

*Presentation to the  
Senate Inquiry into  
matters relating to the  
Varanus Island gas  
explosion*

*by*

*Sustainable Energy Now*

*2 October 2008*



# **Outline**

*1. The challenge*

*2. Renewable energy resources*

*3. Technologies available*

*4. Costs*

*5. Timeframes*

*6. Where to from here ?*

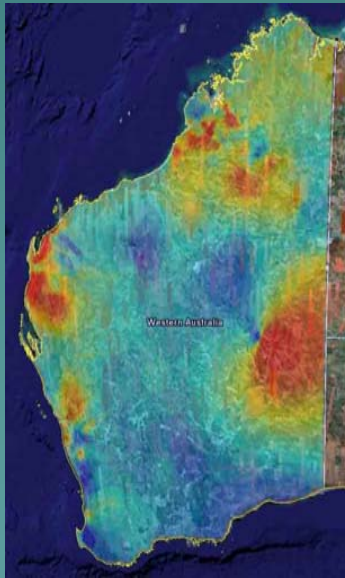
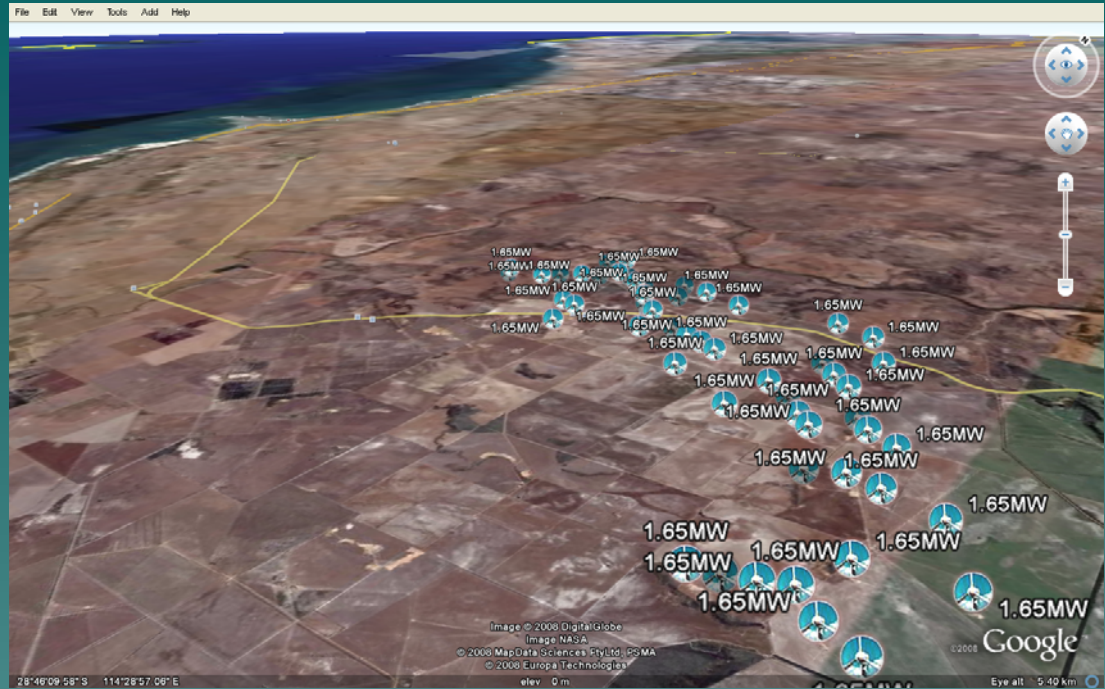
# *SEN submission highlights*

- *The Varanus Island gas explosion demonstrated the danger of being reliant on few energy sources and clear need to diversify energy sources*
- *WA has abundant renewable energy sources biomass, geothermal, sun, waves and wind.*
- *Rapid adoption of renewable energy brings diversity and improved energy security as well as greatly reducing our greenhouse gas impact. WA currently has highest per capita GHG emission in Australia*
- *Renewable energy rapidly becoming cost competitive*

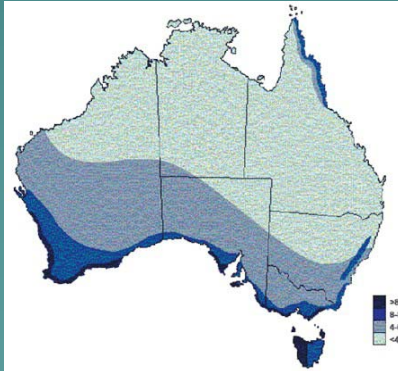
# Naturally available energy resources and the SEN Project

## Computer simulation – SWIS electricity grid using renewable energy

- Virtual RE power stations
- Energy resource overlays
- Infrastructure overlays



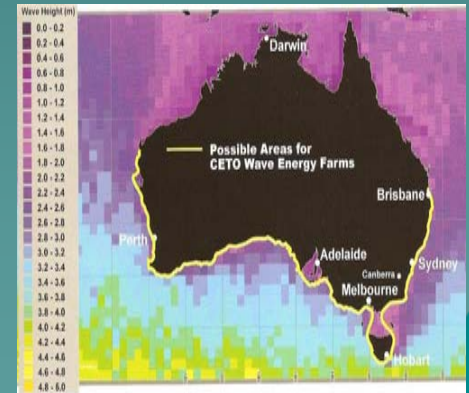
hot rock geothermal overlay



wind speed overlay



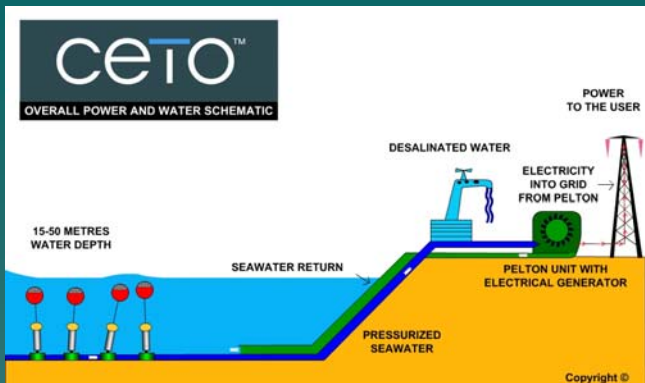
solar overlay



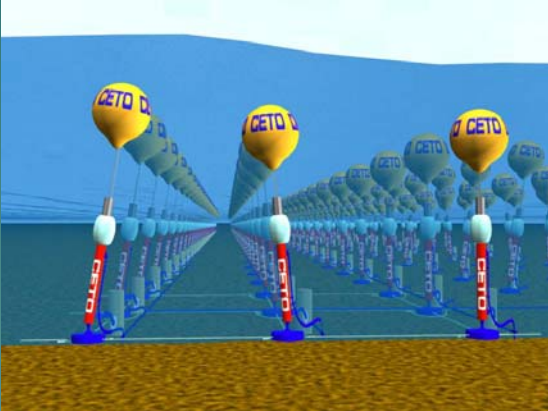
wave energy

## SEN Simulation Graphic





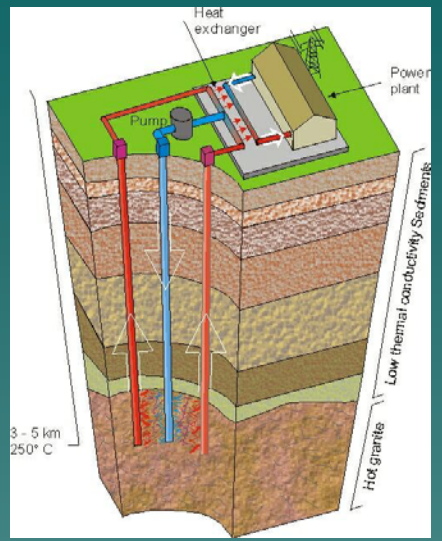
CETO (Carnegie Corp) Perth & UK



# Some available technologies



329 Megawatt Macarthur wind farm, VIC.



Geodynamics HDR



Liddell solar & coal-fired power station

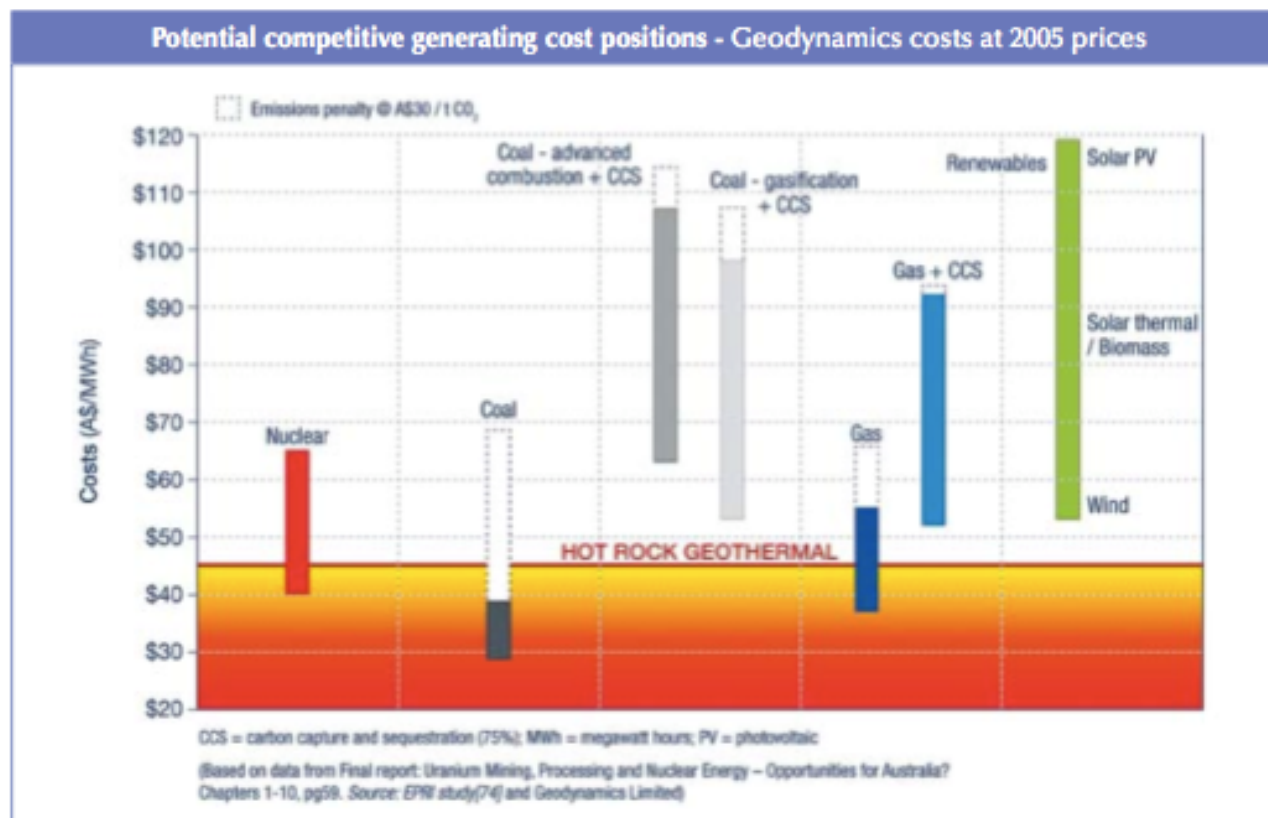


Crystal Silicon on Glass (CSG, ex-Pacific Solar Aust/UNSW) Germany

NSW



# ENERGY COSTS



<sup>1</sup> Somerville, M., Wyborn, D., Chopra, P., Rahman, S., Estrella, D., & van der Meulen, T., 1994 - Hot Dry Rock feasibility study. Energy Research & Development Corporation, ERDC Report 243, 133pp. Copies of this out of print report are available from Geodynamics.

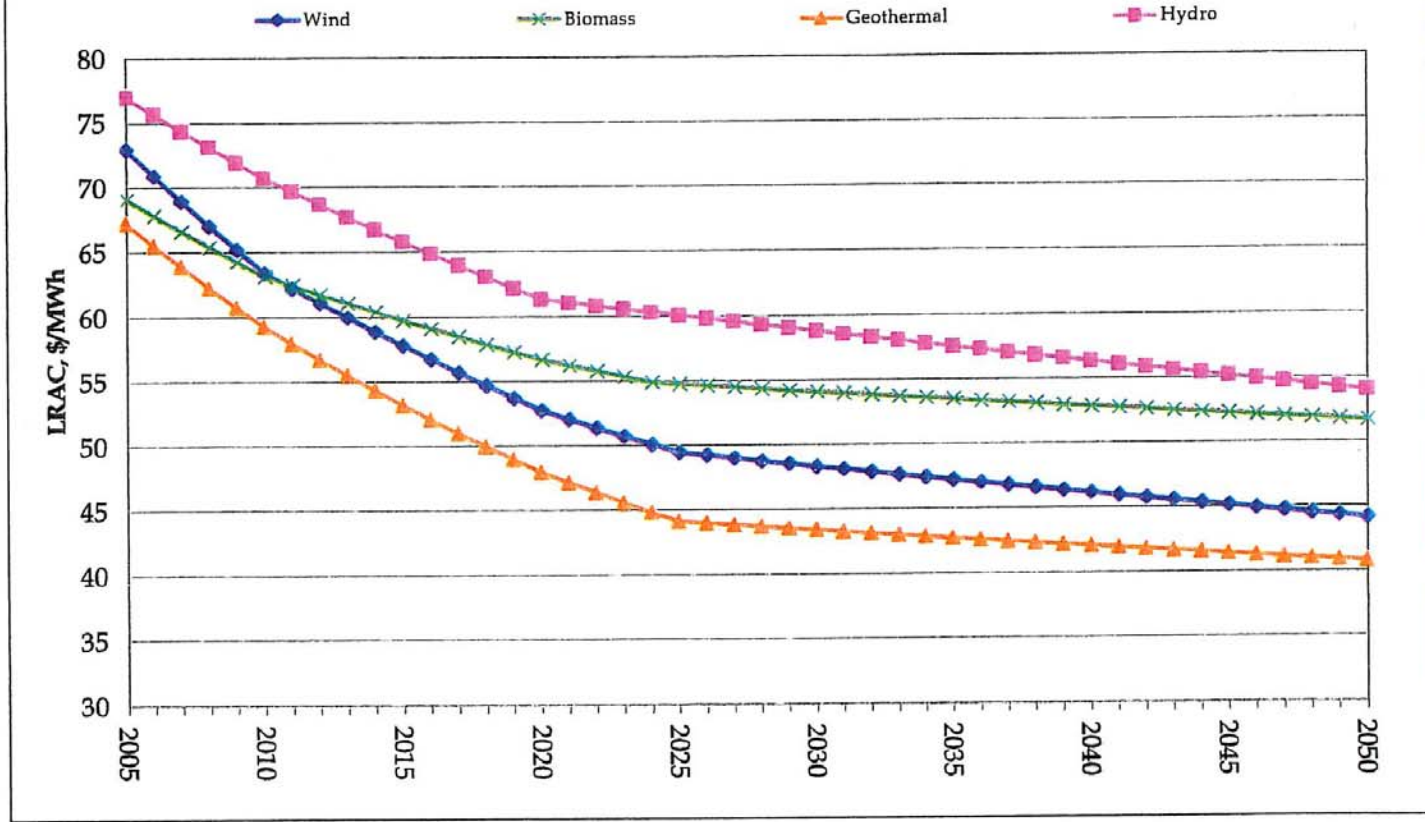
<sup>2</sup> ABARE 2006 Australia's Energy Resources

<sup>3</sup> Massachusetts Institute of Technology 2006. The Future of Geothermal Energy  
[http://geothermal.inel.gov/publications/future\\_of\\_geothermal\\_energy.pdf](http://geothermal.inel.gov/publications/future_of_geothermal_energy.pdf)

<sup>4</sup> ROAM Consulting Pty Ltd 2005. Transmission system development for the hot fractured rock geothermal project in the Cooper Basin, South Australia

Source : Geodynamics

## AVERAGE CASE COST – wind, biomass, geothermal, small-hydro 2005-2050



Ref: McLennan Magasanik Associates, 2007 for REGA

