Barry Goldstein
Comments on IPCC Geothermal Paper
(via e-mail; received: 20 June 2008)

(1) The following text comes from the Australian Geothermal Energy Group's(AGEG's) submission to the Garnaut Review that will inform the design of Australia's emissions cap & trade scheme (to be implemented from 2011).

> In 2007 Geoscience Australia produced an estimate of total contained crustal energy for that portion of the Australian continental crust which is shallower than 5km and hotter than 150°C. Converting just 1% of this crustal energy above 5 km (190 million PJ) to electricity would supply around 26,000 years of Australia's primary power usage in 2005, and that neither takes into account the renewable characteristics of hot rocks, nor the resource below 5,000m. It is expected that this estimate will be further refined by Geoscience Australia in 2008 with the addition of both new and existing geothermal data.
>
> The potential materiality of Hot Rock project areas remains to be fully demonstrated, but proponents of geothermal energy development believe there is sufficient information to conclude:
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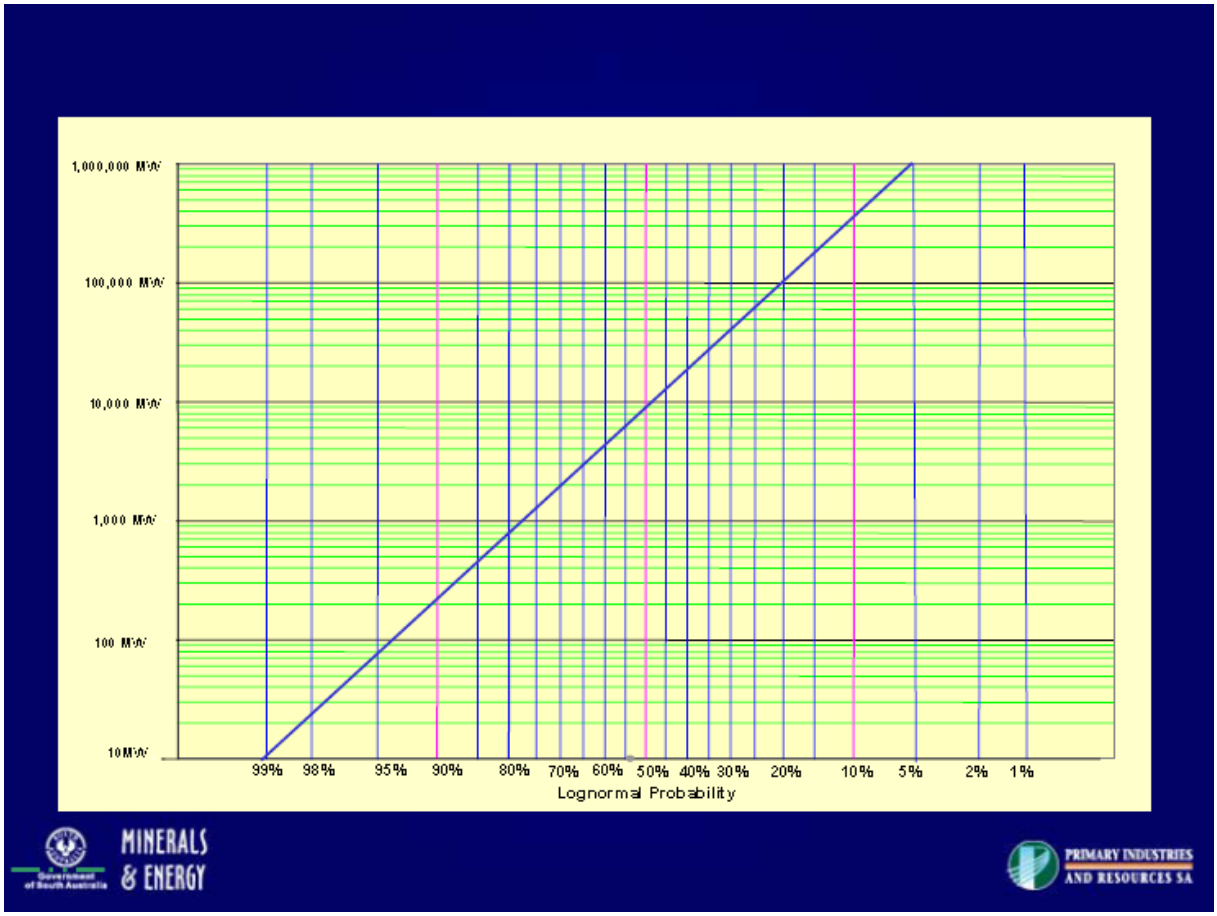
> - Hot, wet, fractured granites in Geodynamics' South Australian Cooper Basin geothermal tenements (covering 1,983 km^2) represent a potentially accessible 270,000 PJ (defined) plus 100,000 PJ (inferred) that may in future be able to support > 10,000 MW of emissions-free power generation;
> - Heat exchange within insulator (HEWI) hot rocks covering just 20 km^2 area by 1 km thick with an average temperature of 200°C in Petratherm's Paralana project area in the northern Flinders Range in South Australia could support the generation of 520 MW of electricity to the National Electricity Market over 25 years; and
> - Hot wet sandstones in Panax's Limestone Coast Geothermal Project in the South Australian Otway Basin geothermal tenements (covering 2,674km^2) represent a possibly accessible generating potential in excess of 1,500 MWe.

(2) Coming from the oil & gas sector, and under the premise of 'better roughly right than precisely wrong, I tend to trust Log Normal distributions as reasonable approximations for undiscovered resource estimates (feel free to shout me down). The attached display is a first pass log-probability distribution that assume a world P99 (99% likelihood of exceeding) 10 MW from Hot Rocks and Geodynamics upside (10,000 MW) capacity as a global P50 (the blue line). That suggest an undiscovered potential (P5 or 5% probability of exceeding) of circa 1,000,000 MW, and seems pessimistic to me. In short – the potential is vast.



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