



## ENVIRONMENT BUSINESS AUSTRALIA

Submission to

The Renewable Energy Sub Group Secretariat  
Renewables, Offsets and CoAG Branch  
Department of Climate Change  
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### Introduction

The Renewable Energy Target and the Carbon Pollution Reduction Scheme are core elements of the transitional architecture necessary for Australia to reduce energy growth, ensure energy services are not coupled with high greenhouse gas emissions, and build the domestic and export marketplace for clean technology, renewable energy and energy efficient systems.

In previous submissions to Government, Environment Business Australia (EBA) has emphasised the contribution that renewable energy can make to the economy, but we need to stress here that the extent to which new technologies and infrastructure will come on line will be directly proportionate to the support provided by Government. Clearly, solar thermal, geothermal and marine power have extensive resources capable of providing baseload power and Australia has some of the world's best technology in these areas. However, we are still at early stages in their commercial development and additional resources need to be invested to realise their potential.

**Every energy market of significance in the world has been developed with government intervention and the renewable energy market also requires government intervention to level the playing field regarding energy pricing and energy externalities.**

Because renewables come with the guaranteed natural supply of sun, wind, wave/tidal power and the mapped resources of deep underground heat, and because of their inherent safety, it is reasonable to predict that renewable energy technologies will come down the natural cost curve of new technologies once they access markets of scale. It is therefore foreseeable that these technologies will be reducing in price as market demand is increasing and as the price of carbon pollution is also rising<sup>1</sup>.

Access to markets of scope and scale is vital to technology developers, infrastructure project developers and investors. This is particularly important if the 'next great technological era' is to be developed in time to avert the worst aspects of climate change. Australia has benefited from every

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<sup>1</sup> This refers to the carbon price in an emissions trading scheme but also to consumer and investor preferences

past technological era. The cleantech and clean energy era offers even greater opportunity as countries jostle for competitive edge in a carbon constrained international market.

The Australian domestic market is considered relatively small compared to the opportunity for European or American technology developers who have access to the 'bubble' of the EU or the large North American market. However, Asia presents a massive – and still relatively untapped - potential marketplace on Australia's doorstep.

This is not just a commercial opportunity for Australia - capacity building and technology transfer are urgently needed in developing countries. As an example, reports from China citing cost to GDP from environmental degradation highlight how keenly that country requires clean energy at production and consumption levels and at all points in the intervening supply chain<sup>2</sup>.

EBA's membership is a broad church. Increasingly member companies consider that what Australia achieves in the next 4 to 5 years of trialling and operationally refining major renewable energy technologies has the potential to help major emitting countries in our region make their own transition to a cleaner energy future.

And, it is important to consider that, while there may still be international debate about acceptance of GHG reduction targets, all countries are clear about their need for clean energy provision and the need for technology to deliver it. With the battle against climate change likely to be won or lost in Asia, today's planning, architecture and commercial deployment of clean technology at full infrastructure scale needs speeding up. Energy efficiency and renewable energy have a major role to play.

Australia is well placed to demonstrate that an energy intensive country can retain its prosperity by becoming smarter and more efficient and decoupling our GDP from carbon pollution. This is not an easy task but what we demonstrate at home others will likely seek to emulate.

The Renewable Energy Target discussion paper has rightly raised the question about low cost responses to reducing carbon emissions. It is important to consider this in four tranches:

- Capital expenditure
- Operational cost
- Negative externalities avoided
- New commercial opportunities gained

While the capex costs of speeding up retirement/retrofitting of outdated plant or technological processes may be higher than foreseen (because of bringing forward amortisation of existing projects and because of the introduction of technologies that have yet to come down their cost curve), investment in clean renewable energy will help reduce operational costs because more efficient processes consume less energy overall. This 'buffering' is an important aspect in the overall pricing analysis as oil, gas and coal resources prices are unlikely to divert from their upward price trends.

Environment Business Australia strongly supports the renewable energy target. We recommend consideration of complementary activities in the first five years of the Carbon Pollution Reduction Scheme to ease the transition to a low carbon economy at least cost and with maximum beneficial gain.

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<sup>2</sup> Pan Yue, Vice Minister, State Environment Protection Agency, 2006. Official figures say environmental degradation costs 3% of GDP, but unofficial figures are closer to 8-13% per annum

Environment Business Australia will be available to address any of these points should the Secretariat require clarification or elaboration.

### **Environment industry/cleantech sector market**

It is estimated that the Australian marketplace for clean technology, clean energy, energy efficiency and other aspects of the environment industry is approximately \$20 billion in Australia<sup>3</sup> and over \$750 billion worldwide<sup>4</sup>. The value of this market is expected to increase rapidly as demand grows for clean energy and clean technologies to combat climate change. PMSEIC advised the Howard Government that this could add a further \$750 billion to the global 'cleantech' market. PMSEIC further advised that Australia should position itself to seek a fair share of this market.

### **The target is achievable**

The recommended target of 20% renewable energy (60,000 GWh) by 2020 is achievable and the renewable energy industry/cleantech sector/environment industry is geared up to reach and even exceed this target.

Existing proven renewable energy technology that is under development, and proven technology that is 'near horizon' in commercialisation terms, can deliver this target:

- Deep hot rock geothermal
- Solar thermal
- Wind
- Solar photovoltaic
- Marine (wave, tidal, surge power)

In addition the early stage research into sequestering CO2 into rapidly growing biomass such as algae show promise for renewable biofuels. Other approaches are referred to in the body of this submission and include the contribution that can be made by recycling materials, embodied energy and soil carbon.

Information on these technologies, and the key role they and energy efficiency can play in helping Australia reach meaningful greenhouse gas reductions, is outlined in the accompanying paper 'Targets for our future'<sup>5</sup> and we request that this paper be read in tandem with this submission.

### **Where do Australia's key interests in renewable energy lie?**

Environment Business Australia has consistently recommended that Australia should take an aggressive commercial approach towards developing these energy sources because:

- Australia's leadership potential is to demonstrate that an energy intensive country can retain its prosperity by being smarter, more efficient, and by using renewable sources of energy
- Australia's demonstration of large scale commercial renewable energy delivery (either through the grid or via local distributed energy) has application to developing countries and rapidly growing economies. With its strong diplomatic and trade links Australia can play a capacity-building role in our region.
- Australia can develop its next competitive edge with renewable energy. Australia's future will see a mix of energy supply with renewables taking a far larger share as the global market increasingly seeks energy services and production capacity without carbon pollution.
- Australia can develop new manufacturing potential by adding value prior to the export of resources by using large-scale clean energy (Australia is already exporting alumina to Greenland for processing via geothermal energy to take advantage of 'green credentials').

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<sup>3</sup> Environment industry capability study, Department of the Environment, 2000 figures with 5% annual growth

<sup>4</sup> US Department of Commerce; Globe Foundation Canada

<sup>5</sup> 'Targets for our future' has been previously submitted to Government and to the Garnaut Review

### Why should Australia play an important role in developing renewable energy?

Energy production and use are the single highest contributors of anthropogenic CO<sub>2</sub>. Making all energy systems significantly more efficient and making the transition to renewable energy are two steps that Australia can help with.

#### A) Greenhouse gas emissions are forcing rapid climate changes

It is critical that there be major reductions in GHG intensity of energy supply, production and consumption. Australia is highly vulnerable to the effects of climate change and has a vested self-interest in helping world action to reduce anthropogenic greenhouse gas emissions.

#### B) Ocean acidification

Also of major importance is the acidification of oceans due to the high levels of anthropogenic CO<sub>2</sub> they are absorbing. Scientists believe this could threaten the entire ocean eco-system.

#### C) Energy supply security and price buffering

Australia is vulnerable to the rising price of oil and its potential shortages as quantity, and easy access at low cost, are becoming scarcer.

Investment in energy efficiency and renewable energy can help reduce reliance on imported oil. Action to combat climate change can also be considered a buffer against rising energy prices and against the worst impacts of pollution and climate change.

### Enabling framework for the 'next great technological era'

The private sector has the technology 'wedges'<sup>6</sup> and has infrastructure project expertise and requisite financing available, but government policy levers need to be used more efficiently if the clean technology and clean energy era is to advance. Details on this appear in EBA's paper accompanying this submission 'Wedges, levers and a zig zag'<sup>7</sup> and we request that this paper be read in tandem with this submission.

#### Additional benefits of renewable energy

Many sources of renewable energy offer additional benefits to provision of electricity.

- Wave energy such as being developed by Carnegie with its CETO technology and Oceanlinx can also provide desalinated water
- Solar photovoltaic – hot water
- Geothermal and solar thermal – potential chemical manufacturing, metals smelting, etc. Geodynamics' geothermal site at Innamincka has the world's largest and hottest proven resource

### Renewable energy fund

It is very important for the development of the renewable energy industry that the renewable energy fund be accessible immediately. EBA suggests that an immediate act of the Federal Government should be to reverse the 12 month deferral of this fund so that it matches access to the coal fund<sup>8</sup>.

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<sup>6</sup> Princeton University study

<sup>7</sup> 'Wedges, levers and zig zag' has been previously submitted to Government and to the Garnaut Review

<sup>8</sup> EBA recognises the importance of R&D and commercialisation of the many technologies that can lead to lower carbon coal, including carbon capture and geological storage (CCS). However, the price affordability and safety aspects of CCS at commercial scale are as yet unproven.

As the market does not yet understand the full range of benefits of renewable energy it is critical that government does what it does best and sends clear signals to the market by absorbing part of the early cost of technology development. That will then allow business to do what it does best and focus on commercialisation.

Mentioned earlier in this submission is that renewable energies are expected to come down their cost curve once they penetrate markets of scope and scale. It is important to acknowledge that they carry little if any future 'risk' in terms of pollution or damage to public health or eco-system viability. Therefore Government knows what the upfront investment is and that it will not be expected to absorb unknown risks (which may prove to be the case with capture and geological storage of carbon from coal-fired power stations if re-insurance companies are not prepared to cover long-term risk).

### Energy efficiency fund

While this submission is primarily concerned with renewable energy, EBA continues to press for greater support for energy efficiency – throughout the economy. Government has rightly recognised that assistance at the household level is important, but there are major CO2 reduction gains to be realised from systemic implementation of energy efficiency throughout commercial and industrial sectors.

It is recognised that ultimately the Carbon Pollution Reduction Scheme will provide a carbon price that will drive change but this may not happen sufficiently quickly and deeply in the first five years of the scheme. This five year window is the critical period for the architecture for transition to a low carbon economy to be put in place, and therefore, transitional support to fast-track energy efficiency is integral to the success of the overall CPRS.

### Value-adding with renewable energy

With new baseload clean renewable energy anticipated from solar thermal, geothermal and marine<sup>9</sup> power, Australia may want to reconsider its export of resources to focus more on value-adding in this country – for example co-locating heavy industrial processes such as smelting and manufacturing close to geo/solar thermal energy parks.

### Recycling – a complement to renewable energy

The Warnken Report showed that capturing the embodied energy of materials through better recycling of materials embodied energy, soil carbon, and capture of methane from landfill provides a 35 million tonne GHG benefit per year. This is a CO2 reduction measure equivalent to taking all cars off Australian roads.

The energy from waste is treated in the UK as a renewable resource and was one of the elements allowing the City of Woking to be removed from the grid. The City of London is now investigating implementing a series of renewable energy supply systems to reduce reliance on traditional energy sources.

Transformer oil is a highly priced oil sourced from security-sensitive countries<sup>10</sup> and yet is often not recycled in Australia but burnt (often releasing PCBs in the process<sup>11</sup>). While not exactly fitting the

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<sup>9</sup> A huge tract of the Australian coastline - Tasmania through Victoria, SA and WA, receives 2m waves or greater for more than 90% of the time (as measured for decades by wave rider buoys). CETO generates power in 2m swell, therefore for this vast coastline it will generate power >90% of the time without storage

<sup>10</sup> Venezuela and Nigeria

<sup>11</sup> Hydrodec recycling

'renewable' image it is certainly highly 'extendable' if recycled. Likewise lubricant oil<sup>12</sup> can be refined and recycled many times, there is considerable waste of energy potential if this is not done.

### Other support mechanisms specifically for renewable energy

#### Gross feed-in tariff

It is most strongly recommended that the Federal Government harmonise all State and Territory feed-in tariffs and that the approach be a nationally consistent **gross** feed-in tariff for all forms of renewable energy. A net feed-in tariff will not provide sufficient return to the early important investors. There is significant investment at stake, especially for large enterprises, and this investment is unlikely to be made if companies cannot identify a commercially viable amortisation proposition.

Domestic, sectoral commercial, large scale retail/warehousing, built environment can provide a significant marketplace for the roll-out of renewable energy. This in turn provides a significant opportunity for the growth of quality employment.

The inclusion of hot water heaters/heating/cooling in the gross feed-in tariff may allow for the retirement of debate about means-testing rebates.

The issue Australia and the rest of the world faces is how to speed up large scale delivery of renewable energy as an industry development and employment enhancement measure. Therefore it is not an either/or case in regard to a target/gross feed-in tariff or other complementary measure. It is a question of how best to leverage commercial will and available financing to provide 'wins' for the community, for business, and for governments.

### Comments on other points in the discussion paper

#### Single scheme

The proposed single scheme operating across all States and Territories is the environment industry's preference.

#### Retention of approvals

All existing state based approvals should be retained.

#### Phase out

Proposed phase out 2020-2030 – evaluation of the benefits of extending this to 2030-2040 is recommended - particularly in light of emerging technologies which may be discovered/sufficiently developed after 2015. Greater certainty of amortisation period for new infrastructure, and structural adjustment from polluting plant to low emissions or renewable or highly energy efficient plant, may require this longer payback period.

#### Pass through of costs

It is logical to pass through costs and this requires a removal of the regulated price cap and a major energy efficiency overhaul for domestic, commercial and industrial users. Energy efficiency will be the first step in buffering price rises associated with new investment, but as mentioned earlier in this submission it is also important to recognise the cost savings that will accrue to society as negative externalities are removed and as renewable energy comes down its cost curve. It is likely that there will be a steady continuation of rising prices for fossil fuels (even without considering the shadow cost of carbon). EBA recommends that CoAG include a comparative analysis of these 'new' costs against the benefits that can be accrued from investment in renewable energy delivery.

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<sup>12</sup> Southern Oil recycling

### Energy security – global supply

Peak oil – or at the very least peak easily accessible cheap oil – is a major international security issue. The many renewable energy resources with local, national, in some cases regional application, are therefore likely to be considered to be of increasingly high value.

### Energy security in relation to the National Electricity Market

It is time for greater recognition that renewable energy can do many things other than make electricity – provide domestic hot water, industrial heat and steam, and desalinated water for example. In addition there are many different locations for wind and marine energy; geothermal can provide constant supply; there are emerging storage technologies suitable to sit alongside solar thermal supply<sup>13</sup>.

Rethinking the way society uses energy; local distribution of energy, smart appliances/broadband control, should enhance the NEM ultimately giving assurance that ‘dispatched’ electricity is ‘used’ electricity.

### Annual targets

The recommendation is for high annual targets. Government could consider fiscal incentives to accompany this. For example, funding for accelerated depreciation to speed up retirement/replacement/retrofitting of polluting plant. It may also be possible to weigh trajectory progress against high annual targets so that structural adjustment occurring over 3-5 years is not penalised in any one year.

### Deeming process

This is considered a logical way for government to avoid the complex process of measuring multiple small scale costs/benefits.

### Banking

Agree that RECs should be valid until the end of the process or until retired.

### Eligibility period of project

The proposed criteria both in Approach 1. and Approach 2. would tend to favour existing technologies and may lead to a reinforcement of artificially deflated prices. EBA would prefer to see the scheme extended until 2030-2040 or until such time that ALL externalities are included in the pricing process. A hybrid of the two approaches may therefore be more desirable.

### Eligible sources

Native forest wood waste – as each crop is removed soil reserves of carbon, minerals and nutrients are drawn down. Investigation of a biochar approach being eligible under the RET to help replenish soil carbon stocks on agricultural and forestry land.

### Smaller scale supply

It is encouraging that the design of the scheme includes small suppliers of renewable energy – the value of aggregation of activity at the commercial, household and built environment in particular, will be important to fulfilling targets for GHG emissions reductions.

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<sup>13</sup> Including thermo-chemical storage; reverse hydro/pooled energy; geothermal storage

