30 October 2009

Executive Officer
Economic and Finance Committee
Parliament House
North Terrace
ADELAIDE SA 5000

To The Executive Officer

Submission to the Economics and Finance Committee of the South Australian Parliament

Introduction

The Australian Geothermal Energy Association (AGEA) appreciates the opportunity to contribute to the Economic and Finance Committee's Inquiry into Renewable Energy and strongly supports its focus to assist in the positioning of South Australia as a leader in renewable energy.

AGEA was established in 2007 as the industry advocate and representative body for the Australian geothermal energy industry.

Our members include all the leading geothermal exploration and development companies and the leading service and equipment suppliers to the industry. In order to conduct its advocacy role intelligently and inform its representation of the industry, AGEA has commissioned a number of independent reports examining various aspects of the industry including the impact of a range of government policy settings on its development timelines and costs.

Industry analysis and costs

The major reports commissioned by AGEA, including three that were produced by McLennan, Magasanik and Associates (MMA) who undertook the modeling work to advise the Federal Government on the design of the carbon Pollution Reduction Scheme (CPRS) and the Renewable Energy target (RET), are attachments to this submission including:

- *Installed capacity and generation from geothermal sources by 2020,* MMA, August 2008
- *Comparative Costs of Energy Generation Technologies*, MMA, February 2009
- *Employment in the Renewable Energy Sector,* ACIL Tasman, June 2009
- *Preliminary Assessment of the value of a new 275kv Transmission line to convert geothermal Resources to the NEM in South Australia,* MMA, September 2009

The industry expects that on the basis of current policy settings it can build up to 2,200MW of installed geothermal generation infrastructure by 2020, the majority of this will be in South Australia. As highlighted in the first two of the attached reports, geothermal energy is now widely predicted to be the lowest cost form of emissions free or low emissions energy by 2020 and it has a combination of other vital characteristics that are not shared by any other renewable energy generation technology.

As well as the lowest cost, geothermal energy has the following additional benefits:

- Baseload, available 24/7;
- has a minimal environmental footprint;
- the Australian resource is immense (Federal Energy Minister Ferguson, uses the following description of the extent of the resource – "Geoscience Australia estimates that if just one percent of Australia's geothermal energy was extracted, it would equate to 26,000 times Australia's total annual energy consumption");
- does not have a complete disconnect to demand profiles like wind energy and does not thus require fossil fuel back up; and
- South Australia has a major stake in the development of the technology both in Australia and internationally through the research and development activities at the Centre of Excellence at the University of Adelaide.

Benefits of development in South Australia

The overwhelming focus for exploration and development activity has been in South Australia with over 90% of the total investment so far allocated to activity here. There are three major factors that have driven this development in South Australia:

- The known resource is optimum in South Australia, centred around the South Australian Heat Anomaly;
    - The geothermal resource is optimum for two types of geothermal projects, firstly, the hot relatively shallow granites of the Anomaly extend across the middle to the eastern regions of South Australia and are where the Australian industry has a world leading role in the development of Enhanced Geothermal Systems (EGS) or 'Hot Rock' projects and secondly the old volcanic regions across the south east of South Australia are suitable for the development of Hot Sedimentary Aquifer (HSA) projects where projects drilling into porous, shallower rocks are underway.

- The best practice application and approvals process through the Department of Primary Industries South Australia (PIRSA); and
- The strong support for the industry and the co-ordination role that PIRSA has played in establishing the Australian Geothermal Energy Group (AGEG), the whole of sector organisation that brings together industry, government and the research community to co-ordinate collaboration on research and information sharing.

Barriers to development

AGEA considers that the following issues comprise the industry's most significant barriers to development progress:

- Lack of certainty on funding;
  - Public funding programs are insufficient, often disconnected between development stages and limited to budget forecast timeframes;
  - The private investment market does not see the commitment to the industry from government funding programs and is concerned that the available funding is inadequate to offset the risk of investing in an emerging technology; and
  - AGEA notes that the South Australian Government does not provide complimentary funding to assist applicants to federal programs such as the Geothermal Drilling Program (GDP) or the Renewable Energy Demonstration Program (REDP).
- Lack of certainty on the National Electricity Market (NEM) rules and the access to the market for projects both close to the national grid and a need of infrastructure development to reach the grid; and
- Lack of certainty in regard to access for geothermal projects to the incentives delivered by the RET.

Summary

The Australian geothermal energy industry is amongst the world leaders in the development of EGS technology due in large part to the location of the world class resource here in South Australia and the work being undertaken at the University of Adelaide's Geothermal Centre of Excellence. Developers of HSA projects are using more conventional techniques and developing a resource that is more commonly exploited in many places across the world but with the added benefit of having the EGS techniques available to them to improve the efficiency of their projects[1].

[1] There is currently about 10,500MW of conventional geothermal generation infrastructure in operation around the world with a similar amount currently under development. HSA projects use an approach similar to conventional projects but can also use EGS techniques to enhance project efficiency.

The industry has the potential to be the most significant single contributor to the national effort to address the dual challenges of climate change and increased energy demand predictions. The extent of the resource in the Cooper Basin alone could deliver generation infrastructure equivalent to between twenty to twenty five per cent of the existing national electricity market generation capacity.

The major challenge that the industry faces is access to funding. Our development timelines are long and often misunderstood, it can be expected to take up to six years from the exploration stage through to the commercialisation stage so we are competing with less optimum but more mature technologies, that do not have our full suite of benefits but that are deployment ready now, for access to financial resources.

The industry has made considerable progress thus far including the learnings from the activity already undertaken in the Cooper Basin, feeding into the progress of other companies across the country and indeed around the world. The resource in the Cooper Basin is considered the world's best known resource and therefore the most challenging with the very high temperatures and highly pressurised granites that make it an optimum energy source.

Governments often state that they are not in the business of picking winners but that is indeed what has happened in regard to many of the technologies that the geothermal energy industry is in competition with for funding and which do not have our full suite of benefits. The clean coal industry has the benefit of the Federal Government's Clean Coal Initiative, a $3.5b program to be funded over 9 years. The Solar Industry has the $1.5b Solar Flagship Program and while the geothermal industry applauds the allocation of resources of this magnitude to develop Australian renewable energy technologies, solar technologies have not yet met the intermittency and storage challenges that are not issues for geothermal energy generation. The wind industry is widely predicted to be the major beneficiary of the RET. Due to the design features that were agreed to by COAG, there is a strong incentive to build projects early in the lifetime of the Scheme, before geothermal projects are ready to come on line at large scale.

The geothermal energy industry, through AGEA, is again pleased to make this contribution to the work of the Inquiry and would be very pleased to appear before the Committee to provide further evidence on our material concerns.

Yours sincerely

Susan Jeanes
Chief Executive