

ASX Release

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PETRATHERM LIMITED
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Managing Director presents to SA Major Projects Conference 2012

Petratherm's Managing Director, Mr Terry Kallis, will later today present to the 5th Annual SA Major Projects Conference 2012 being held at the Adelaide Convention Centre (refer attached presentation).

The presentation focuses on the Company's progress to date on its flagship Paralana project (located 600km north of Adelaide) and also outlines the Company's exciting new Clean Energy Precinct project, which aims to meet the growing electricity demands of major mining developments in the northwest of South Australia.

Yours faithfully

Terry Kallis
Managing Director

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SA Major Projects Conference 2012

**“Providing clean energy to SA’s Mining Sector”
.....through PTR’s Paralana and Clean Energy Precinct Projects**

**Terry Kallis
Managing Director
August 2012**

CLEAN ENERGY FOR FUTURE GENERATIONS

Disclaimer and competent persons statement

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

The information in this report that relates to Exploration Results, is based on information compiled by Peter Reid, who appears on the Register of Practising Geothermal Professionals maintained by the Australian Geothermal Energy Group Incorporated at the time of the publication of this report. Peter Reid is a full time employee of the Company. Peter Reid has sufficient experience which is relevant to the style and type of geothermal play under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the Second Edition (2010) of the Australian Code for Reporting Exploration Results, Geothermal Resources and Geothermal Reserves. Peter Reid has consented in writing to the inclusion in the report of the matters based on his information in the form and context in which it appears.



Presentation Outline

- > Geothermal sector challenges and opportunities

...addressing the challenges and seizing the opportunities through Petratherm's

- > Paralana Geothermal Energy JV project

and

- > Clean Energy Precinct project

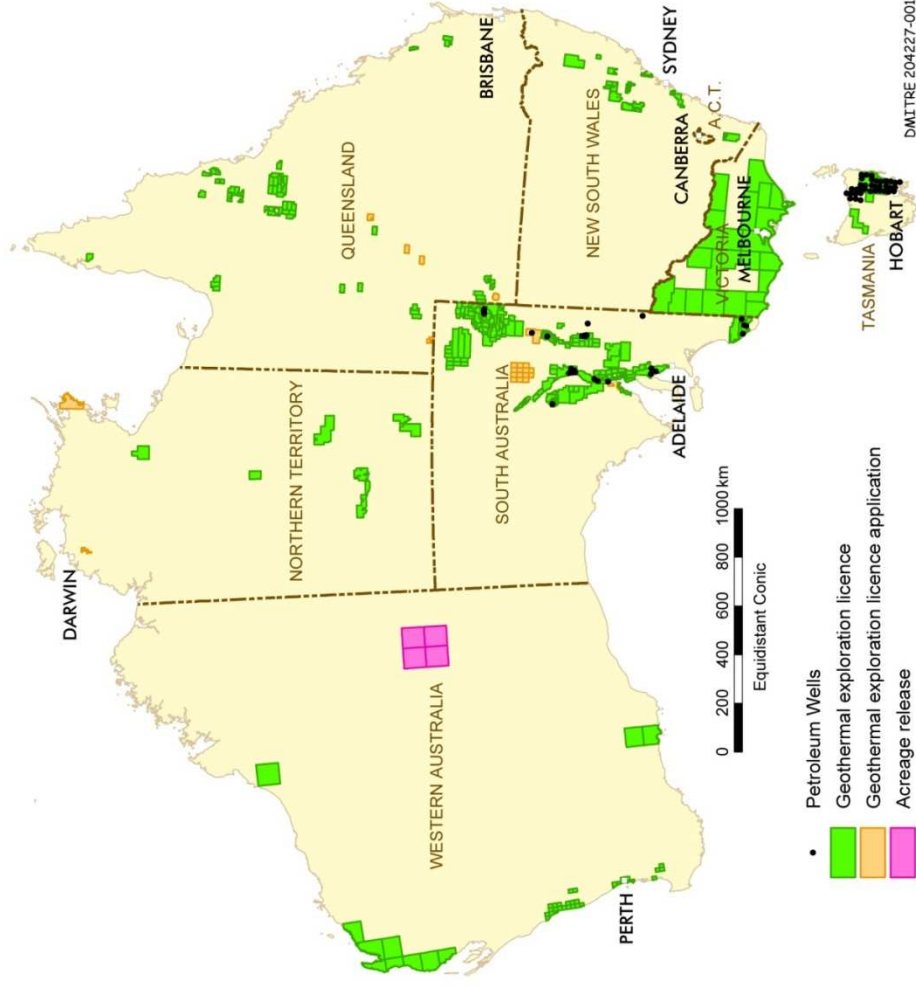
Geothermal Exploration and Potential

Potential to supply 26,000 times Australia's annual power demands

Many players – 10 ASX listed and more than 30 private companies

Most activity and spend in SA – seven deep wells drilled to date

Petratherm's Paralana 2 well successfully – drilled, cased and fracture stimulated



Energy technologies - Australian Resource Assessment

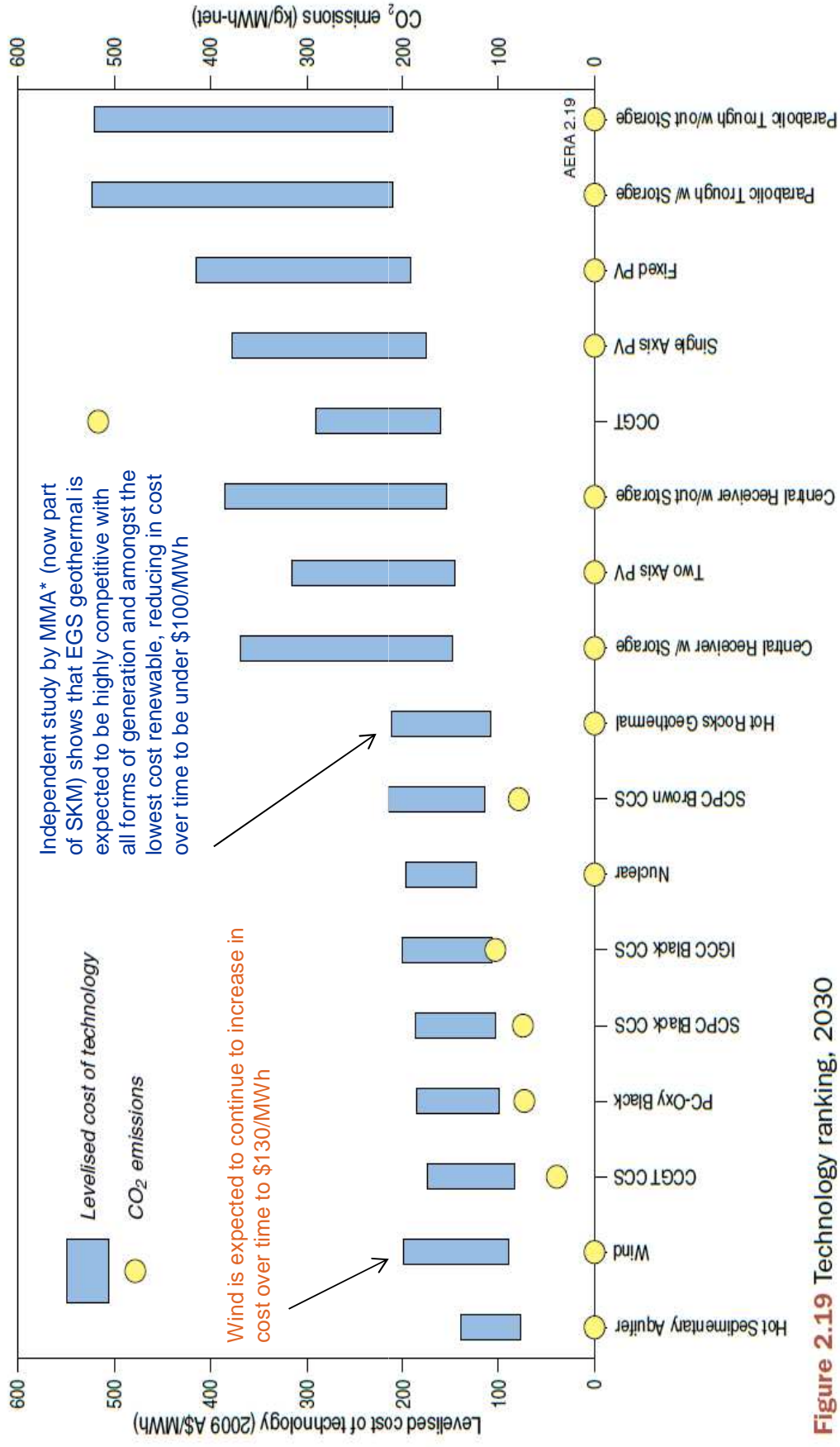


Figure 2.19 Technology ranking, 2030

Source: EPRI technology status data, 2010

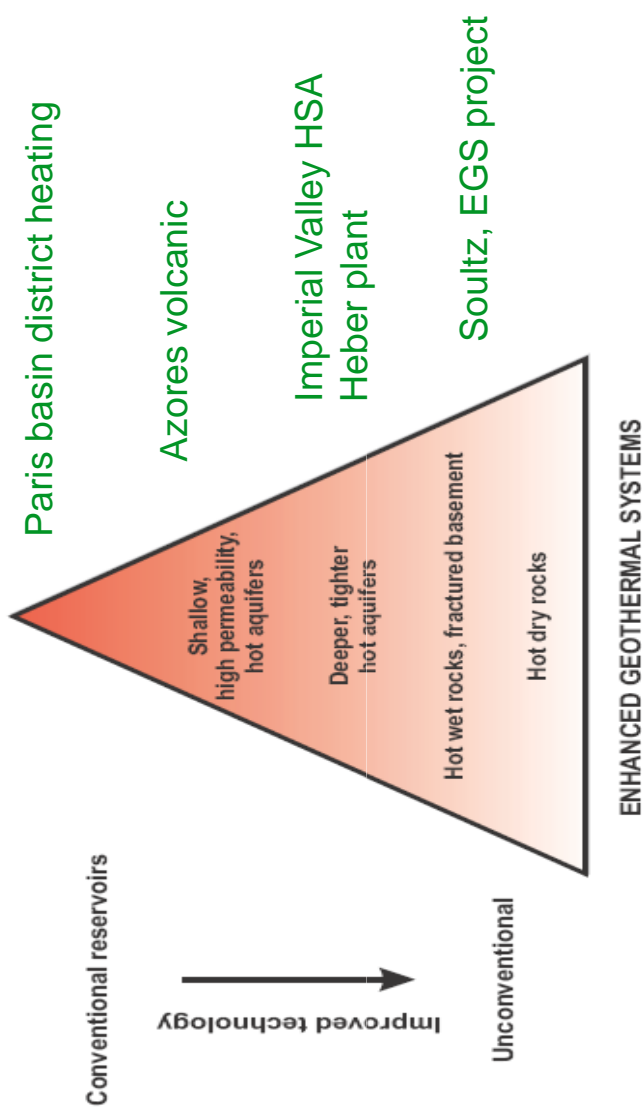
Note for 2.18 and 2.19: EPRI levelised cost of technology estimates based on simplified pro-forma costs, individual projects may lie outside this. Levelised cost of technologies: includes weighted cost of capital (8.4% real before tax); excludes financial support mechanisms; excludes grid connection, transmission, and firming (standing reserve requirements); and includes a notional allowance of 7.5% for site-specific costs.

Geothermal energy overview

Key Project Parameters

- > Temperature
- > Drilling depth
- > Flow rate
- > Network connection
- > Generation plant type
- > Market/Customer
- > **Optimization of parameters** to achieve commercial return against competitive alternatives in target market (heat or power)

Operating Project Examples



Each project has specific project parameters that when optimized enable viable operation

Key challenges

- > Funding
 - > Equities market
 - > JV partners
 - > Government
- > Achieving economic flow rates
- > Economic delivery to market
 - > Power – grid/off grid
 - > Heat - proximity to market
- > Market and Stakeholder Knowledge
- > Industry Structure and Maturity

Key opportunities

- > Funding
 - > ARENA new government funding - \$1.8 billion unallocated grant funds
 - > AGEA to seek \$500m drilling/subsurface works grant fund
 - > Refer [AGEA website](http://www.agea.org.au) – www.agea.org.au
- > Technology developments
 - > Geothermal
 - > Oil and Gas
- > Economic delivery to market
 - > Target off grid markets
 - > Combination and integration with other technologies
- > Promotion and education – “delivery of results”
- > Consolidation, collaboration and differentiation

Our business model – consistent and robust

“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 common interests, the right skills/knowledge, risk appetite & funding ability

“Right projects, right partners, right people”



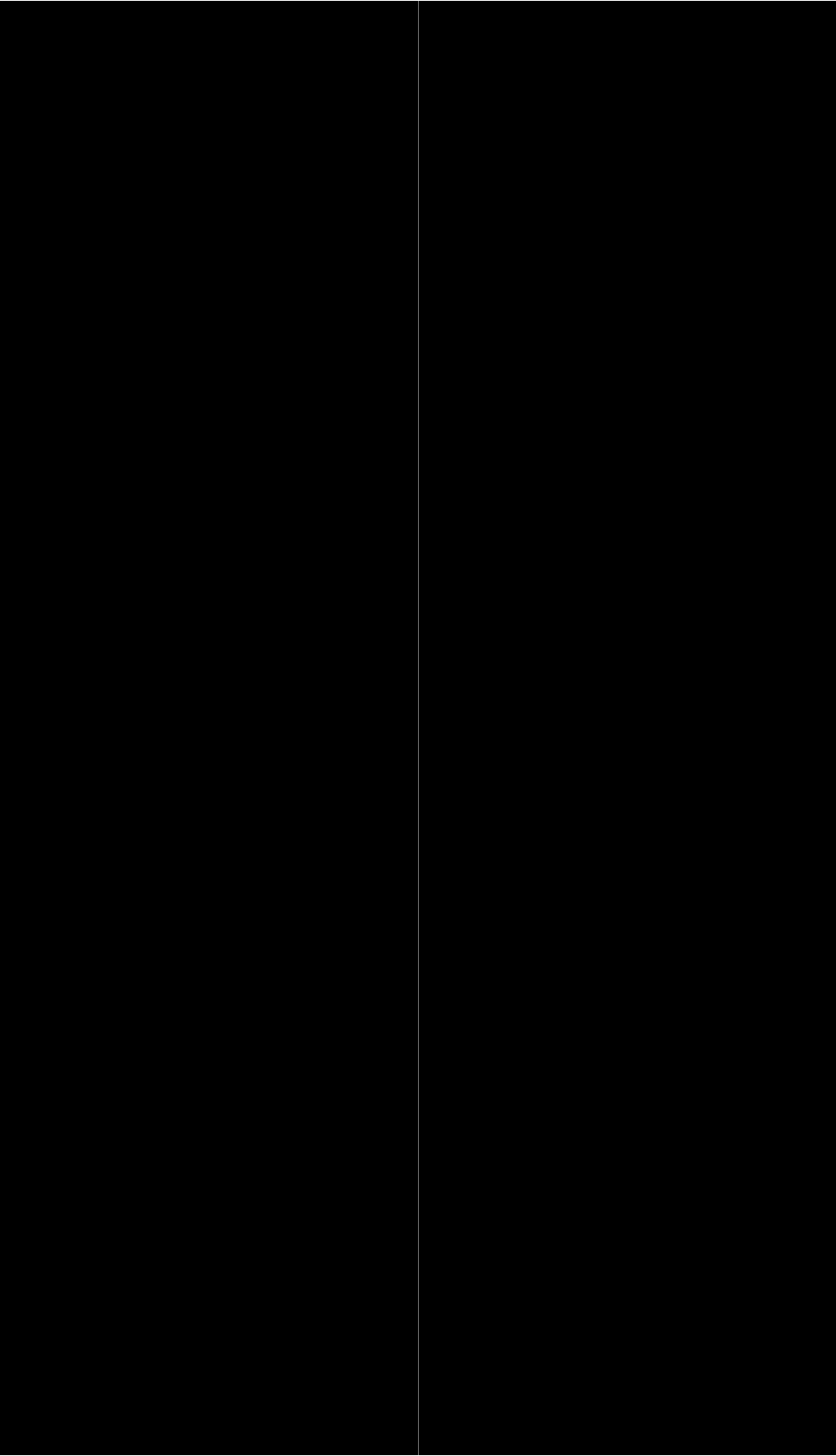
petratherm



**BEACH
ENERGY**

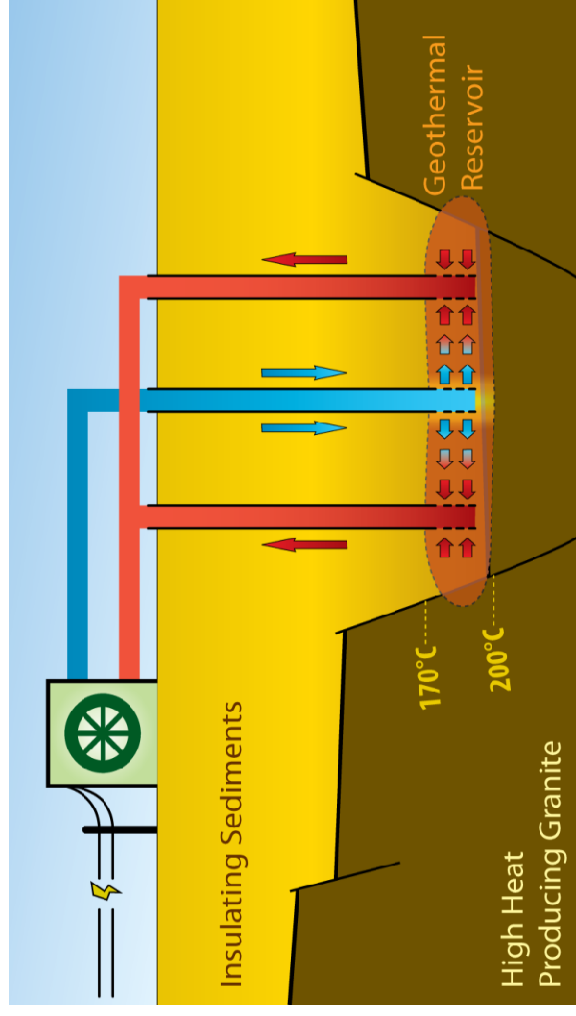


The Paralana Geothermal Energy Project story to date - video



Paralana project progress to date and unique HEWI model

- > Drilled a deep exploration well to 1.8 kilometres and confirmed economic temperature and gradient – 109 °C and 45°/km ✓
- > Drilled 4 km deep injector well – successfully completed and cased and confirmed economic temperatures – 190 °C (4kms) and 176 °C (3.7kms) ✓
- > Main Fracture injection test- exceeded 500 m propagation target, 3.1 million litres injected and over 7,000 micro-seismic events detected ✓
- > Flow Test completed successfully – 1.3 million litres flowed to surface and temperatures re-confirmed ✓
- > Project has followed clear plans and milestones with spend tightly managed by JV to ensure value for Partners, Government and PTR shareholders
- > Next step is to drill Paralana 3 deep 3.8 kms producer well, fracture stimulate, circulate and to demonstrate flows



HEWI Model at Paralana

The required heat exchanger is created within the insulating layers above the granite heat source.

Aims to reduce risk, cost and time.



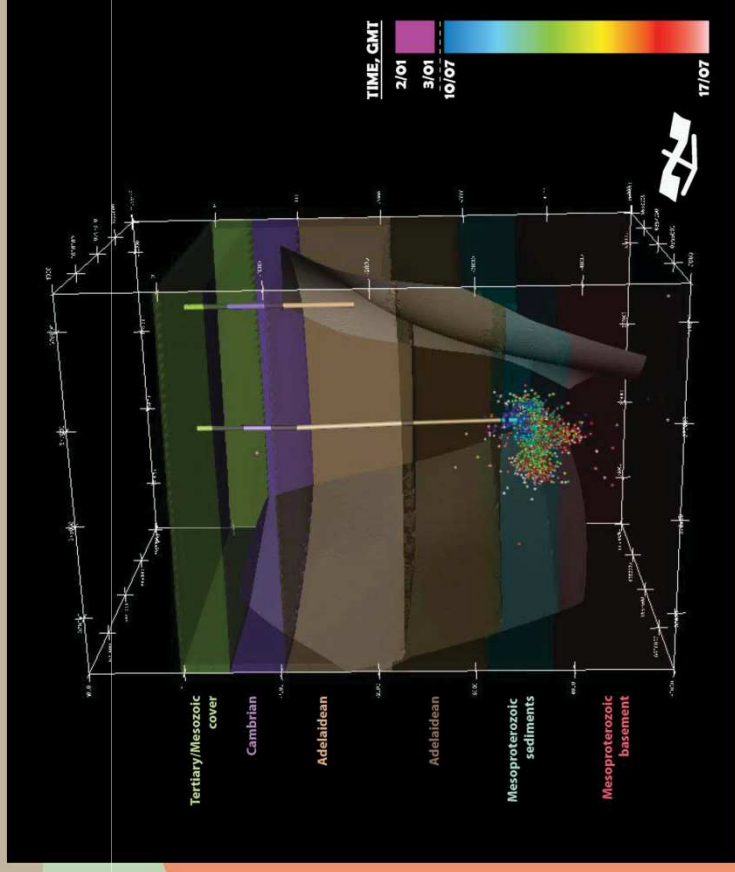
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Main Fracture Stimulation greatly exceeded Target

- Over 7000 micro-seismic events triggered
- Fractured reservoir target exceeded, with micro-seismic events located 900m away from the well
- Connection to deep fractures/faults below the injection point

1km



Paralana Independent Resources Statement – Nov 2011

Depth Interval (metres)	Inferred (PJ _{th})	Indicated (PJ _{th})	Measured (PJ _{th})	Total (PJ _{th})
<3,500	2,400	1,100		3,500
3,500 - 4,000	4,900	4,400	41	9,300
4,000 - 4,500	5,900	5,700		12,000
4,500 - 5,000	6,900	6,700		14,000
Total (PJ_{th})	20,000	18,000	41	38,000

Paralana Joint Venture: Petratherm 79%, Beach Energy 21%.

Initial stimulated rock volume = **5.4 MW electrical power potential for 30 years**

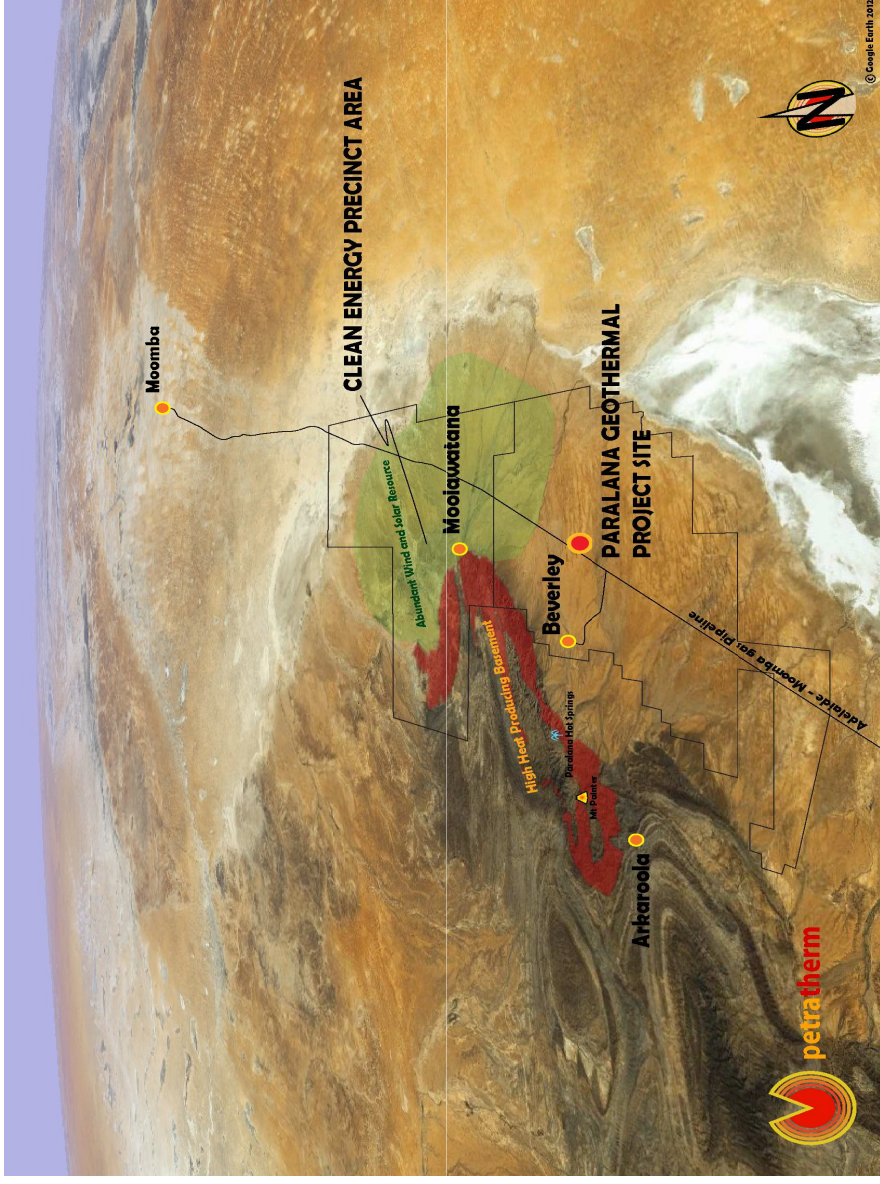
Paralana Resource at the 3500–4000 metre depth interval is estimated a 9,300 PJ_{th} which is sufficient to generate **1,300 MW of electrical power for 30 years**

“Clean Energy Precinct aims to monetize the large Paralana geothermal resource”

The information on this slide that relates to Geothermal Resources is an extract from a report compiled by Dr Graeme Beardsmore, who appears on the Register of Practising Geothermal Professionals maintained by the Australian Geothermal Energy Group Incorporated at the time of the publication of this Slide. Dr Beardsmore is employed by Hot Dry Rocks Pty Ltd, an independent consulting group that provides professional services to Petratherm Ltd. Dr Beardsmore has sufficient experience which is relevant to the style and type of geothermal play under consideration and to the activity which he/she is undertaking to qualify as a Competent Person as defined in the Second Edition (2010) of the ‘Australian Code for Reporting Exploration Results, Geothermal Resources and Geothermal Reserves’. Dr Beardsmore has consented in writing to the inclusion on the slide of the matters based on his information in the form and context in which they appear.

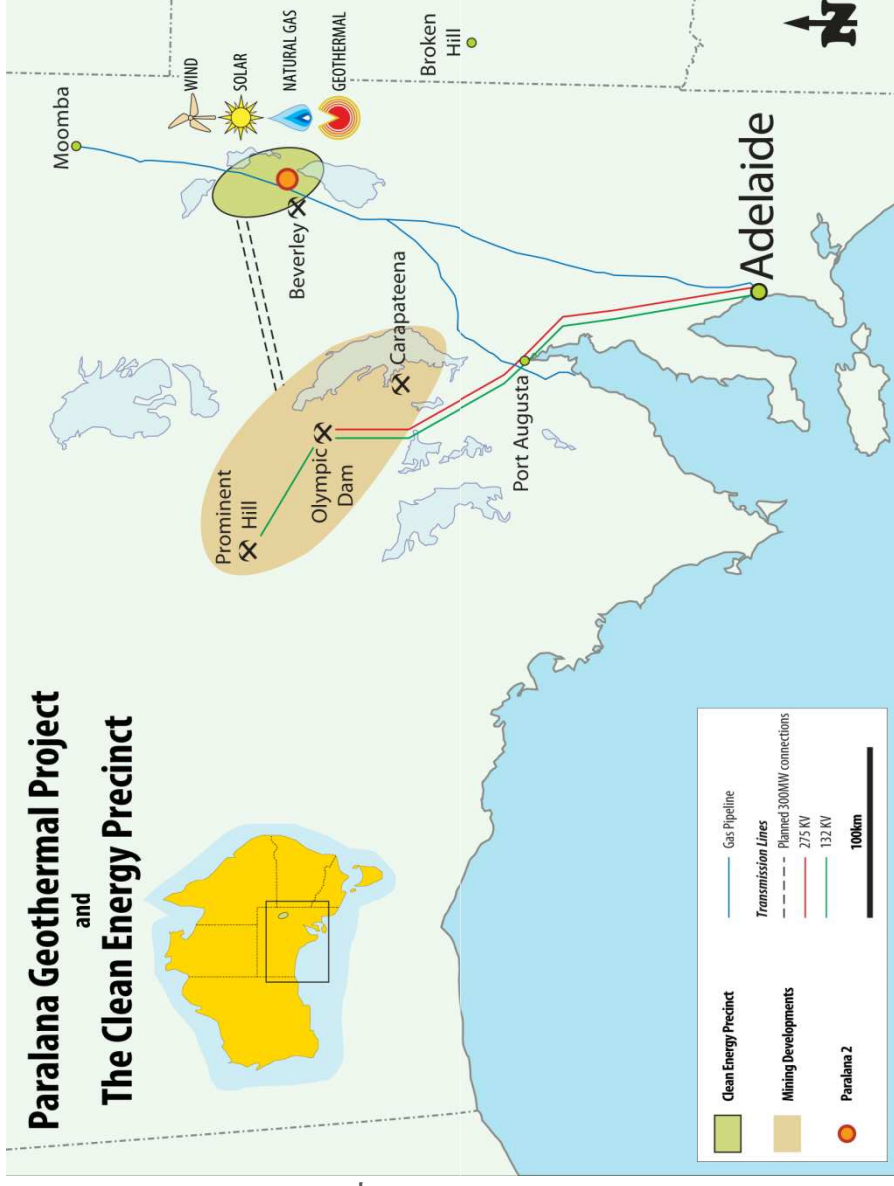
What/where is Petratherm's Clean Energy Precinct ?

- > Project is separate to, but complementary of and inextricably linked to, the Paralana Geothermal Energy JV project and **new Moolawatana GELs**
- > Project is situated just north of the Paralana geothermal project with access to 1890 square kms of land
- > Project aims to combine **gas, wind, solar and geothermal resources**
- > Aim to supply a competitive and secure source of base-load and renewable/low emission power to the growing market in the northwest SA



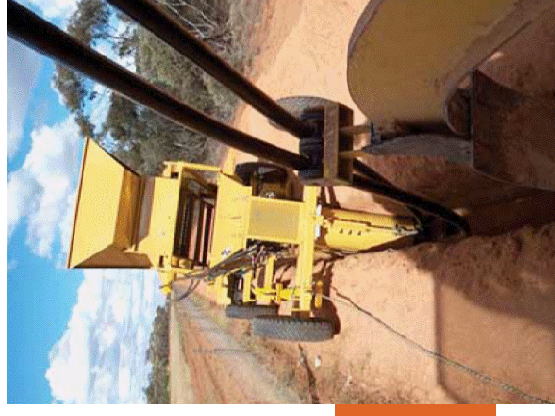
What/where is Petratherm's Clean Energy Precinct?

- > Moomba to Adelaide gas pipeline traverses land in an ideal location that has abundant solar resource and wind resources
- > Staged development of power project – **initially gas and most likely wind** – to provide first stage 300 MW connection to a point near Olympic Dam
- > Second stage 300 MW connection comprised of gas, wind and solar and **introducing large scale geothermal energy**
- > **Longer term aim to provide large scale geothermal power to Braemar Magnetite Province near Broken Hill**



What/where is Petratherm's Clean Energy Precinct ?

- > Project is in response to **large demand growth** expected from very large mining developments 270 kms east of the Clean Energy Precinct
- > **Mines include Olympic Dam, Prominent Hill, Carapateena** - seeking to provide alternative options for power supply to mining developments in SA
- > Clean energy to be delivered by **two, 300 MW HVDC underground cable** connections to minimize environmental, indigenous heritage impacts and ensure speed to market



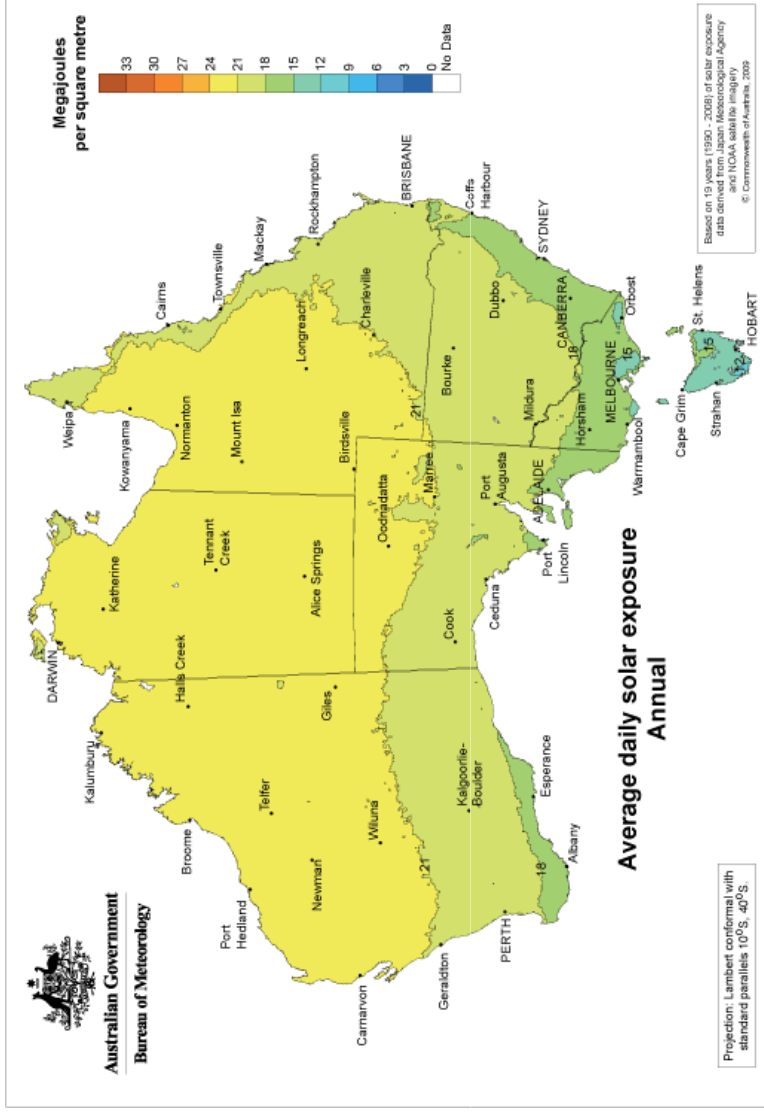
Photos of Murraylink HVDC 220 MW interconnector project near Berri in SA

Preliminary resource assessment summary for Precinct

- BOM data suggests solar resource 20 MJ/m²/day or (5kWh/m²/day). GH confirms it as an excellent solar resource¹ ✓
- Expect competitive gas supply contract availability from Moomba producers² ✓
- Expect sufficient gas pipeline capacity from MAP² ✓
- Wind regime expected to confirm good quality wind resource¹ ✓

(1- Subject to further detailed resource assessment by GH -refer GH disclaimer)

(2 - Subject to negotiations with gas suppliers and EPIC Energy)



Resources – gas, wind, solar and geothermal expected to be available in large quantities of 150 MW+ each – actual mix of generation is yet to be determined

Work to date, indicative costs and timing

- > In discussions with several parties;
 - > International Infrastructure and Renewable Energy companies
 - Costing of generation mix and transmission connection underway
 - > Domestic Resources and Energy companies
 - Commenced discussions with Federal and State governments
 - > International EPC and Product Supplier companies
 - Capital cost estimate* \$1,500 m
 - > ElectraNet - grid connection/access
 - Development costs (full feasibility**) \$7 m
 - > EPIC – pipeline connection/access
 - Commercial close end of 2013/early 2014
- > Commenced discussions with potential mining customers – “tailor to needs”
- > Indigenous Land Use Agreements underway
 - Supply of power commencing mid /late 2016
- > Resource assessments underway*
 - Supply increasing 50 to 100 MW /year for 6-7 years

(latest wind estimate included in this presentation)

(* subject to generation plant mix)

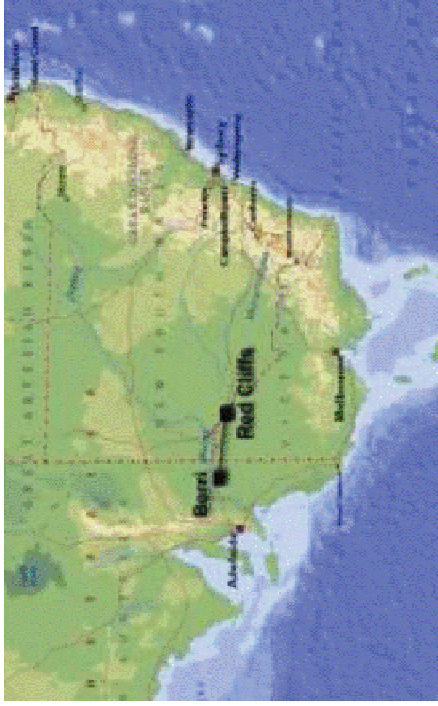
(** includes 30% contingency)

BE PART OF PETRATHERM'S BLUE SKY FUTURE

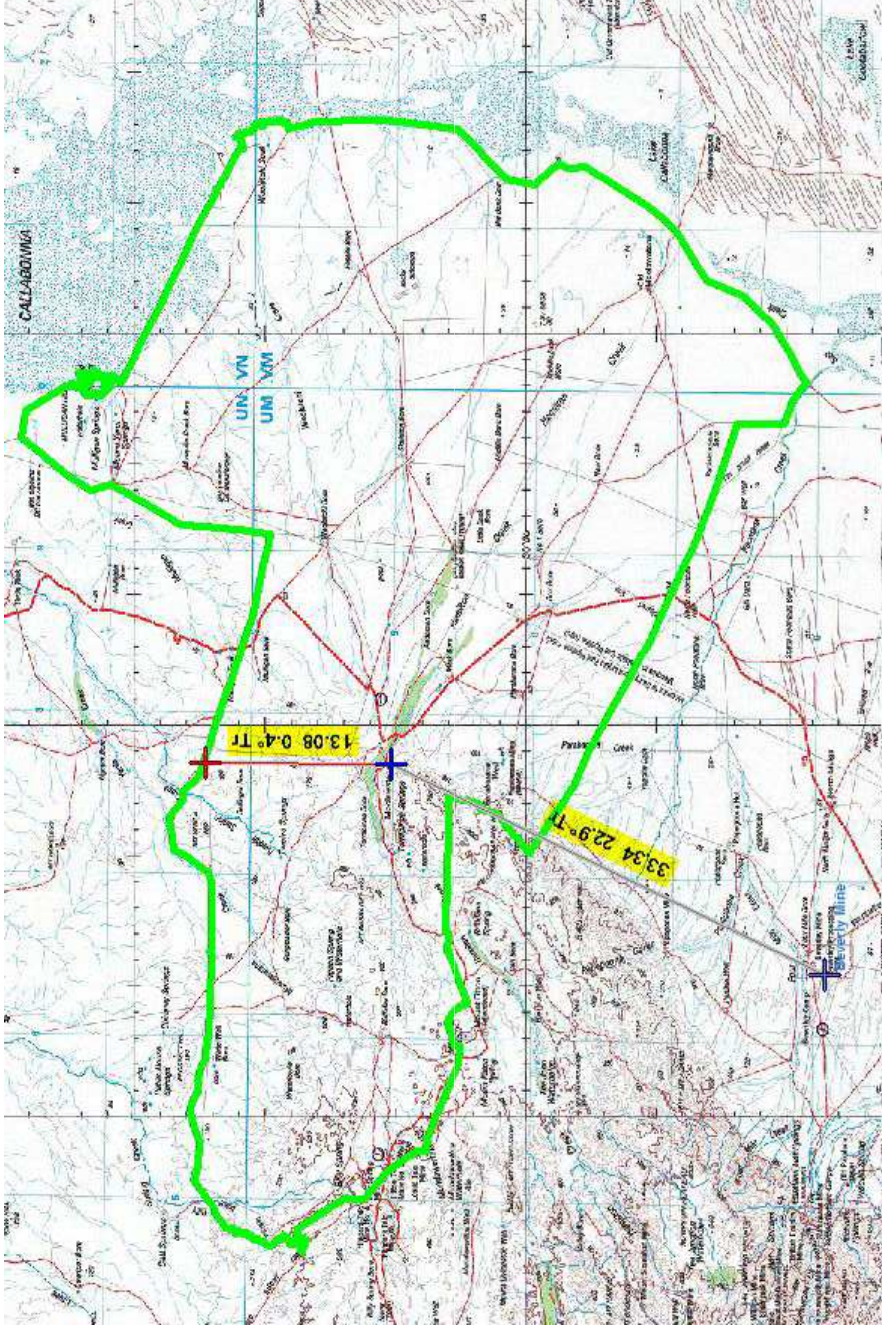
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HVDC transmission connection – already connects SA & Vic – *Murraylink 220 MW, 180 kms underground cable*



Moolawatana Pastoral Lease – Homestead to Beverley



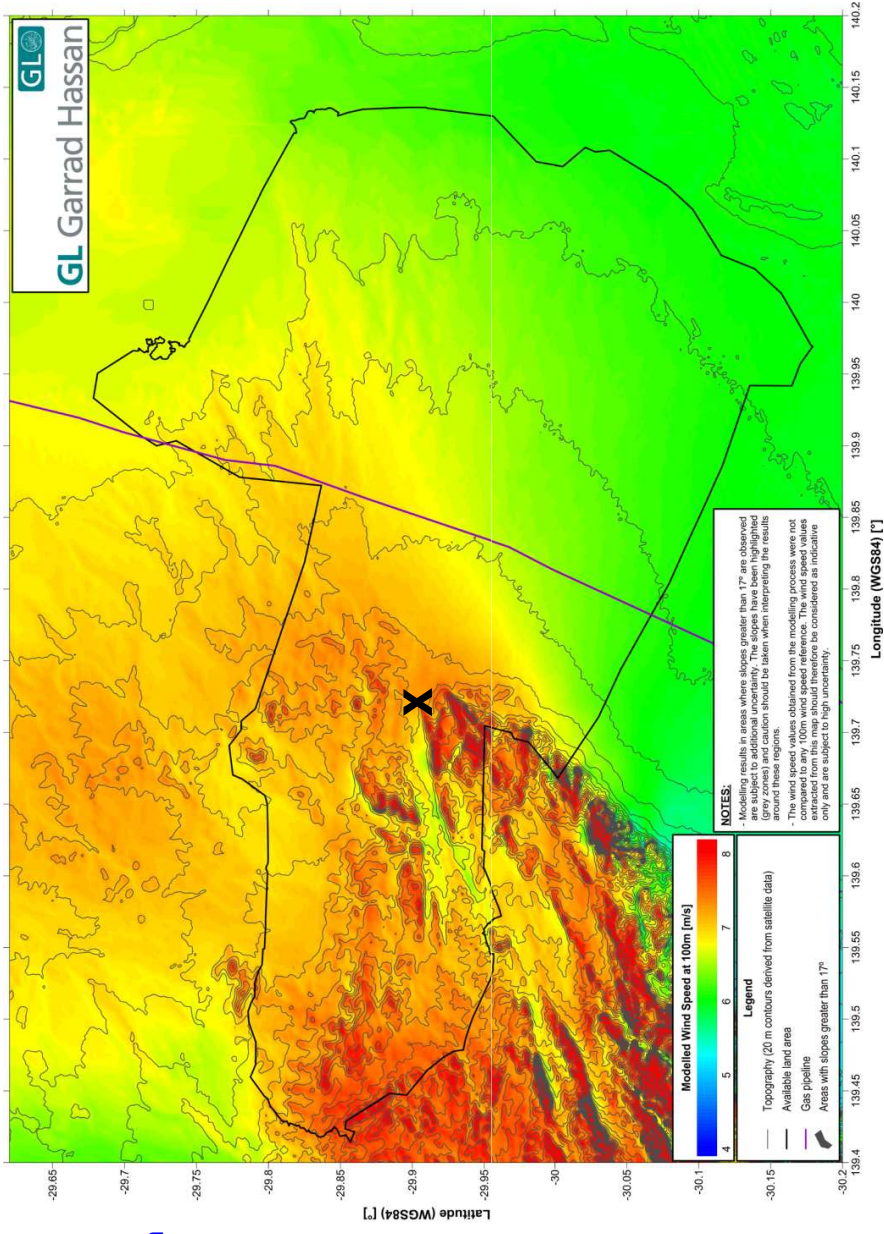
Preliminary Wind Assessment at 100 m hub height

Preliminary wind assessment
Garrad Hassan (GH) – world’s
leading wind consultants –
(refer adjacent Mesoscale Model Map – with
x signifying the Moolawatana Homestead)

Wind speeds in northwest part
of lease is assessed as being
around 7 to 8 metres/sec at
100 metre height

Expected to be well suited to a
Class 2 turbine, large blade
and 100 metre hub height

150 MW and 300 MW wind
farm sizes being assessed by
GH based on 3.2 MW REpower
turbine 57 m blade (refer overleaf)



Mesoscale Model Map of Pastoral Lease boundary showing prospective wind regime in north western area on low lying hills beyond the Flinders ranges

Preliminary Wind Assessment at 100 m hub height

REpower 3.2M114	Stage one - East		Stage two - West		MW GWh/annum
	Lower estimate	Upper estimate	Lower estimate	Upper estimate	
Wind Farm Rated Power¹	152.16	152.16	152.16	152.16	
Gross Energy Output	490.1	624.9	517.8	646.8	GWh/annum
Wake effect	96.8	97.4	93.1	94.7	%
Availability	96.8	96.8	96.8	96.8	%
Electrical efficiency	97.0	97.0	97.0	97.0	%
Turbine performance	100.0	99.9	100.0	99.9	%
Environmental	99.5	99.5	99.5	99.5	%
Curtailment	100.0	100.0	100.0	100.0	%
Net Energy Output	443.0	568.2	450.2	571.4	GWh/annum
Net Capacity Factor	33.2	42.6	33.8	42.8	%

1. This value is based on the peak power of the power curve provided rather than the nameplate power.

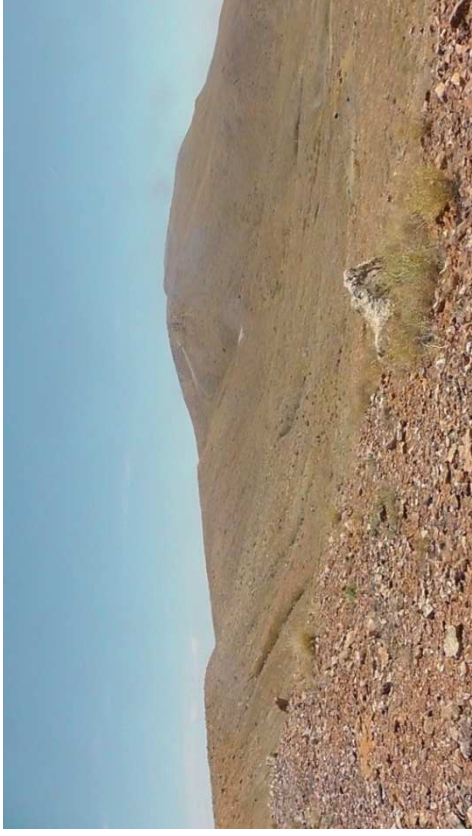
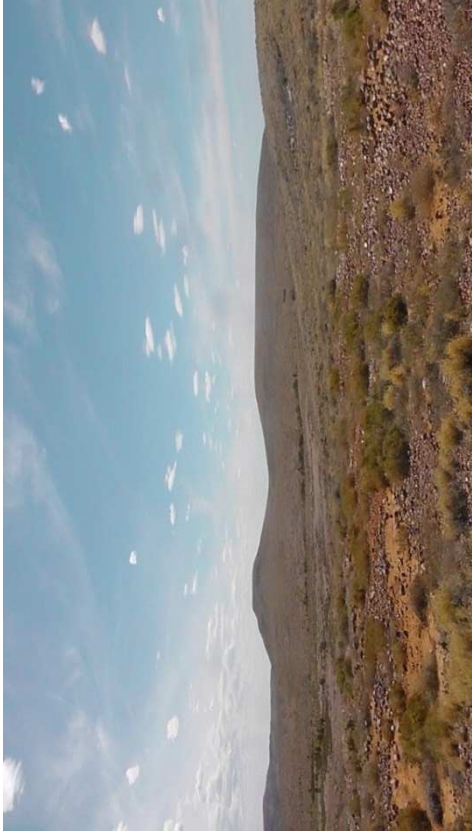
Preliminary* wind assessment by Garrad Hassan (refer table above) indicates good (33%) to excellent (43%) capacity factors for wind power generation development. Next step is to install 2 met masts on Moolawatana station near the west end of the pastoral lease (* estimates are based on meso-scale data and 45 metre grid resolution)

GL GH Important notice and disclaimer

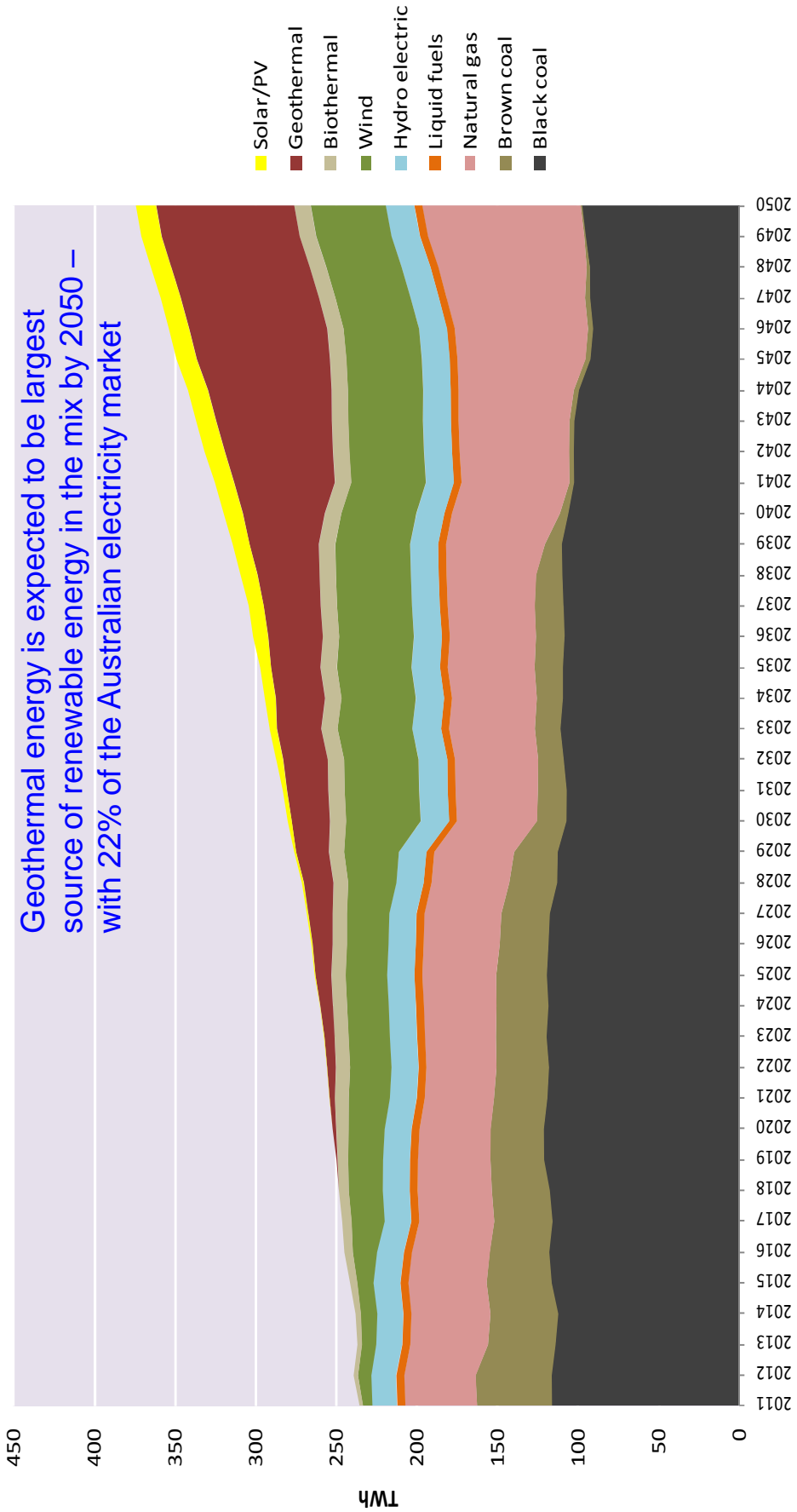
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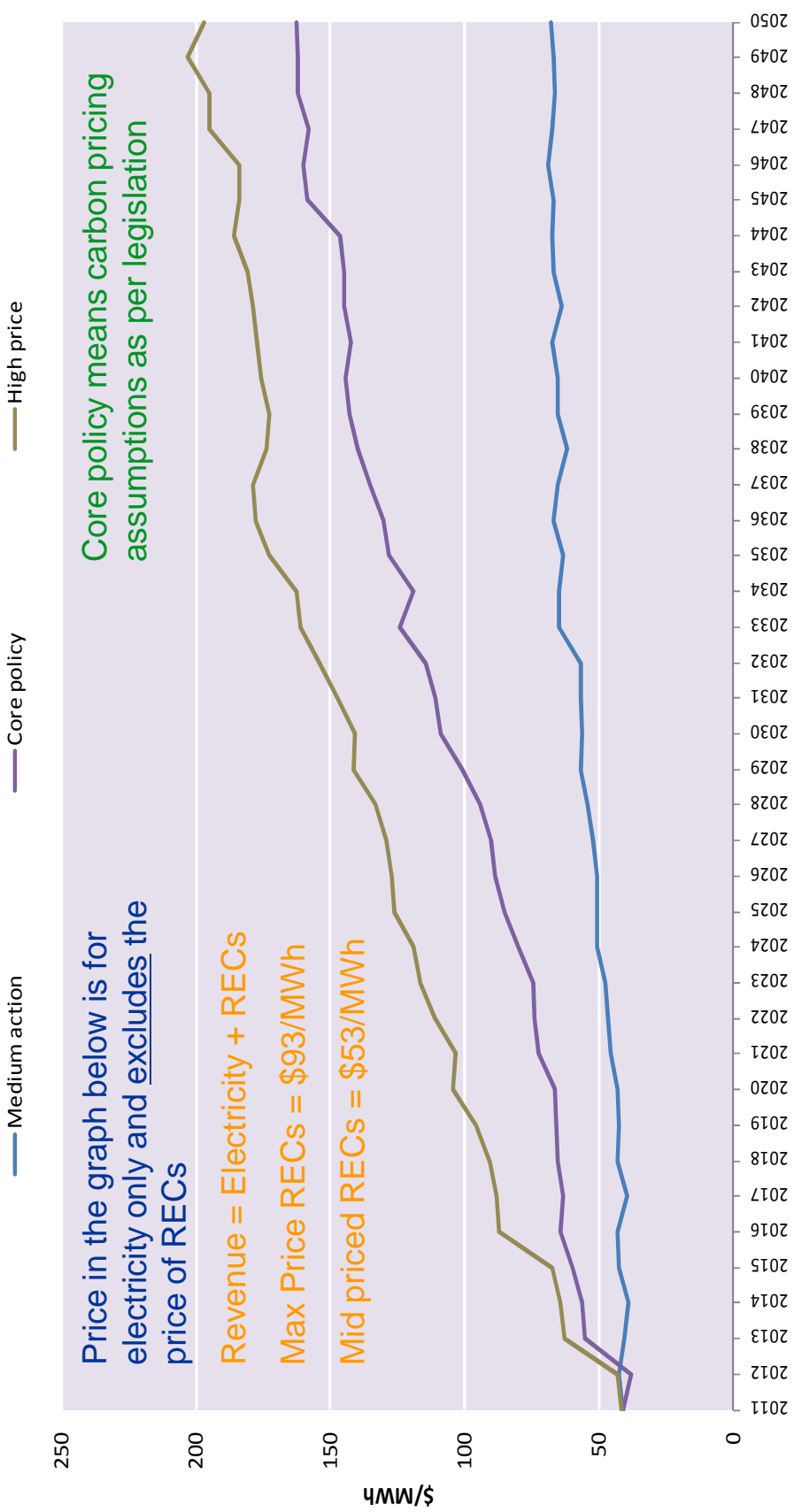
Potential wind farm location areas – north of Homestead



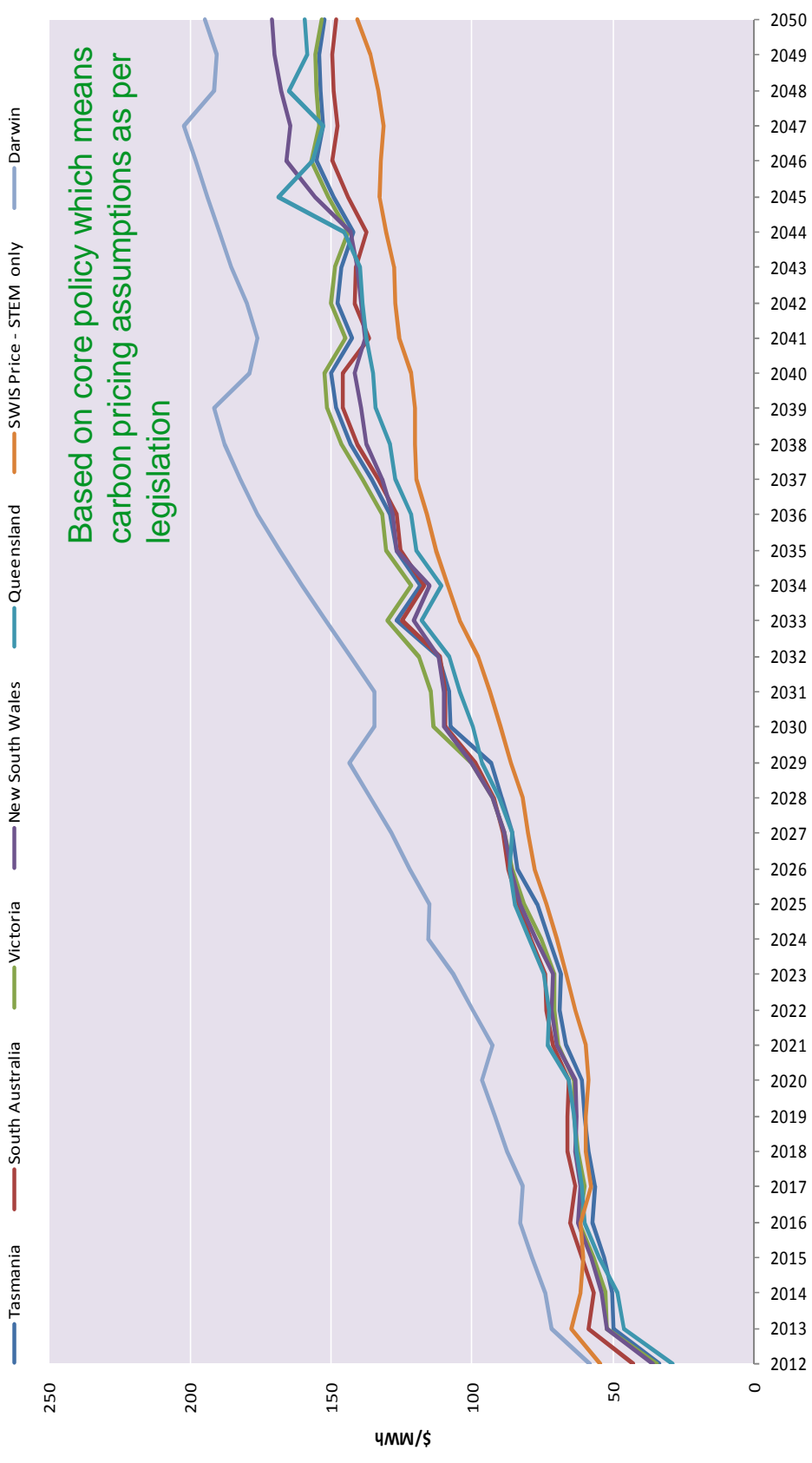
Impact of Carbon pricing – Australian power generation mix (source SKM/MMA)



Impact of Carbon pricing – Australian wholesale electricity price (source SKM/MMA)



Impact of Carbon pricing – State wholesale electricity prices (source SKM/MMA)



Impact of Carbon pricing – South Australian power generation mix (source SKM/MMA)

