



FUNDING THE DEVELOPMENT OF THE GEOTHERMAL ENERGY INDUSTRY

Geothermal energy is the only form of energy with all the following national interest benefits:

- Globally significant Resource
- Lowest cost
- Emissions free
- Baseload
- Integration with other technologies (e.g. solar and gas)
- Scalable (up to massive) for on and off grid projects
- Australian R&D leadership – export expertise
- Direct Use – significant potential for electricity displacement - particularly in the Perth Basin
- Low environmental footprint

CHALLENGES FOR EMERGING TECHNOLOGIES

The current policy settings and financial market environment required for the successful development of the geothermal energy industry in Australia are not conducive to the industry attracting investment at this time. Appropriate supporting policy measures for emerging technologies are vital as longer term climate change targets and energy demand requirements cannot be met without them. These need to be enacted now.

- This applies to all emerging renewable technologies (HSA/EGS/Wave/Tidal/Algae) but is most acute for geothermal as significant amounts of capital are required up front to prove the resource.
- The emerging technologies differ from established renewable technologies (wind/solar PV/Solar thermal) which just need a sufficient market mechanism to get them built now (RET/State-wide feed-in tariffs)
- The risk profile for emerging technologies is greater though longer term return on investment may be greater. There is an element of R&D risk and technology development risk up front in addition to the market risk faced by existing renewable technologies.
- Geothermal exploration and development is an expensive business – it cannot simply be based in a laboratory on a small scale and gradually scaled up. At some point the ‘rotary lie detector’ test has to be undertaken and the resource actually drilled at depth. Wells cost upwards of \$10 million each (at the cheap end) and need many more to develop generation projects.
- Investors have limited capital and a diminishing risk appetite in the current uncertain market due to general volatility from:
 - GFC
 - European issues
 - Proposed RSPT affecting sentiment around political risk
 - Deferral of Carbon Pricing Framework

POLICY SOLUTIONS

- Investors need to see a long term pathway to commercialisation of projects including:
 1. Assistance to deal with the upfront risks associated with technology development and deployment through defined and adequate funding programs.
 2. Clarification around the longer term revenue stream – if the technology is successful the market mechanisms need to be in place to ensure the projects are profitable.

Australian Geothermal Energy Association

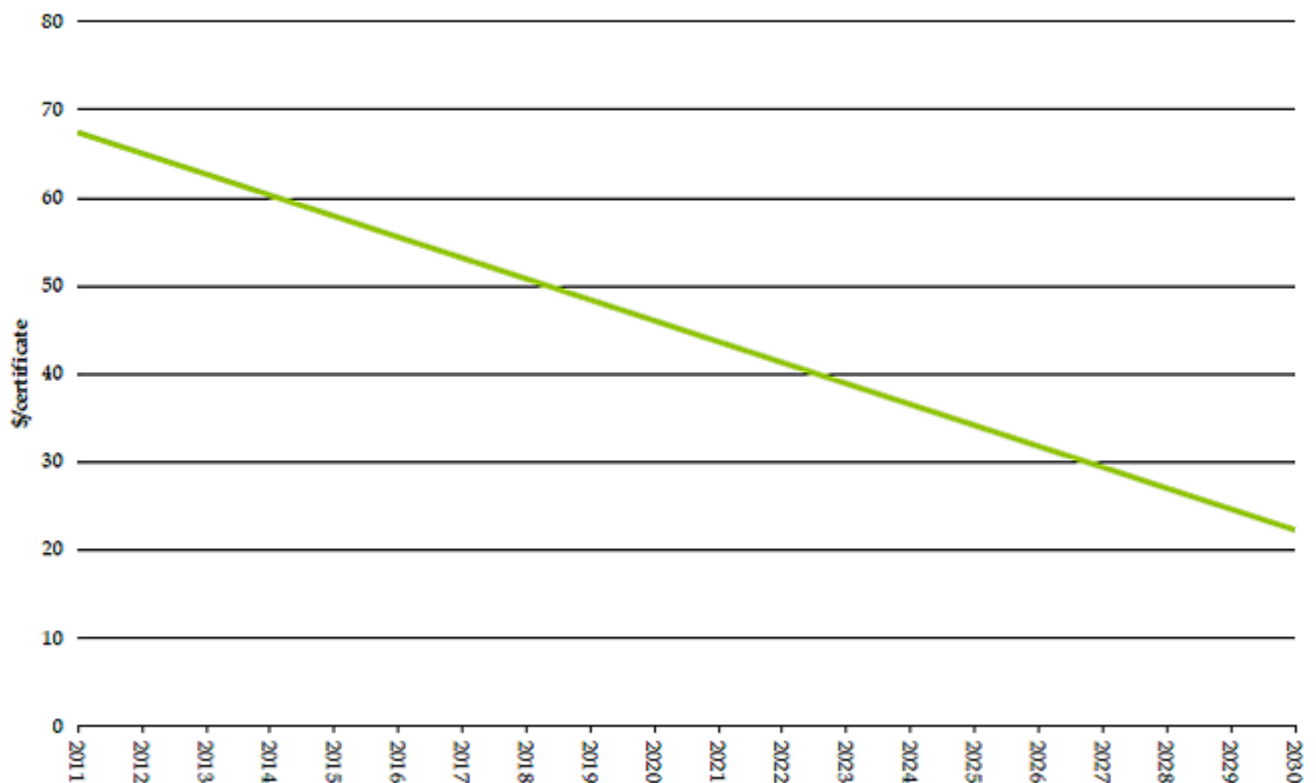
ABN 70 831 562 598

PO Box 1048 Flagstaff Hill, South Australia, 5159, Australia

T: +61 (08) 8270 7227 E: jeanes@senet.com.au M: +61 (0)419 833 556 W: www.agea.org.au

- At present there are no remaining funding programs for geothermal (GDP and REDP fully committed and no clarification around ACRE funds). The **ONLY** mechanism in place for long term commercialisation of geothermal is the RET:
 - Legislation yet to be passed
 - Will encourage technologies available now (wind / solar PV / solar thermal to a limited extent) and can take advantage of the scheme for the longest possible time
 - Has a declining pathway beyond 2025
 - MMA modelling shows price of RECs in steady decline from now to 2030
 - Geothermal projects will not be generating at scale until the back end of this decade leaving a diminishing and short term potential revenue stream for investors
- There is no other policy framework in place to replace the RET, since the CPRS was shelved. Investors have no certainty around the long term future of the revenue streams from these risky and long term projects
- Without the planks of long term carbon pricing policy in place, the industry will potentially stagnate and at best its development and deployment will be delayed, jeopardising the achievement of the 20% RET and the 5% emissions reduction target. We are already 2 years beyond the AGEA - MMA report with industry projections and progress has been impeded by funding challenges.

Figure 3-3: Certificate prices under the LRET Scheme



The above price projection is from

<http://www.climatechange.gov.au/en/media/whats-new/mma-renewable-energy-report.aspx>

This is a report prepared by MMA for the Department of Climate Change and Energy Efficiency.