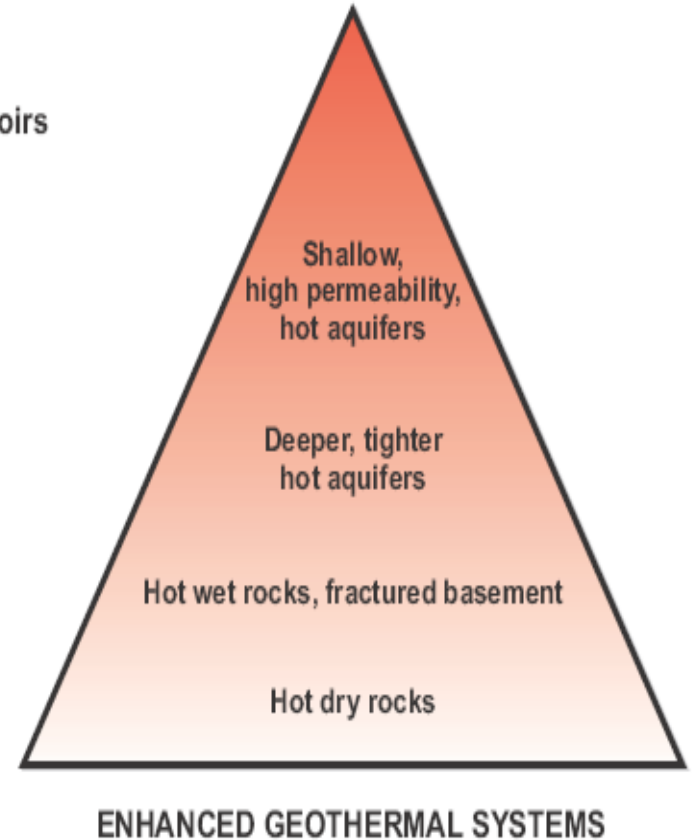
- > Temperature
- > Drilling Depth
- > Flow Rate
- > Network Connection
- > Generation Plant
- > **High upfront costs – drilling, fracture stimulation, connection, plant**
- > **Project economics are geology and location specific**

Conventional reservoirs

Improved technology



Unconventional



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

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

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)



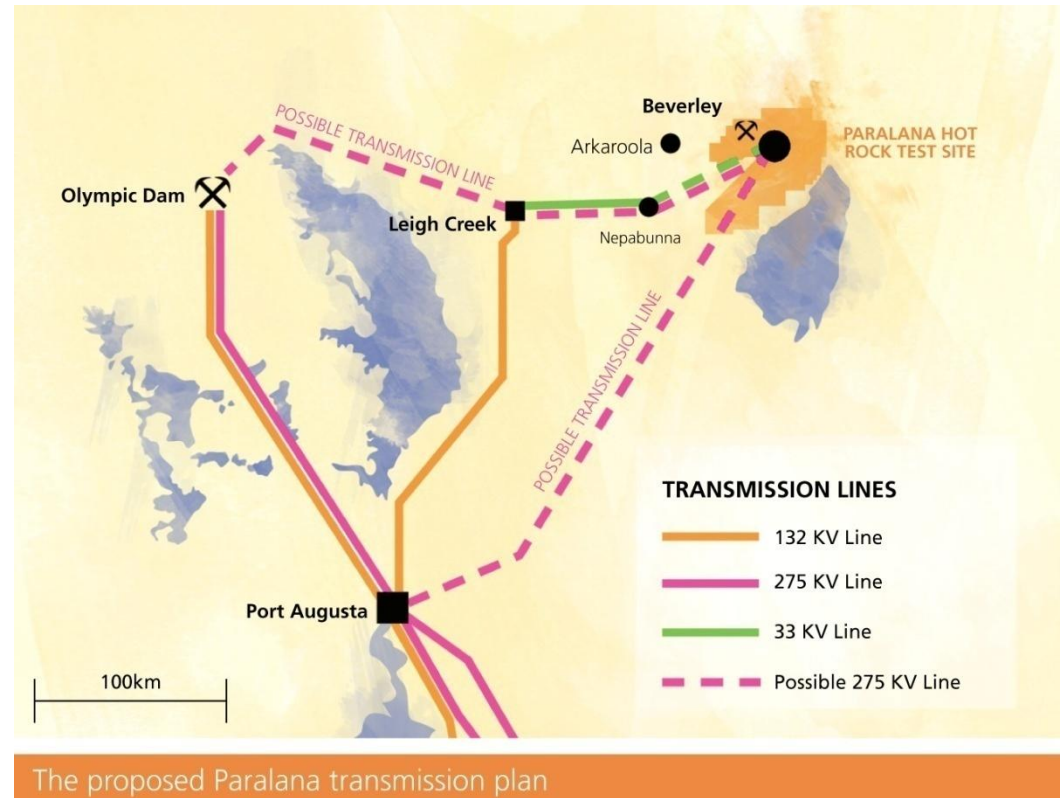
Transmission Network Connection Issues

- > Transmission Costs
- > Transmission Losses
- > Transmission Congestion – south east of SA
- > Marginal Loss Factors
- > System Security
- > Quality of Supply
- > Development approvals, licensing, easements and permits
- > Network Capacity at each connection point
- > Remote Connection, Congestion and Scale efficiency – changes to National Electricity Rules



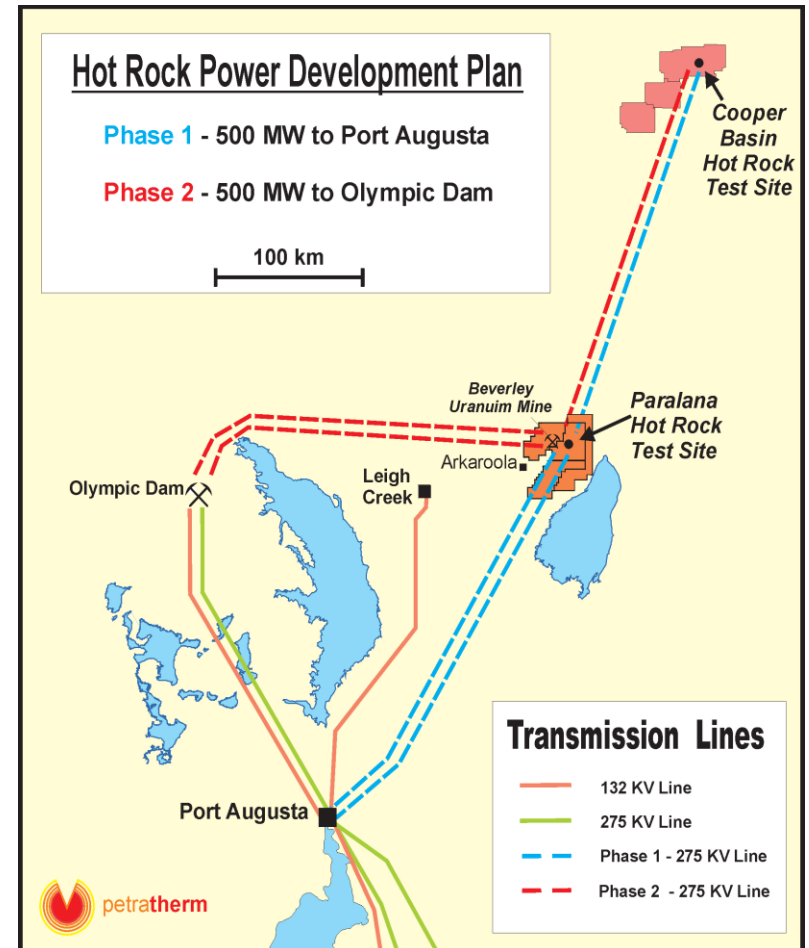
Petratherm - Paralana transmission plan

- > 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



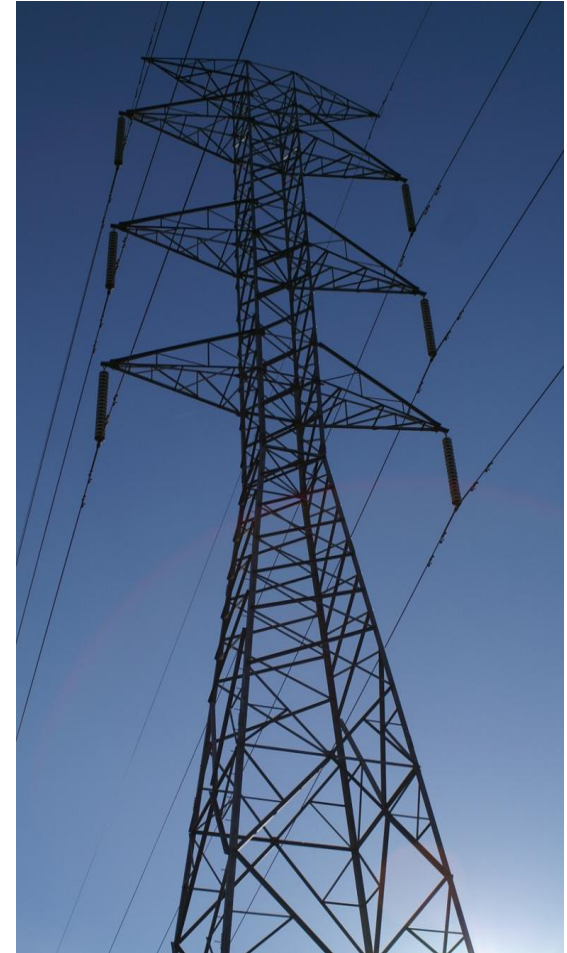
MMA report and AEMC – industry network solution

- > 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



Where to from here?

- > MCE consider AEMC's report and submit rules changes to AEMC by December 2009
- > AEMC undertake rule change process and complete by September 2010
- > AEMO required to undertake National Transmission Network Plan – including candidates for SENEs
- > AGEA updated NEM Concept Paper incorporating MMA report outcomes and commences a two pronged approach
 - > Benefits test under existing NER to justify regulated status
 - > Contribution to the final rule changes by AEMC/AEMO
- > AGEA NEM Committee, inter alia, to concurrently address issue of network congestion in SA, notably in the southeast of SA
- > AGEA NEM Committee to enlist support of various stakeholders including RESIC, state and federal governments, ElectraNet and potential customers



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