Environment Business Australia
Submission on the Renewable Energy Target
To the Senate Economics Legislation Committee

A '*clean, green energy revolution'* has renewable energy at its core. Environment Business Australia strongly supports the Renewable Energy Target and its further development to ensure Australia harnesses its vast renewable energy sources and develops the full commercial potential of this sector to:

- **Unleash stimulus and long-term investment into innovation**
- **Build new markets, new industries, new jobs**
- **Reduce greenhouse gas emissions**
- **Help secure Australia's future prosperity and economic resilience**

This submission was prepared in tandem with a recent EBA paper to the Senate Select Committee on Fuel and Energy *'Clean, green energy revolution'.* As with that submission, we request readers to consider previous submissions to Government, these include *'Targets for our future'*; *'Wedges, levers and a zig zag'*; *'New markets, new industries, new jobs'*; and the '*EBA submission on the exposure draft of the CPRS'*. These papers are attached to this submission as appendices. These and other papers can be accessed via the EBA website www.environmentbusiness.com.au

While we have attached the original papers submitted to Government we do so with the caveat that we recognise recent scientific advice highlighting the importance of bringing concentrations of atmospheric CO2 to below 350 parts per million. The situation is therefore more urgent than outlined in our previous papers.

Environment Business Australia and its membership

Environment Business Australia is a not-for-profit, membership based organisation which has no political ties. Funding is sourced from member subscriptions, event revenue and project sponsorship.

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.
www.environmentbusiness.com.au

Context

With so much at stake, governments must be strategic in their choices. *"We must not let the urgent undermine the essential. Investing in the green economy is not an optional expense. It is a smart investment for a more equitable, prosperous future."* Ban Ki-moon, Secretary-General, United Nations and Al Gore, former Vice-President of the USA

"Leaders everywhere, notably in the US and China, are realising that green is not an option but a necessity for recharging their economies and creating jobs… President Barack Obama's and China's stimulus packages are a critical step in the right direction and their green components must be followed through urgently." Ban Ki-moon, Secretary-General, United Nations and Al Gore, former Vice-President of the USA

"With a new climate framework in hand, business and governments will finally have the carbon price signal businesses have been clamouring for, one that can unleash a wave of innovation and investment in clean energy". Ban Ki-moon, Secretary-General, United Nations and Al Gore, former Vice-President of the USA[1]

"From a purely economic perspective, finding the new driver of our economy is going to be critical. There is no better potential driver that pervades all aspects of our economy than a new energy economy." USA President Barack Obama

"Economics becomes redundant if it can rationalise an exchange that sells the future of mankind." Andrew Simms, author, Ecological debt

And, as President Barack Obama suggested recently – *the nation that leads the world in clean energy is the nation that will lead the global economy.* He wants America to be that leader ..... Australia should be seeking to be in this league as well.

1 Ban Ki-moon and Al Gore, *Green growth is essential to any stimulus*, Financial Times (17 February 2009).

Introduction and executive summary

Energy revolution is underway

It is EBA's position that a '*clean, green energy revolution'* will help ensure a low carbon energy future and help improve energy security for Australia and internationally. This is something that both developed and developing countries aspire to.

The Renewable Energy Target (RET) and the Carbon Pollution Reduction Scheme (CPRS/ETS) 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, and as yet largely untapped 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.

Why Australia should play a key role in the international energy revolution

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.

Scope and scale of market

The commercial market for the broader low carbon and environmental goods and services sector was worth A$6 trillion in 2008 according to a report commissioned by the UK Government. Accessing a fair share of this market and helping other countries grow their economies are two prime reasons why Australia should be at the forefront of action and not wait to see what comes out of Copenhagen talks or the Senate vote in the USA.

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. Importantly, it is Asia where the battle against climate change is likely to be won or lost.

Value-adding with renewable energy

With new baseload clean renewable energy anticipated from solar thermal, geothermal and marine[2] 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.

[2] 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

Many sources of renewable energy offer benefits that are additional 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 – minerals processing/smelting

Mega clean energy parks

This value-adding approach is why EBA has put forward the concept of Australia being a regional hub for minerals processing and manufacturing and supply of baseload energy from 'mega clean energy parks' fuelled by solar thermal, geothermal, marine and wind energy.

Co-location options can cut costs, and high voltage DC transmission lines can transmit power over long distances with minimal loss.[3] We bring to the attention of the reader that 12 German companies are commercialising a similar approach to produce electricity for Europe from solar concentrators in Africa. The Desertec Industrial Initiative is underway. It is a commercial project and the proponents are 12 German companies including EBA member company Deutschebank.

Australia's technologies and project management skills are also up-to-the-task of providing sufficient electricity to meet our own needs and potentially exporting electricity to Asia as well.

Wealth generation

While there is an initial investment cost that may '*appear'* high in making the transition to energy/resource/materials efficiency, or renewable energy, these are approaches that build *real* wealth and, over time, can help build equity between poor and rich countries. It is conceivable that the world can be fuelled by *cheap energy* rather than by *cheap labour*. Of course it will take time to build the infrastructure to sufficient scale to achieve this goal but it is probably one of the best opportunities for wealth generation and wealth preservation that the world has ever seen. It is the 'carbon bridge' era where the private sector requires the policy support of governments to levelise the commercial playing field and ensure that common sense is applied as a public good principle.

In other words there is opportunity - not just in undertaking some serious risk management - but in building *new markets, new industries and new jobs* – this is a steady refrain in this EBA submission to the Senate because it is at the heart of tackling not only climate change, but the disinformation campaign that is being waged by those who do not understand either the scale of the problem or the relevance of the solution.

This is not, as some commentators have suggested, an issue of closing down an economy – it is a strategic approach to developing a policy framework that provides guidelines about pricing and desired outcomes and a timeframe to weave in new approaches and winnow out those which no longer serve society's best interests. Some things will need to occur immediately and there are available technologies and systems. Other aspects will occur over a long-time frame.

The role of Government in the domestic market

Australia has always benefited from new technology eras

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 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.

3 High voltage DC transmission lines are used in the Basslink Interconnector between Tasmania and the mainland.

An enabling policy framework

Australia has private sector innovation in technology, operational management, infrastructure and financing capable of achieving the outcomes that the community expects.

However, for this innovation to reach its long-term national and international potential, innovation urgently requires short-term intermediaries in the market. A carbon price signal is one of those necessary intermediaries and a second is policy intervention to level the playing field for renewable energy and other low emissions sources of energy.

It is worth considering that 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.

The private sector has the technology 'wedges'[4] 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 at the speed and scale necessary to tackle the climate change and energy security challenges ahead

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 commercial deployment of innovation.

Bringing innovation down the technology cost curve

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[5].

Associated risk assessment

It is important to acknowledge that renewable energy sources carry little if any future 'risk' in terms of pollution or damage to public health or eco-system services viability. Therefore Government knows what the upfront investment is and that it will not be expected to absorb unknown risks (compare this with the questions that remain to be answered regarding capture and geological storage of carbon dioxide from coal-fired power stations if re-insurance companies are not prepared to cover long-term risk).

The Renewable Energy Target

RET - industry development initiative

The Renewable Energy Target (RET) is an industry development initiative of Government. It is has broad support from the emerging low carbon and environmental goods and services sector. The RET is recognised as a market instrument that can and should work in tandem with the Carbon Pollution Reduction Scheme (CPRS) otherwise referred to as the Emissions Trading Scheme (ETS).

The RET is achievable

The recommended increase in the target from 9,500 GWh in 2010 to 45,000 GWh in 2020 (at least 20% of Australia's electricity coming from renewable sources by 2020) is achievable and the renewable energy industry/cleantech sector/environment industry is geared up to reach and even exceed this target.

[4] Princeton University study

[5] This refers to the carbon price in an emissions trading scheme but also to consumer and investor preferences

Proven sources of renewable energy

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

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

Potential fuel security an additional bonus

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 the accompanying papers 'Targets for our future' and 'Wedges, levers and a zig zag'[6] and these papers include the contribution that can be made by recycling materials, embodied energy and soil carbon.

Cost of capex, opex and negative externalities

The Renewable Energy Target discussion paper correctly 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.

Criticism of RET unfounded

There has been criticism from some commentators of the finance sector for *'seeking new business opportunities in the carbon market'*, and of the low carbon and environmental goods and services sector for *'exploiting the environment for commercial gain'*. This is very backward thinking.

The emerging sector is based on delivering the things that society needs and wants without destroying environmental integrity and resilience in the process. It is unlikely that the necessary transformation could be achieved without private sector financing and therefore it is logical to create an informed marketplace capable of providing commercial upside to investors, technology developers and infrastructure proponents – at present they are offered a package largely composed of absorbing risk in a market place that rewards free-riders and does not present competitive neutrality.

There is vast opportunity in bringing the next generation of industry to commercial scale where it can begin to replace outdated approaches which, now that they have reached such massive scale, are doing significant harm to society. The RET is an important market mechanism that will assist this deployment of innovation.

[6] 'Targets for our future' and 'Wedges, levers and a zig zag' have been previously submitted to Government including various Senate inquiries and to the Garnaut Review

Australia and the global marketplace

Why should Australia play a lead role in developing renewable energy?

Energy production and use are the single highest contributors of anthropogenic CO2 with impacts that have extensive and sometimes irreversible costs:

- Greenhouse gas emissions are forcing rapid climate changes; Australia is highly vulnerable to the effects of and therefore has a vested self-interest in helping world action to reduce GHG emissions
- Ocean acidification – due to the high levels of CO2 absorbed in surface ocean water. There is concern this could threaten the entire ocean eco-system
- 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 become 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.

In the global market where do Australia's 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).

Capacity building

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[7].

Valuing and pricing energy

Full cost accounting in Australia and internationally

Renewable energy is of immense importance to civilisation. It will allow energy, and the goods and services that rely on energy, to be produced without negative externalities. This considerable benefit must be priced appropriately. At the same time the collateral damage of fossil fuels must also be included in the market price in order for transition to a clean energy future to occur.

[7] 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

This is not a punitive measure, it is a step towards full cost accounting - the ability to price goods and services in a way that measures both benefits and costs to society. Without a correction to pricing systems value cannot be ascertained, incorrect signals are given to the marketplace, and the next wave of industry development is stalled.

Lack of 'value' in international market systems

The lack of understanding of 'value' throughout economies has condemned us to an artificial pricing structure that has eschewed full cost price recovery. This lack of sensible pricing, combined with 'short-term return' domination of decision making, has led to the global financial crisis and the looming catastrophe of climate change. Many of the other converging threats such as peak oil, peak food, peak fish and ocean acidification are also a direct result of short-term greed by relatively few.

Not thinking big

Creeping incrementalism

The real dilemma the world faces, is the incrementalist approach to the problem of climate change and the necessary transition to clean energy.

The scope and scale of solutions currently on the table are not up to tackling either the risk or the opportunity side of the challenges that lie ahead. This is in stark contrast to the availability of innovation, particularly in renewable energy, that could be scaled up rapidly with the right policy settings.

Scale up solutions says the International Energy Agency

"*With the energy sector today contributing 80% of CO2 emissions and 60% of total manmade GHG emissions annually*[8]*"* it is entirely appropriate to be seeking to fast-track major renewable energy projects and aggregation of smaller scale distributed energy projects.

"On today's policies, these emissions are on a trajectory that will lead to an estimated increase in global temperatures by the end of the century of 6 degrees Celsius or more. Therefore, any effective strategy to mitigate climate change must depend on a rapid shift in patterns of production, transmission and use of energy, in short an energy revolution."[9] The International Energy Agency's advice to G8 leaders highlights the risks of ignoring the benefits of energy transformation and states that this transformation should not take second place to dealing with the global financial crisis. The IEA says "*The task is urgent, investment decisions taken now could saddle nations with sub-optimal technologies and rising emissions for decades."*

There are some big things we need to do to tackle climate change – abate emissions, substitute energy sources, and draw-down legacy carbon from the atmosphere. Done in time these actions will lay the foundation to build new value, prosperity and resilience into economies. This in turn will build new markets, new industries and new jobs.

The 'easy approach' of recent decades has seen the world use up many resources at close to the lowest point on the value chain while outsourcing pollution and waste to the global commons. This has created immense damage to the natural ecosystems that support humanity. It has left society with an immense task made all the more difficult because we will, if current trends continue, reach a point of no return, where no technology fix and no amount of money will be able to repair the ecosystem service failure that is entirely foreseeable today. In other words, it is of significant importance to take advantage of the transition to renewable energy that is available to us today.

[8] International Energy Agency paper for G8 leaders 'Launching an energy revolution in a time of economic crisis'

[9] International Energy Agency paper for G8 leaders 'Launching an energy revolution in a time of economic crisis'

It is time to do things differently and harness the ingenuity that will take our cities/built environment, food supply, energy source and distribution, transportation systems through the transition necessary. This is urgent and action has been deferred for far too long.

A history of big leaps and strides

It is worth bearing in mind that over the past century immense strides have been made, inter alia:

- Development and delivery of community electricity, gas and water supplies and waste management and recycling systems
- Mass transit development and broad deployment of automobiles
- Development of logistics systems to serve major urbanisation development

Are we now to be as blinkered as James Duell, Head of the US Patent Office in the 1890s – who stated that "everything that can be invented has been invented"?

There are technology advances in energy systems and resource opportunities capable of leading civilisation into a low carbon energy era. Stalling their deployment however will see atmospheric concentrations of CO2-e continue to rise. Rapid deployment on the other hand provides an opportunity to build new industries capable of delivering the goods and services that society wants – but without the collateral damage that has such high cost and non financial cost impacts.

Renewable energy assisting transition of the transport sector

Removing reliance on oil for the private car, public transport and freight systems reduces CO2 emissions and improves energy security.

An example of an entirely new economic model for automobiles is Better Place's electric vehicle infrastructure that uses renewable energy as battery fuel – the battery in turn becomes a renewable energy storage unit capable of returning energy to the grid at times of peak load demand.

Public transport has a major role to play in making city 'profit centres' more efficient and should therefore be considered an efficiency enhancer rather than a profit centre.

The Senate has received numerous submissions on both public transport and rail rather than road freight and we add our support to this transition in infrastructure development.

Renewable energy boosting fuel security while preventing further CO2 emissions from power plants in transition

Biomimicy sequestration of carbon and production of biodiesel is an exciting new area of research and commercial development and Australia has leaders in the development of algae sequestration.

It is important that no new coal-fired power plants are built unless CO2 emissions can be successfully and safely captured and stored/used; existing plants should be retrofitted or plans made for their retirement/replacement. Research into carbon capture and storage (CCS) should be technology-neutral (at present in the CPRS geological storage is the 'prescribed' approach – see section on Obligation Transfer Number (OTN)). CCS research should include R&D into biomimicry carbon sinks like algae where by-products such as biodiesel can improve fuel security.

Importantly, biosequestration is an approach that may help bring CCS to sufficient scale in time to be meaningful.

The biodiesel production capacity of algal synthesis of CO2 is likely to have significantly increased importance as 'peak oil' limits the supply of diesel to agriculture. At present the food supply in most countries is reliant on diesel (e.g. tilling, planting, irrigation, cropping, transportation).

Various siting options exist for algal biodiesel production plants (e.g. alongside coal-fired power plants or co-located with the 'mega clean energy parks').

Likely net gain of quality jobs

It is disingenuous for commentators to suggest that the RET or indeed the CPRS/ETS will cost jobs or that there will be significant 'carbon leakage' without providing evidence of substance. It is worth recalling that every major technological wave has been good for economies and community wealth. A recent CSIRO suggests between 2.5 and 3.3 million new jobs can be created in Australia as the low carbon and environmental goods and services becomes a mainstream industry. As EBA has said in previous submissions and when presenting to Senate Committees, some fundamental questions need to be posed and answers should be the same whether it is Government, shareholders, analysts, ASX, or the ACCC who pose those questions.

Therefore, to clarify statements in the public domain EBA calls on the Senate to ask a public set of questions of every company and organisation stating a 'pro' or 'anti' stance on the Renewable Energy Target and also the CPRS/ETS. The answers to these questions should be shared publicly.

- Is your company prepared to seek a licence to pollute from shareholders, investors, bankers, insurers and employees and leave a stable political and economic regime in order to shield your company from a price on carbon?
- Is your company prepared to abandon sunk assets and a strong resource base?
- Has your company evaluated the cost and time-frame to amortise new infrastructure in developing countries?
- Has your company undertaken an evaluation of benefits of renewable energy in a changing marketplace where investors and consumers are increasingly questioning the carbon/climate footprint of goods and services?
- Do you believe that developing countries will accept CO2-e reduction targets in the next 2 to 5 years?
- Has your company evaluated alternative business plans to be commercially competitive in a carbon constrained marketplace?
- Have your board of directors and senior management prepared a foresight plan to deal with GHG abatement and climate change mitigation and adaptation?

Where are the impediments to action?

Dominant voice of historical imperatives

The market has been lulled (over many decades) into believing that it can get away with a short-termist approach that does not include costing negative externalities; we now know that is incorrect, but to date there has been little correction in either national or international markets.

This impediment reinforces the 'status quo' – industry that has gained the lion's share of the market wants to protect its vested interests by claiming that renewables are prohibitively expensive. This of course is not the case when all benefits and costs are included and the very strong likelihood of scaled-up renewable energies coming down the technology cost curve. The extensive subsidies and 'preferential contracts'; and the public good investments made by governments early last century to ensure widespread accessibility of electricity also need to be taken into consideration.

All subsidies with perverse outcomes should be removed or re-allocated to provide beneficial outcomes.

Free-riders

A further issue is the 'free-rider' approach that makes it very difficult for new market entrants to compete. There is an anti-competitive theme dominating much of the debate on the RET and the CPRS/ETS. New technologies inevitably bear high R&D, demonstration, operational trialing costs of early market penetration but do not carry the negative externalities of pollution, excessive waste, GHG emissions. At present the market is incapable of rational differentiation between a low cost service/good with high collateral damage costs, and a service/good with higher initial cost but no latent drain on consolidated revenue or quality of life.

As alluded to above, with these impediments in place investors are effectively being asked to absorb the downside risk in the market but do not have an efficient market in which to achieve commercial upside.

Australia not recognising new opportunity quickly enough

These problems are not unique to Australia, however other countries (notably USA, China and some European countries) appear to be tackling them with greater urgency and as a result may develop stronger unilateral, bilateral or multi-lateral leadership positions in the new marketplace.

Lurching from CCS to nuclear 'silver bullets'

Carbon capture and storage - if plans to significantly limit CO_2 emissions are dependent upon the deployment of CCS, the following fundamental questions must be answered "What guarantee is there that CCS can be deployed at sufficient scale, in sufficient time to reduce atmospheric concentrations CO2? What safety guarantees are given regarding permanent geological storage and for how many years do those guarantees extend? Will this approach be cost comparable to scaled-up renewable energy, particularly the rapidly emerging solar thermal, geothermal, and marine energy technologies? Which party will bear long-term insurance costs – private sector proponents or the taxpayer via governments? Will Government guarantee that biomimicry CCS via algae will be allowed under the CPRS *Obligation Transfer Number (OTN)* allowing power plants to transfer their liability to companies carrying out biological sequestration? What analysis has been undertaken by Government and financial market analysts into the comparison between geological storage and 'productive storage' via algae?

Nuclear energy - with regard to the nuclear energy debate in Australia it remains Government policy that Australia will not embrace nuclear energy in this country. However, that has not prevented a campaign against renewable energy by some nuclear energy proponents.

It is EBA's perspective that all low GHG emissions sources of energy should be evaluated - the climate change situation is now becoming too risky for us to do otherwise.

In regard to nuclear energy, as above, some pertinent questions that should be asked include whether nuclear energy could be brought to scale in time and at comparative cost with large-scale renewables? The abundance of thorium as a fuel for nuclear energy and whether Australia's large supply of uranium has as much relevance as previously considered? And Australia's role in nuclear fuel leasing versus the current export of uranium with no extended producer liability?

Other low GHG sources of energy

EBA welcomes all genuinely cleaner approaches to energy production, distribution and end use. However, the Renewable Energy Target has been designed to help bring renewable energy to market. Other sources of cleaner energy – gas, coal seam methane could be assisted by a Low Emissions Energy Target (LEET) but they should not be included in the RET firstly because they are not 'renewable' and secondly because their inclusion will effectively water down RET as a market mechanism.

More innovation needed in government policies

This is where government tools and levers need to work far more innovatively and synergistically. For example:

- *Eliminate perverse subsidies*: The International Energy Agency (IEA) said in its report to the G8 Leaders *"Eliminating the $300bn in annual global fossil fuel subsidies would reduce greenhouse gas emissions by as much as 6 per cent and would add to global gross domestic product."*[2]
- *Taxation system* - reward what society values and penalise detrimental activities. Levelise or remove tariffs in order to avoid disincentives to new market entrants
- *Market mechanisms* – use a broader range of market mechanisms with specific goals to be phased out over a specific timeframe. Many mechanisms can work synergistically e.g. RET and CPRS/ETS
- *Regulation* - harmonise across the three levels of government; prevent innovation and leadership from being undermined by poor performance of competitors
- *Government procurement and investment* - for example, 3 levels of government buy/lease only benchmark low emissions vehicles or preferably go further and support with policy and investment the roll-out of the electric vehicle infrastructure. At Local and State Government levels foster understanding that improved public transport will be an 'efficiency centre' for a city/urban area allowing other activities to operate more profitably. Ensure all financing rewards desired *outcomes* rather than prescribed technologies or processes
- *Standards setting* - speedier process for new benchmark standards (domestic manufacture/import/export); WTO Director General has confirmed this does not conflict with international trade obligations
- *Education* and empowerment
- Specific and tailored market instruments which can work under an 'umbrella' national emissions trading scheme (for example – gross feed-in tariff)

Confusing the cost of action with the cost of inaction

The cost of achieving a clean energy and a climate-safe transformation on a global scale has been put at 1% of GDP by the Stern Report. It may well be slightly higher in Australia due to the energy intensive nature of the economy. Achieving desirable outcomes therefore requires incentives for private enterprise to invest in new technologies and infrastructure; the International Energy Agency and other international bodies have suggested that over 60% of financing for future climate action and clean/renewable energy supply will need to come from the private sector.

In this context, EBA proposes that Australia create a Climate Bond (similar to the Future Fund) to harness necessary financing for initiatives to reduce national GHG emissions including technology deployment, national infrastructure projects, systemic energy efficiency upgrades, roll-out of renewable energy, and the training and re-skilling for green employment across all sectors of the economy. The Climate Bond could have underwritten guaranteed returns and funds could be provided to Federal, State and local government as long-term infrastructure borrowings at 50% of the reserve cash rate.

Cost and non-cost impacts

On a global level catastrophe is not too strong a word.

In the Australian context it will likely mean:

- Major investment being diverted to other countries
- A 'brain drain' of unprecedented proportions
- More frequent and harsher droughts
- Increased soil erosion
- Decreased food production capacity
- Increased frequency and severity of storms
- Increased severity of bushfires
- Brand erosion – investors and consumers 'dropping' Australian goods and services
- Major sources of renewable energy being provided by other countries and a new club of providers and economic leaders emerging

- Latent liability law suits against companies and directors for example demands for extended producer responsibility payments to cover impacts of pollution/climate change/ocean acidification
- Failure to secure insurance

Conclusion

EBA recommends that Australia heed the recent investments and policy recommendations by the USA and China. Economic stimulus in these countries and in much of Europe is being focused on the green value proposition.

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.

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 and the next five years are critical to making the transition to clean and renewable energy, therefore the RET is of major importance to this sector.

Australia is lagging behind in the green energy revolution and needs to implement a far more profound suite of solutions than are currently proposed. The RET is a first step but it is not up to the task of putting Australia in a competitive position with other countries.

Debate, driven by a small handful of powerful entities, has lurched from one big technology fix (CCS) to another (nuclear energy) without any of the major questions regarding viability in time, at scale, safety and comparative cost being addressed. The major benefits to health, ecosystem security, competitive advantage from new markets, new industries and new jobs that renewable energy at scale can provide has been paid far less attention in spite of the latent risks of status quo energy supply and the benefits of renewable energy.

Debate is also being framed by incorrect assumptions that have entered general parlance simply because they have repeated so often. There is nothing "cheap" about an energy source that inflicts its negative by-products on taxpayers and ecosystems. Coal may be 'abundant' but so is sunlight and marine power and Australia also has one of the world's best proven resources of geothermal energy.

A *'Clean, green energy revolution'* is not just about reducing greenhouse gas emissions. It is about energy security, economic prosperity and quality of life. For developing nations, many of which are our neighbours in the Pacific and South-East Asia, it is also about economic development.

EBA emphasises the importance of Australia being leaders in, rather than slow responders to, an international carbon constrained marketplace. The decoupling of productivity from carbon emissions requires a new vision for a smart and efficient Australia. It requires an over-arching strategy for climate change and energy based on a vision of prosperity that does not create collateral damage, either in our own country, or elsewhere.

Therefore, what Australia does in renewable energy, fuel and energy more broadly, and climate change action policy is very important indeed. From our sector's perspective it will decide whether or not Australia is to be one of the leaders in the low carbon energy and environmental goods and services sector – the global A$6 trillion market mentioned above.

The private sector has the innovation in technology but investors and project proponents need to see Government creating a system that fosters the development, deployment at scale, and commercialisation of technologies and systems. While neither the RET or the CPRS/ETS are perfect vehicles it is important that we begin with the basics and improve them as speedily as we can – therefore EBA urges Senators to pass both the RET and the CPRS/ETS in the next sitting.

EBA core recommendations

- Provide sufficient funding for systemic and economy wide energy/resource/materials efficiency programs and initiatives throughout government, business, local communities and households. The household energy efficiency program is a good start but there is unpicked 'low hanging fruit' particularly in resources and mining, industry, the built environment, and transportation. Recycling embodied energy, materials and food/crop waste; materials and energy substitution; improved demand side management; and life cycle resource/supply chain improvements are all key.
- Encourage investment in the renewable energy technologies, systems and processes critical to secure Australia's future energy supply, and thereby Australia's future prosperity and economic resilience. The Renewable Energy Target (RET) is an important tool and should have its horizon extended and a mechanism included to ensure that solar technologies, geothermal energy and marine energy in particular have competitive access and a not 'crowded out' by more established technologies.
- Facilitate the deployment of renewable energy at scale; demonstrating the commercial viability of renewable technologies at scale to bring new energy supply down the technology cost-curve. Develop 2 or 3 'mega clean energy parks' with a view to providing baseload electricity, minerals processing, manufacturing, and potentially, export of surplus electricity to Asia.
- Provide incentives to aggregate small-scale distributed energy generation, e.g. gross feed in tariffs for solar photovoltaic electricity generation
- Include biosequestration and terrestrial carbon offsets in the CPRS/ETS
- Remove impediments to algae sequestration as an alternative to CCS and ensure technology neutrality
- All three levels of government should use their policy levers and their own procurement, investment and management funds to catalyse investment in the 'Clean, Green Energy Revolution'. Government tenders should focus on quality outcomes not lowest cost bids and there should be a review of all existing contracts
- Create a 'Climate Bond' to harness public, private, institutional funding
- Extend R&D tax concessions to *R&D&Deployment* tax concessions (reinvestment tax concessions)
- Immediate accessibility to the renewable energy fund be accessible immediately

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20 July 2009

Appendices

EBA submission on the CPRS Green Paper
EBA submission on the CPRS White Paper
EBA submission on the Draft Exposure Draft
New markets, new industries, new jobs
Wedges, levers and a zig zag
Targets for our future

Extracts from EBA submission on the Renewable Energy Target to CoAG in July 2008
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
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.

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[10].

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.

[10] Including thermo-chemical storage; reverse hydro/pooled energy; geothermal storage

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.

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.

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[11] and yet is often not recycled in Australia but burnt (often releasing PCBs in the process[12]). While not exactly fitting the 'renewable' image it is certainly highly 'extendable' if recycled. Likewise lubricant oil[13] can be refined and recycled many times, there is considerable waste of energy potential is 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.

[11] Venezuela and Nigeria
[12] Hydrodec recycling
[13] Southern Oil recycling