



Australian Government

Geoscience Australia

**Geoscience Australia and India's
National Geothermal Research
Institute – Workshop and planned
exchange visits**

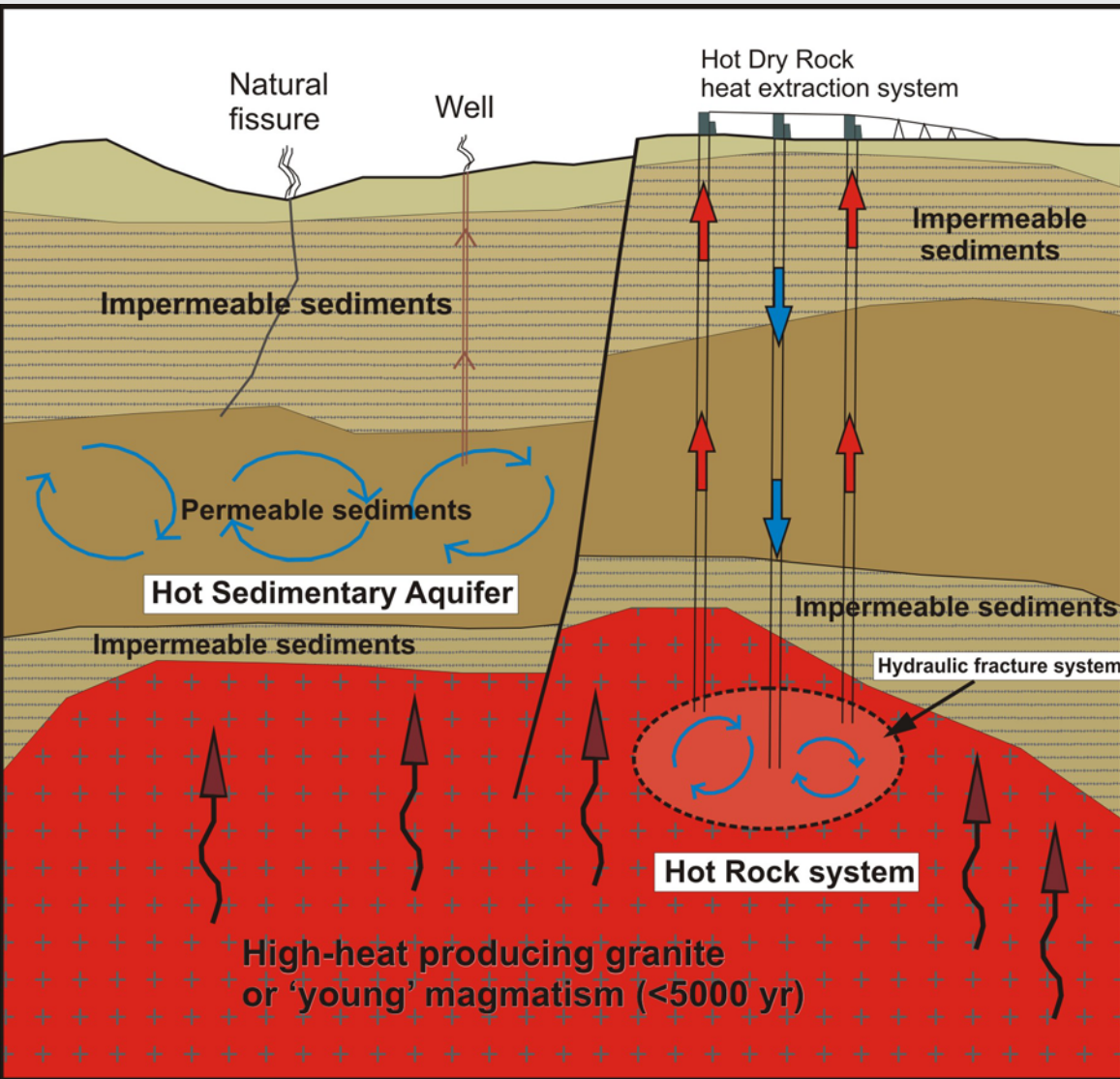
Dr Anthony Budd

Geothermal Energy Project Leader

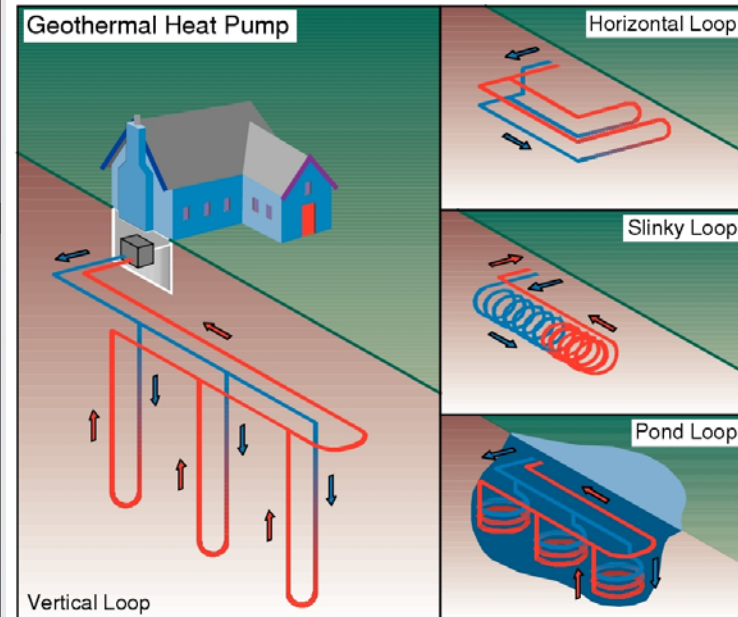
AusAid PSLP grant ROU 51172

- Geothermal Energy Capacity Building in India
- AU\$250,000 over two years (to June 2011)
- Signing parties are Geoscience Australia and Ministry for New and Renewable Energy
 - Delegated to National Geophysical Research Institute

Geothermal systems

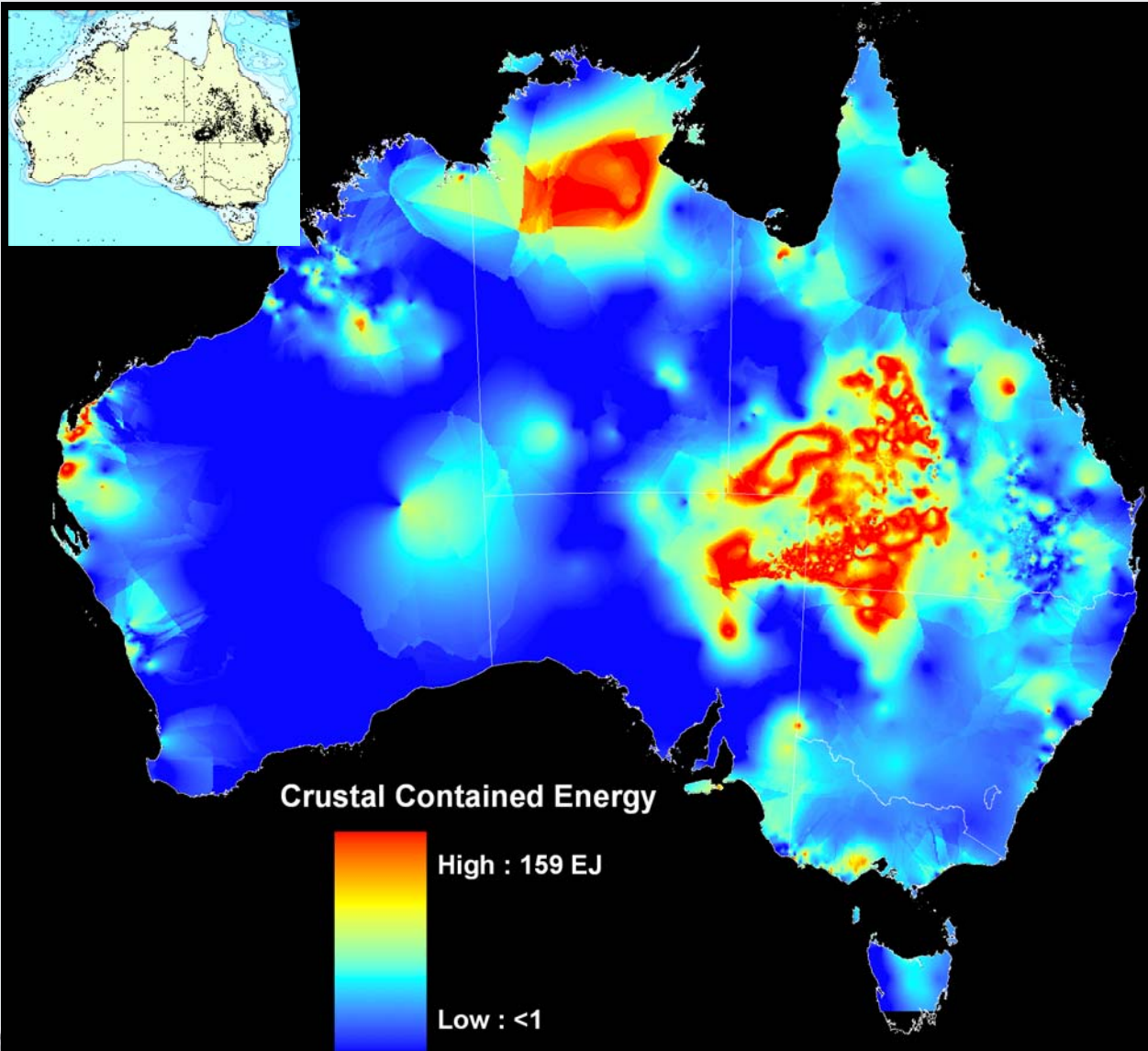


Hot Rock, Hot Sedimentary
 Aquifer, conventional
 Electricity generation
 Direct-use
 Ground source heat pumps



07-2195-4

Why geothermal? – Australian context



In 2007 Geoscience Australia estimated that the “high-grade” Geothermal Energy contained in the Australian Crust at depths less than 5km was of the order of

1.9×10^{25} Joules

Just 1% of this value is equal to 25,000 times Australia’s total energy consumption in the FY 2004-2005

[Value is calculated on a 5 x 5 km grid for areas of crust above 5 km and 150°C. It does not take into account renewability or heat contained at depth or lower temperature uses]

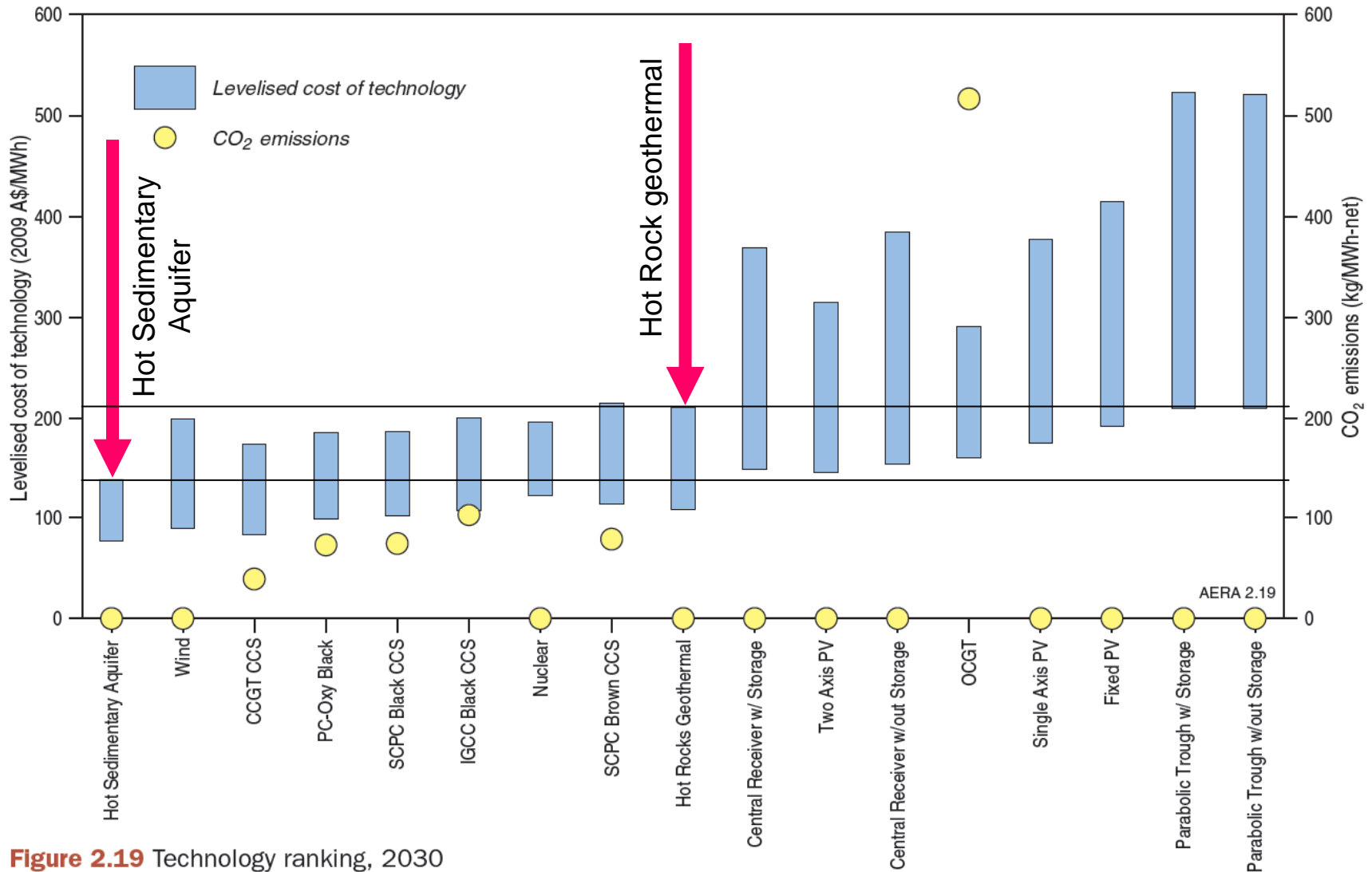


Figure 2.19 Technology ranking, 2030

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.

Focus of collaboration

- Raise awareness of geothermal potential in general
- India and Australia used to be joined - similar geology
- Focus on non-conventional systems
 - Resource mapping + quantification
- Awareness of advice function of scientists

Co-operation to date

- Australia-India Geothermal Workshop, National Geophysical Research Institute, Hyderabad, 8-9 February
 - Non-conventional geothermal systems overview
 - Exploration for ‘blind’ resources
 - Environmental concerns (benefits)
 - Actions to stimulate the industry
- Also visited MNRE and TERI in New Delhi

Future engagements

- GA staff to Hyderabad September 2010: discuss methods for country-wide resource assessment
- NGRI staff to Australia November 2010:
 - Australian Geothermal Energy Conference, Adelaide
 - Geoscience Australia, laboratory methods, computational methods, Canberra
- Further exchange to India?, visit geothermal sites?
 - More on informing policy
 - PSLP on 3D mapping methods