



Hot Rock Limited

A Review of Current Geothermal Development Activities in the Otway Sedimentary Basin, Victoria, Australia

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Australia'

Strong drivers for geothermal development in Australia

§ Vast sources of deep heat

- § In granites

- § In wet and dry sedimentary rocks above the granites

§ Pioneering “EGS” work by Geodynamics

- § Cooper Basin

- § the ‘right’ tectonic environment

§ Recent strong Government support for renewables

- § Reduction of large carbon footprint

- § Wind

- § Geothermal

- § Solar

- §

Rapidly growing private sector involvement in geothermal

Geothermal Stocks	ASX	Price	Shares (m)	Options (m)	Mkt Cap (\$m)	Area	Model
Geodynamics	GDY	\$1.55	211.6	4.0	334	SA/NSW	HDR
Eden Energy	EDE	\$0.34	166.8	86.5	86	Focus on hydrogen	HDR
Petratherm	PTR	\$0.85	57.9	13.1	60	SA/Spain	HDR/HWR
Geothermal Resources	GHT	\$0.66	33.0	1.8	23	SA	HDR
Torrens Energy	TEY	\$0.40	50.1	28.2	31	SA	HDR



Types of Australian Geothermal Resources

§ High temperature granites >200°C

- § Naturally impermeable / require fracturing

- § “HDR” / “HFR” / “EGS”

§ Moderate temperature sedimentary, 100–200°C

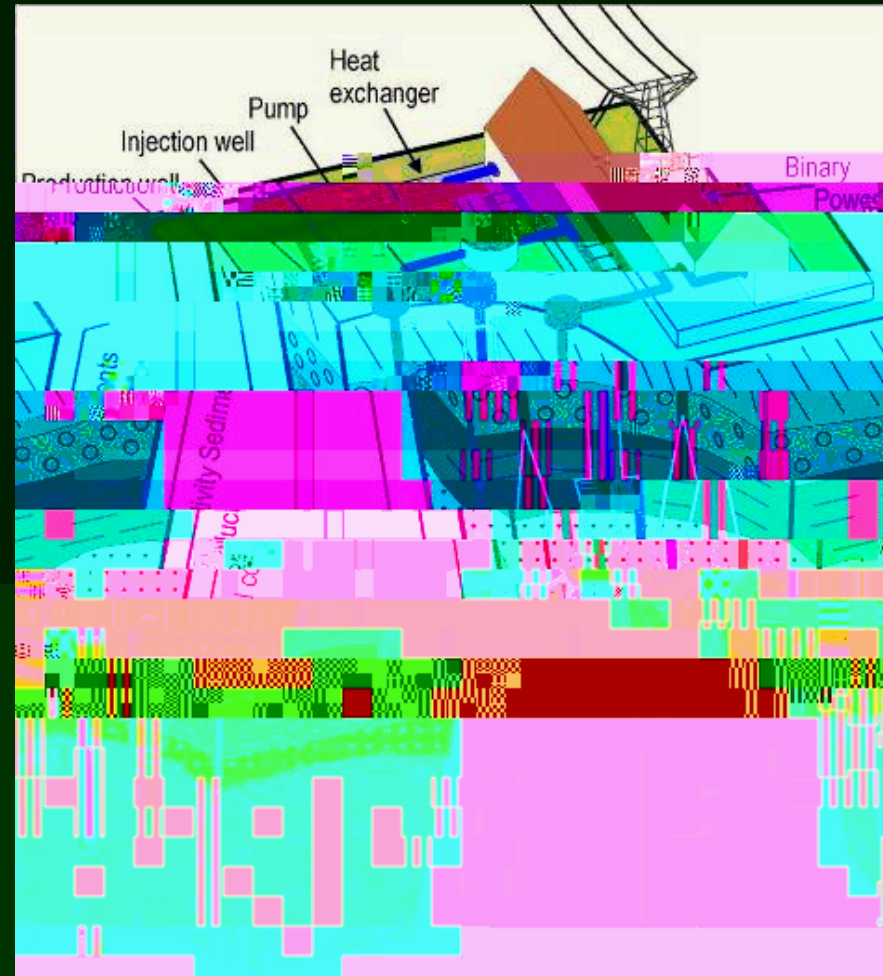
- § Naturally permeable

- § “HWR”, “SG”

- § Naturally impermeable

- § thermal insulators above granites

- § “HEWI” (Petratherm)
“EGS”



HRL focus is on “Sedimentary Geothermal”

§ Naturally permeable systems

- § Don't require hydro fracturing

§ Naturally wet

- § Don't require injection of water / circulation loop

§ Lower development costs due to

- § Shallower production drilling targets
- § Higher well flow rates

§ Lower operating costs

- § Reduced parasitic pump costs

§ Lower Risk

- § Proven production and power plant technology
- § 100 year history of geothermal electricity generation

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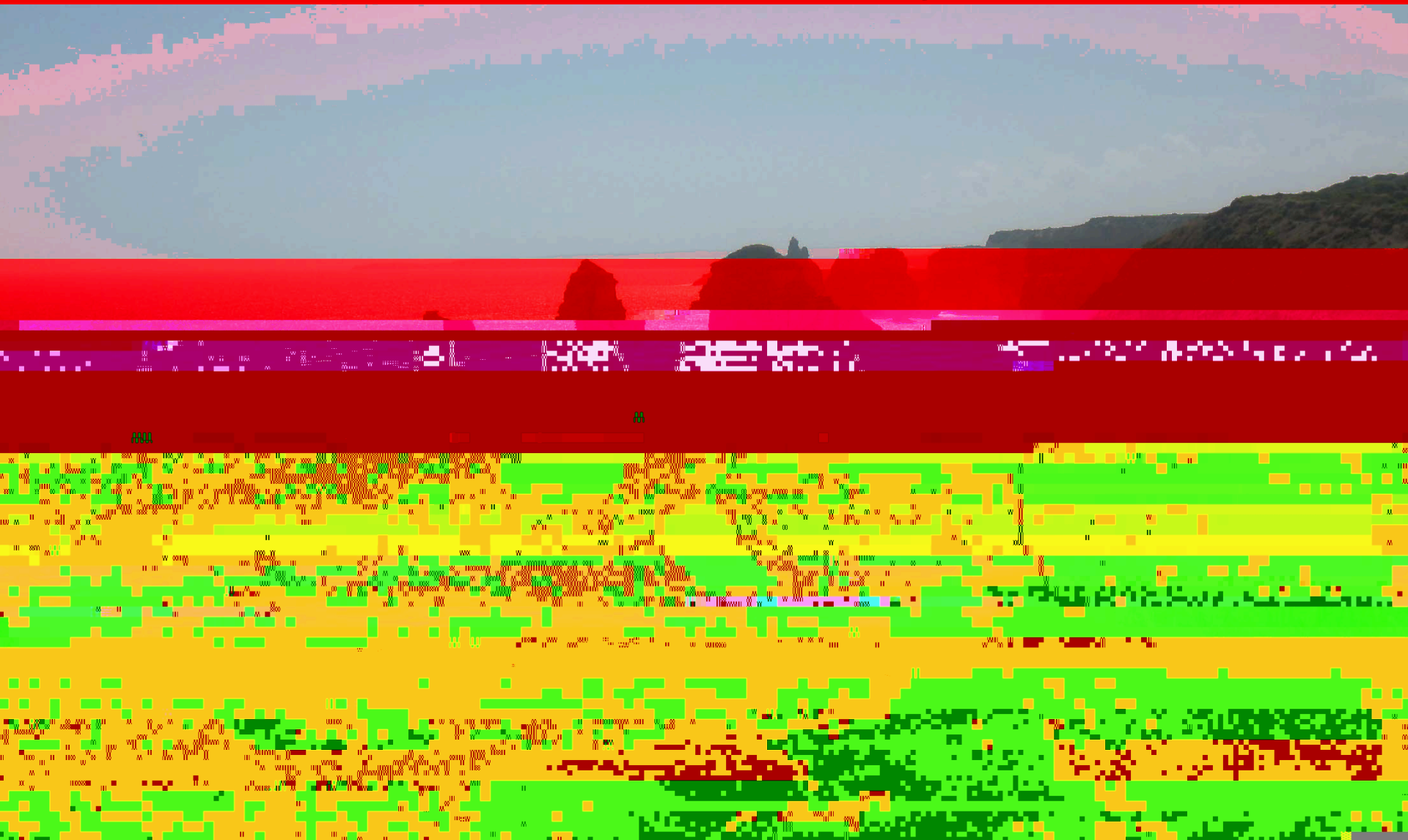




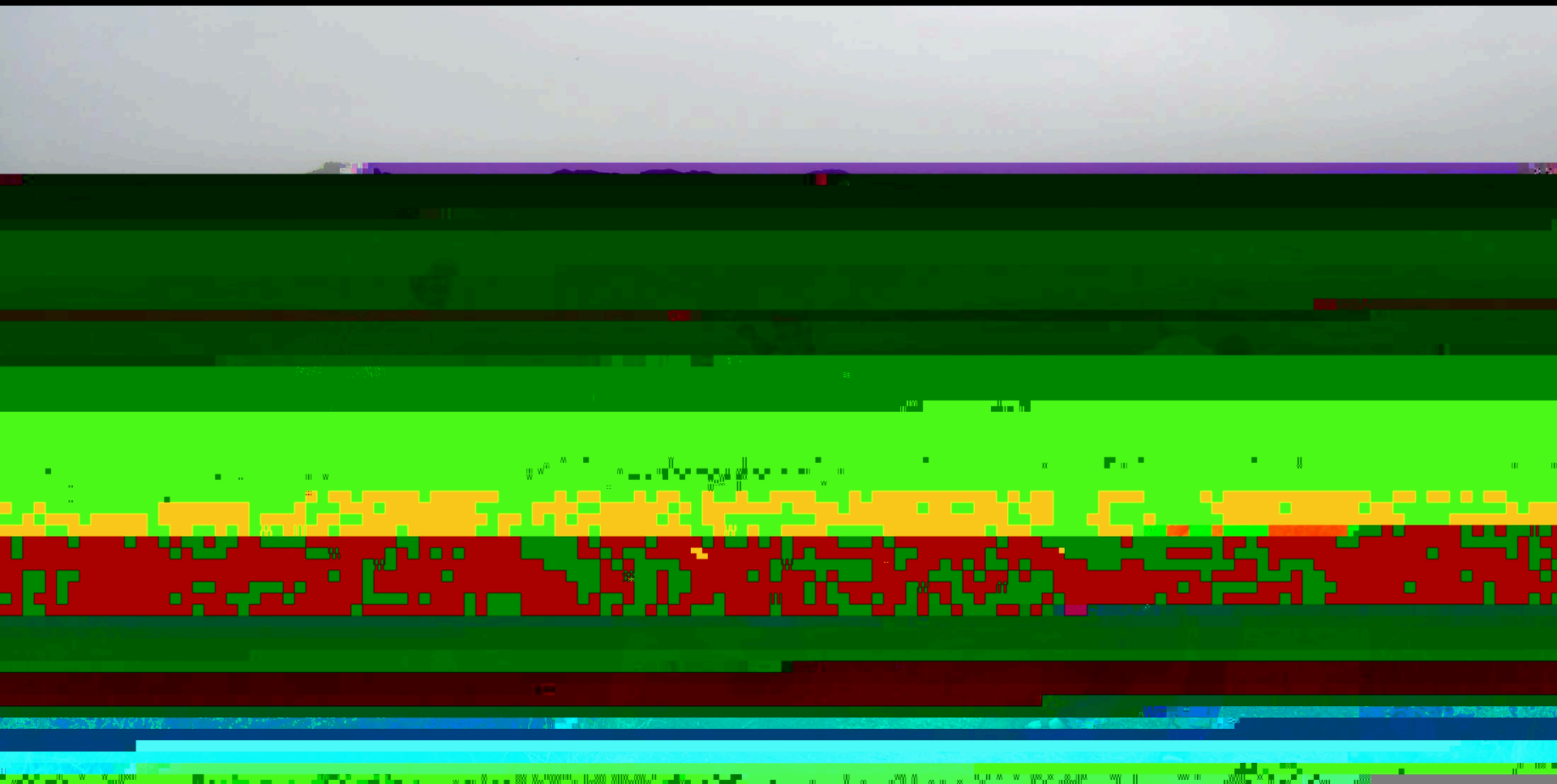
Onshore extent of Otway Basin



Onshore outcrops of Otway Basin sedimentary rocks



Otway Basin – recent volcanism



Close proximity to markets &

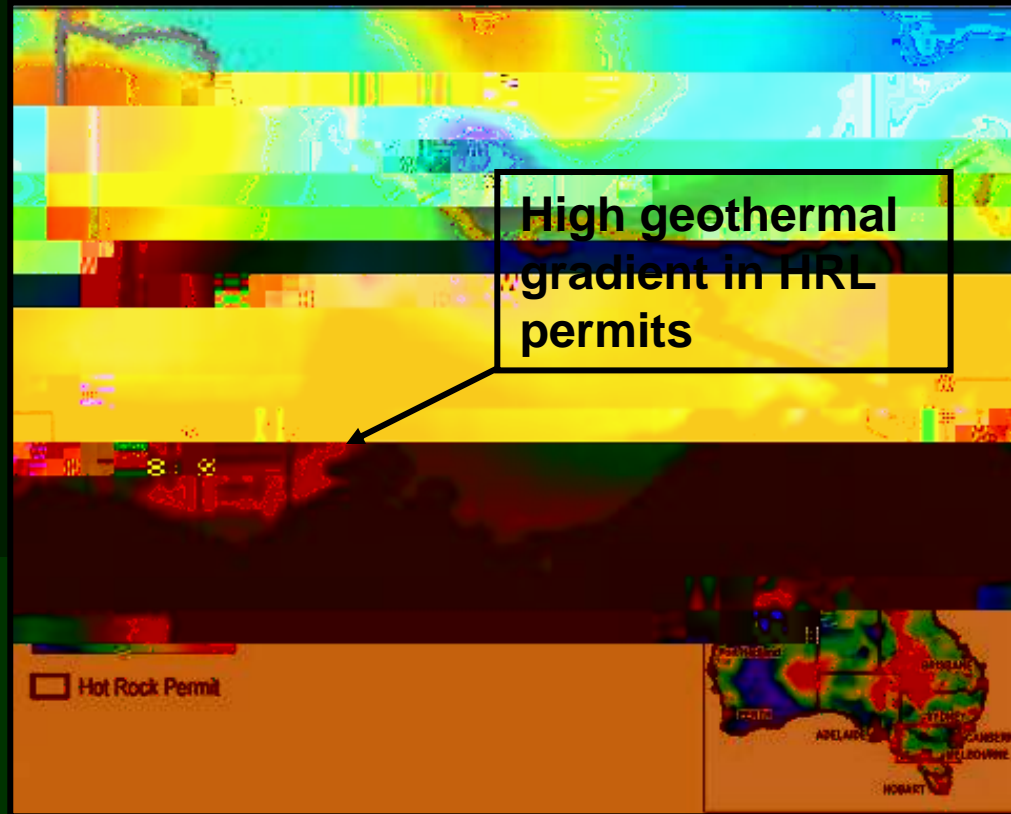
HRL Otway Basin Geothermal Permits

§ 4 permits cover large area of prospective Otway Basin (+18,000sqkm)

§ Anomalous geothermal gradients

- § Elevated heat flow up through basement
- § Structurally controlled upflows of hot fluids from depth to shallow levels
- § Some association possible with young volcanic

§ Very large amount of surface & sub-surface data exists and is readily accessible

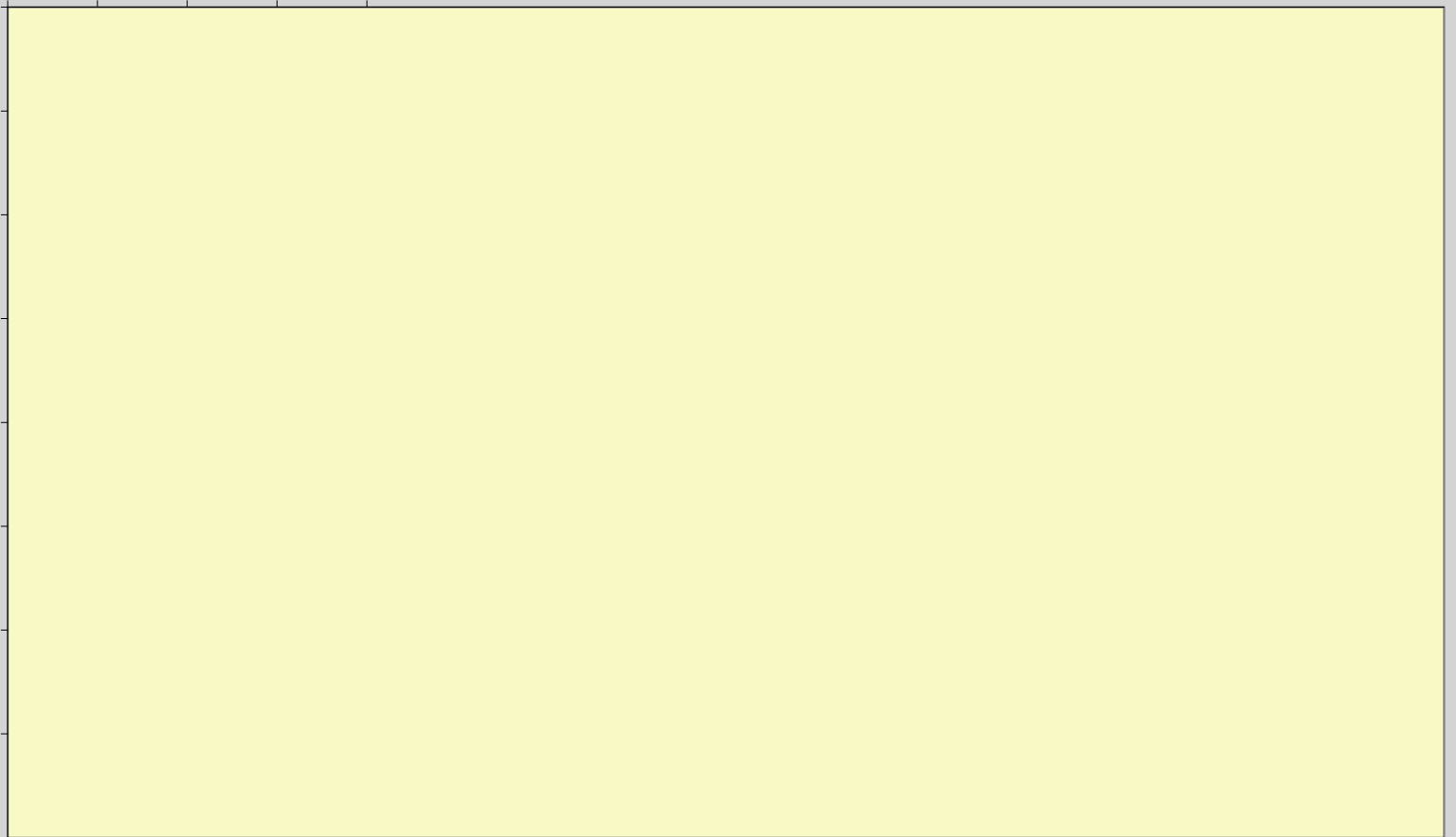


Invaluable existing exploration and well data

§ Decades of active oil and gas exploration

Otway Basin wells

- measured temperatures



Otway sedimentary basin hydro-geological model



- **Large sedimentary basin with several hot aquifers**
- **Geothermal reservoir contained in Early Cretaceous Crayfish Group**
 - Up to 800m thick aquifer / High porosity 20% / High perm (1000 mD)
 - Temperatures of at least 142°C + at 2,700m to 3,500m depth
- **Developable with low risk, proven HWR technology** ²⁷

Initial assessment of geothermal resource capacity

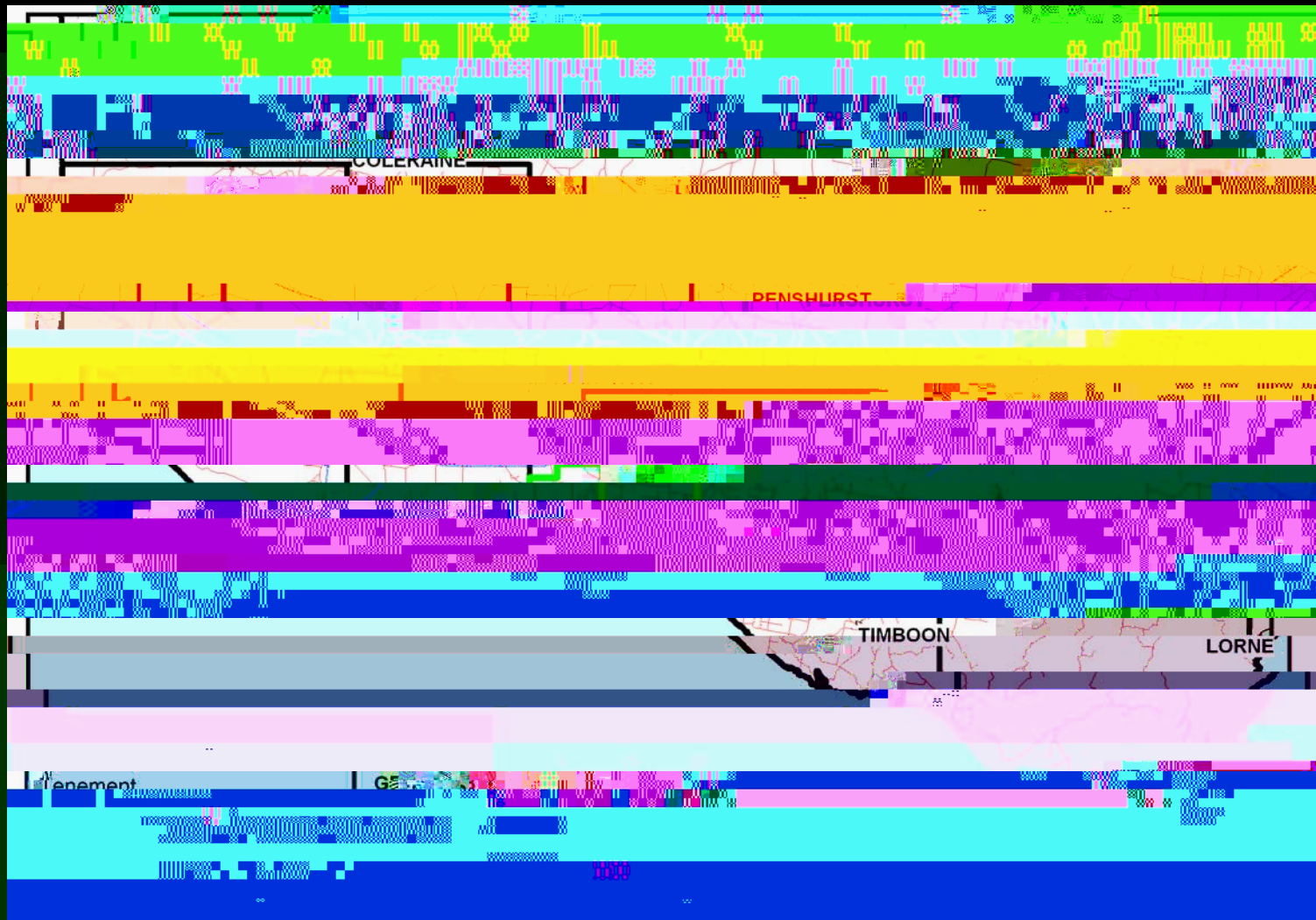
- § **Volumetric stored heat calculations for 17 geothermal “depo – centres” in 4 GEP’s, based on simple conceptual exploration model with conservative assumptions yield:**
 - § potential power generation targets ranging from 300 to 720 MWe per prospect, 1750MWe in total
 - § 40% of Victoria’s base load power
 - § potential total annual gross revenues of A\$ 1.1billion
- § **Suggests initial pilot plant of 1MWe with series of staged subsequent commercial power developments with a capacity of 50 MWe per plant**

Current Status HRL Program

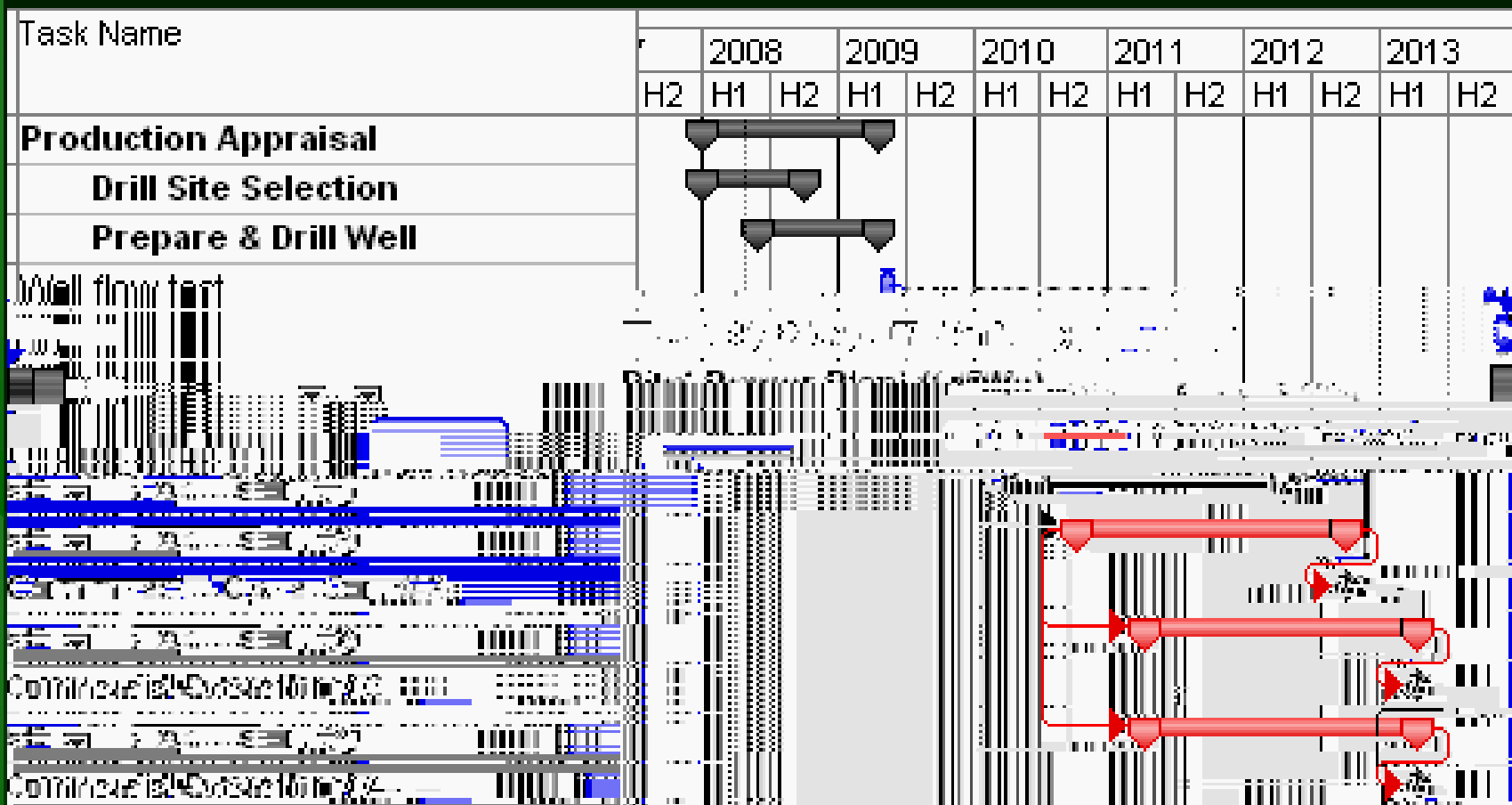
§ O&C data from 4 CED



Koroit Area: Priority Development Target



Anticipated Longer Term Program at Koroit: up to 4 x 50MWe by 2013



Market Considerations

§ Good geothermal market in Victoria

§ For both electricity and cascaded waste heat from power plant

§ Potential off-takers:

§ Utilities

§ Local LV (22kV and 66kV) and HV

§ Industrial

§ Alcoa aluminum smelter

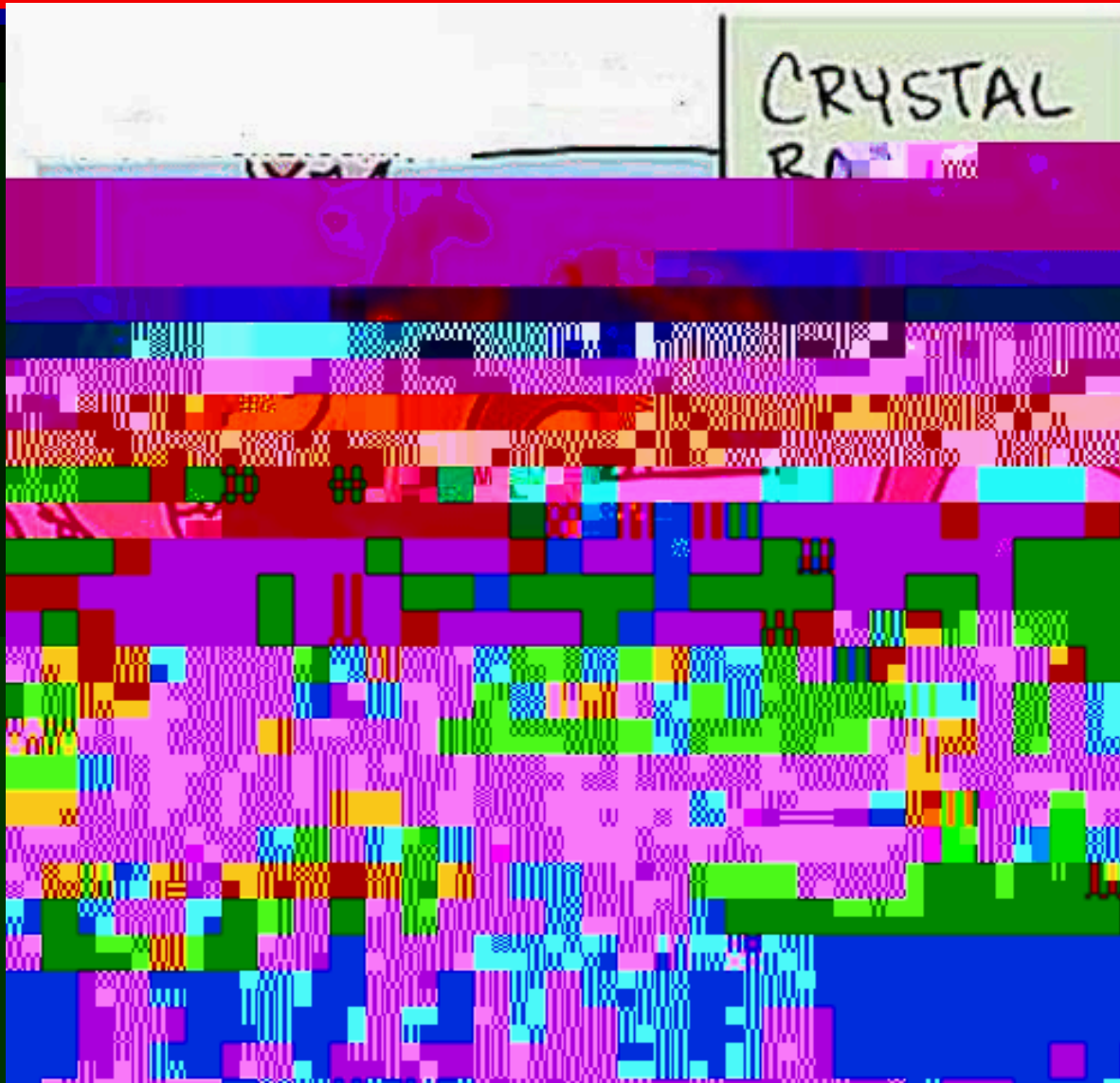
§ Dairy Industry (Goulburn Co-op)

§ Portland City (hot water)

§ Timber chip and pulp industry (drying)

Composition of average power price in Australia - 2007 (source BBP)

Development Costs / Costs of Power ?



HRL Development Assumptions

§ Production wells

- § depths 3,500m

- § 12-1/4 inch holes to 3500m with 13-3/8 inch PCsg

- § shallow down-well electric production pumps

- § 4 MWe per well production rates

 - § 16 wells for 65MWe gross / 50MWe net development

§ Injection wells

- § depths 1500m

- § 13 wells required for 50MWe net plant

§ Power Plant

- § Organic



Key financial assumptions



Assessed Costs for HRL 65MWe (gross) development

Š Capital Cost

Š \$US300m

Š Specific Capital Cost

Š \$US 4,600 / kWe

Š (wells, power plant, transmission)

Š Power tariff

Incentives – State Level

- § Victoria Geothermal Act has no royalty
- § VRET Scheme (Jan 2007)
 - § State government is committed to reducing Victoria's greenhouse gas emissions to 60% by 2050
 - § mandates Victoria's consumption of electricity generated from renewable sources be increased to 10% by 2016
 - § objectives to encourage additional generation of electricity from renewable sources.
- § Renewable energy fund of \$72million (April 08)
 - § ex Clinton Foundation
 - § to assist large-scale sustainable demonstration energy projects, including geothermal



Incentives - Federal Level ..1

- § Mandatory Renewable Energy Target (MRET) policy to be introduced to reduce the effects of climate change caused by greenhouse gas emissions
 - § Aiming for 2% of Australia's power supply from renewable sources by 2010 and 20% or 42,000 (60,000 ?) Gigawatt hours by 2020.
 - § MRET expected to replace VRET

Incentives - Federal Level ..2

- § Emissions trading scheme to be introduced 2010
 - § Renewable Energy Certificates (RECs) to be issued to eligible parties
 - § RECs are sold by the holder to other registered groups and add to the renewable power generators income.
 - § fossil fuel generators will need to add the cost of emission certificates to their generating costs
 - § a maximum penalty for a power generator not complying

Incentives - Federal Level ..3

- § Federal government is also in advanced stages of planning for:
 - § a \$500 million Renewable Energy grant fund
 - § includes a \$50million drilling fund for geothermal production wells
- § Objectives are to:
 - § encourage early investment into renewable energy demonstration projects
 - § expand the range of renewable technologies

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