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## **Submission on the Australian Geothermal Energy Industry's views on the design features of the Expanded National Renewable Energy Target scheme (RET)**

The Australian Geothermal Energy Association (AGEA) is pleased to have the opportunity to contribute its views on the design features of the expanded national RET.

AGEA fully supports the decision of Australian governments to bring together the existing schemes and build a new, expanded national target of 20% of Australian national electricity output from renewable sources by 2020. AGEA believes that this will produce the most efficient, low cost outcome.

In determining its position, as detailed in this submission, AGEA notes the challenges in doing so without detailed background knowledge on the timing and the price impact of a national emissions trading scheme (ETS). AGEA considers that an ETS working in conjunction with the new expanded RET will transform Australia's national economy to a low carbon economy at low cost. Along with other complementary measures, this will develop the necessary renewable energy technologies to achieve this goal.

AGEA strongly asserts that the principle design objective of the RET should be, in working alongside the national ETS, to meet the price gap between the cost of delivering traditional forms of electricity into the national market produced from the burning of fossil fuels including coal and gas and the cost of electricity generated from renewable energy sources. AGEA concurs that a market mechanism, as the RET is to be, should produce the lowest cost pathway to meeting that gap.

AGEA believes that in designing a scheme to meet this overall objective, COAG should give priority to assisting the development of the emerging renewable energy technologies. These technologies will be capable of delivering large scale, baseload

electricity into the national market over the long term at the level required to meet future emissions target and demand projections.

AGEA is of the view that geothermal energy will not only be the lowest cost form of renewable energy but also able to provide base load energy at large scale. Accordingly, AGEA believes that designing the RET scheme to accommodate the emerging technologies this will result in a lower overall cost to the economy.

These emerging technologies, such as geothermal, are expected to have the following advantages over a number of existing technologies, currently operating in the market:

- Lower cost after economies of scale and learning by doing benefits are achieved towards the end of the measure;
- Capable of large scale delivery;
- Baseload capability requires less disruption to the overall operation of the electricity market; and
- Continuous baseload capability places less strain on transmission infrastructure and will bring greater stability to the network as it does not require back up generation capacity due to intermittent supply characteristics.

The majority of the activity in the Australian geothermal energy industry has focused on the development of Enhanced Geothermal Energy Systems (EGS) or 'hot rocks' technology. The industry's activities in more traditional geothermal or hydrothermal projects are also unique in the world in that Australian companies are focusing on exploration for non volcanic hydrothermal resources. The use of direct heat for non electricity generation projects is also a growing focus for the industry.

Australia has a significant leadership position in the development of EGS which is still in its infancy around the world. In light of this and of the lack of information on future cost projections of EGS, AGEA has commissioned economic modeling firm McLennan Magasanik and Associates (MMA) to produce a report which provides predictions on the potential installed capacity of geothermal energy by 2020 and the cost of that output. The major purpose of the MMA report is to inform this process (development of RET) and other policy development processes currently underway across all Australian governments that are being developed to combat the impact of climate change and energy demand challenges.

The initial findings and methodology from the report are attached to this submission and the final report will be provided to the Secretariat when received by AGEA, due within the next week.

The summary of the report's findings shows that MMA has determined that up to 40% of the expanded RET could be met by geothermal energy. The cost forecasts determined by MMA also indicate that geothermal energy at the commercialisation

stage will be the cheapest renewable energy technology operating in the market by 2020.

AGEA asserts that these findings, along with other recent reports on the comparative costs of geothermal energy<sup>1</sup> output warrant COAG's adoption of Approach 2 with the more detailed position outlined below. AGEA believes that the adoption of the design issues on this basis will ultimately produce the lowest cost outcome for the Australian economy over time and it will accelerate the development of geothermal energy technologies and other large scale, renewable energy technologies. This will have the additional benefit of contributing to the development of Australian renewable technologies with significant export capability to a global marketplace that is, and will continue to be, in need of clean energy solutions.

**AGEA's position on the design Issues is as follows:**

### **2.1 Liability and annual targets**

AGEA supports the setting of annual targets in GWhs culminating in the setting of a target of an additional 45,000GWhs in 2020, as has been the practice of the existing Mandatory Renewable Energy Target Scheme (MRET) and the state based schemes.

AGEA believes that the annual targets should be set lower in the early years and higher in the later years to accommodate the timelines for the development of the emerging technologies. This will provide time for such technologies to become increasingly capable of delivering large scale, low cost, base load electricity into the national market in the later years of the scheme. Thus, the technologies that will be lower cost in the longer term will not be locked out at an early point in the scheme.

AGEA asserts that in allowing for the setting of targets in this way, COAG will be enabling the acceleration of the development of Australia's emerging renewable energy technologies (notably large scale geothermal and large scale solar thermal and solar concentrator) and that this will result in an overall lower cost to the economy in the longer term.

This assertion is backed by the findings in the MMA report which shows the significant, predicted cost reductions as the geothermal energy industry moves dramatically down the generation cost curve through the pilot, demonstration and commercialisation stages to full maturity.

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<sup>1</sup> A number of reports comparing costs of renewable and other clean energy technologies show geothermal energy as being the lowest cost, emissions free, large scale generation technology within the timeframe of the expanded RET scheme including the South Australian ESIPC's Annual Report 2006, *Renewable Energy – A Contribution to Australia's Environmental and Economic Sustainability*, REGA 2006, and "An Australian Cost Curve for Greenhouse Gas Reduction" by McKinsey and Company, 2008

AGEA's position on this matter aims to:

- Ensure that there is a diverse renewable energy mix by 2020 thus improving the overall energy security of the NEM
- Potential lower cost renewable technologies are not "locked out" by the scheme – thus unnecessarily "locking in" potentially higher cost generation sources, and increasing the cost to the economy
- Recognizing the impact/value that large scale, base load renewable technology solutions will have on energy reliability and reduced need for additional back up generation capacity.

## **2.2 Eligible sources**

AGEA believes that as an underlying principle the technology eligibility under the scheme should contribute to the overall credibility of the scheme and not bring into question, concerns about the negative ecological impacts of utilising the resources. The most likely area where negative ecological impacts could occur is in the area of biomass sources.

AGEA supports a cautious approach and one which encourages the development of the emerging technologies with the capability to meet future deep cuts in emissions at large scale. AGEA believes that this approach is preferable to supporting existing technologies with other negative environmental impacts and which are unlikely to develop this long term, large scale capability.

The issue of the treatment of solar water heaters under the expanded scheme is an important issue for AGEA. Should Australian governments determine that solar water heaters will remain in the expanded scheme because of their greenhouse benefits and their effect of lowering the overall cost of the expanded scheme then AGEA asserts very strongly that the scheme should also allow for electricity substitution from Direct Heat uses of geothermal energy, such as in providing energy for water desalination, drying and district heating. Heat pumps for domestic housing should be given the same treatment as solar water heaters.

While these technologies and processes do not directly produce electricity they displace the need for fossil fuel generation and AGEA supports their inclusion in the absence of other mandatory measures such as requiring solar water heaters or geothermal heating and cooling systems to be mandatorily incorporated into the National Building Code.

## **2.3 Banking**

AGEA is concerned that the practice of unlimited banking has negative consequences for the potential non-achievement of the overall target of the scheme. The banking of Renewable Energy Certificates (RECs) can result in an over build of projects in the early

years of the scheme, as occurred under the existing Mandatory Renewable Energy Target scheme (MRET) and collapse confidence in the market for certificates and the value of certificates. AGEA is concerned that this would act as a disincentive for new project development in the later years of the scheme, precisely the period when large scale geothermal projects would be seeking to enter the national electricity market.

AGEA recommends that the banking of certificates should only be allowed for up to three years to mitigate against this possibility, which would, if it eventuated, jeopardise the realisation of the overall target of the expanded scheme. Accordingly, AGEA is strongly opposed to the option in Approach 1 where unlimited banking will encourage early investment that will have as a consequence the over-investment of technologies that are currently operating in the market. Importantly, it should be stressed that these technologies are highly unlikely to have the capability to either meet the long term cuts in emissions from the electricity sector or do so in the lowest cost manner.

#### **2.4 Project eligibility periods**

Geothermal energy projects, like most other renewable energy projects, require significant up-front capital and a pay-back period of up to 15 years. AGEA believes that the eligibility for projects to receive Renewable Energy Certificates (RECs) should be limited to 15 years in order to use the incentives generated by the RET scheme to maximise economically viable project development. AGEA views any eligibility to receive RECs beyond 15 years to be unwarranted as such eligibility is likely to encourage uneconomic projects.

AGEA is therefore strongly opposed to the option in Approach 1 that generators with eligible projects be allowed to produce RECs for the life of the scheme as it will have the effect of restricting the number of projects and the overall level of generation from renewable sources. This would result in the effect of potentially “locking out” lower cost alternatives in the later years of the scheme.

#### **2.5 Existing generators**

AGEA believes that existing generators should be eligible under the expanded scheme to receive RECs for generation from new projects or from upgrades to existing generation projects.

#### **2.6 Duration and phase-out**

AGEA believes that this is a more complicated matter to respond to in the absence of information about the ETS, the date of commencement and the national cap trajectory and the price that this trajectory would engender. AGEA asserts that the abovementioned principle in relation to the scheme that the RET should, in working alongside the national ETS, meet the price gap between the cost of delivering traditional

forms of electricity into the national market produced from the burning of fossil fuels including coal and gas and the cost of electricity generated from the development of new generation projects from renewable energy sources.

In principle therefore, AGEA would support regular reviews in perhaps 2015 and 2020 to ensure that the RET is on track to produce 20% of Australia's national electricity supply (or equivalent) from renewable source. The purpose of the review would be to ascertain whether the interaction between the level of the penalty set under the expanded RET alongside the impact on the underlying price of electricity from the operation of the ETS is ensuring that the renewable energy industry is on track to meet the target. AGEA would also strongly propose that the terms of reference for any such review are outlined in the enabling legislation and clearly indicate this purpose.

AGEA expects that ultimately there will be a phase out of the RET assuming an effective ETS is operating and believes the earlier this can occur the better the overall economic, environmental and innovation impact.

AGEA is of the strong view that a clear "drop dead" date for a phase out is mandatory and should be aligned to the up to maximum 15 year investment period (horizon of certainty).

Providing certainty to the market of the phase out will not only serve to ensure effective investment and transition but also facilitate innovation and an active and successful ETS.

## **2.7 Compliance mechanisms**

The shortfall charge should not be too low so as to encourage liable parties to pay the charge rather than to acquire RECs and, as outlined above, consideration will need to be given to its effectiveness alongside the impact of the ETS. Annual indexation of the penalty charge may be required if the cap set under the ETS does not engender an adequate price to enable renewable energy to compete in the national market.

AGEA would support a review of the effectiveness of the proposed penalty in conjunction with the impact of the ETS in 2015 and 2020 against the progress of the overall achievement of the target.

## **2.8 Trade-exposed electricity-intensive industries**

AGEA notes that any exemptions under the RET will simply transfer the cost to other electricity users and does not see this as an equitable outcome.

AGEA believes that such matters can, and should be, captured under the design of the ETS

## **Complementary Measures**

AGEA believes that there are a number of complementary measures that can, and should be, supported to increase the likelihood of a successful RET (and indeed ETS). Such measures should focus on the emerging renewable energy technologies, including but not limited to geothermal, solar, wave and tidal. In particular capital funding such as the expansion of the REF (or similar fund post REF) should facilitate the “bringing to market” of such technologies.

The current review by the Australian Energy Market Commission (AEMC) of the capacity of the National Electricity Market (NEM) (under current rules) to accommodate the RET and ETS is likely to result in a need to modify existing rules. This will be necessary to enable transmission system development that has an overall long term community benefit that takes into account the role of low cost, large scale generation such as geothermal energy.

Capital funding and NEM rule changes are expected to have the greatest impact in terms of bringing geothermal energy quickly down the cost curve and delivered efficiently into the NEM.

AGEA considers it essential that the RET design take into account such matters and that strong support be given to such complementary measures.

## **Summary**

AGEA believes that this policy process provides COAG with the opportunity to support the development of Australia’s emerging renewable energy technologies and accelerate their deployment into the national electricity market while simultaneously accelerating their pathway down the technology cost curve. AGEA asserts that this will result in a lower cost outcome overall through the delivery of the renewable energy projects that will be developed to meet the target and it will have other substantial benefits in assisting the development of an Australian renewable energy industry with significant export capability.

The Australian geothermal energy industry, while still in the early years of its development is already exhibiting this capability with the expertise already established in the industry in the development of EGS now in demand in many areas across the world. AGEA’s members are currently working with other industry experts across the world to develop projects in countries including China, United States, Germany, Spain, Hungary, Iceland and the United Kingdom.

In essence the AGEA position on the RET is:

- Approach 2 is strongly supported;

- Banking of no more than 3 years is preferred to avoid over-build in the early years;
- Project eligibility periods of 15 years or less are preferred to avoid “locking in” potentially high cost projects and/or “locking out” lower cost projects;
- Review periods, nominally around 2015 and 2020, in conjunction with the ETS are supported;
- Certainty of phase out date is strongly recommended to assist investment decisions, facilitate innovation and ensure as early as possible successful and effective ETS;
- Issues for trade exposed industries be considered in the ETS not the RET;
- Complementary measures for emerging renewable technologies be given strong support to assist the successful, low cost implementation of the RET.

AGEA’s overall position on the RET has been driven by its view that the RET scheme should aim to ensure that:

- there is a diverse renewable energy mix by 2020 thus improving the overall energy security of the NEM;
- potentially lower cost emerging renewable technologies are not “locked out’ by the scheme – thus unnecessarily “locking in “ potentially higher cost generation sources, and increasing the overall cost to the economy;
- the recognition of the impact/value that large scale, base load renewable technology solutions will have on energy reliability, the reduced need for additional back up generation capacity and the overall lower cost to the economy.

AGEA will provide the Secretariat with its final report from MMA, due within the next week as soon as it is finalized, to assist the Secretariat estimate the impact of geothermal energy on the overall operation of the expanded RET.

Yours sincerely

A handwritten signature in blue ink that reads "Susan Jeanes". The signature is fluid and cursive, with the first name being more prominent.

Susan Jeanes  
Chief Executive