Environment Business Australia
Submission to the Senate Select Committee on Fuel and Energy

A *'clean, green energy revolution'*
can help secure Australia's future prosperity and economic resilience.
It is now in the hands of the Senate to unleash stimulus and long-term investment into the innovation necessary

This submission should be read in tandem with the previous submissions from Environment Business Australia (EBA) to the Senate Select Committee on Fuel and Energy and the Senate Committee on Climate Change and the Senate Economics Committee. These papers 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.

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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

It is EBA's position that a '*clean, green energy revolution'* will 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 Carbon Pollution Reduction Scheme (CPRS) otherwise referred to as the Emissions Trading Scheme (ETS) 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.

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.

The real dilemma however, is the incrementalist approach to the problem. 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 that could be scaled up rapidly with the right policy settings.

"*With the energy sector today contributing 80% of CO2 emissions and 60% of total manmade GHG emissions annually*[2]*"* the Senate focus on fuel and energy is entirely appropriate.

"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."[3] 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.

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.

The commercial market for this approach is already in evidence with the low carbon energy and environmental goods and services sector worth A$6 trillion in 2008. Accessing a fair share of this market and helping other countries grow their economies are two prime reasons

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

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.

While there is indeed argument that the CPRS/ETS in its present form is not perfect, we face decision-time over whether to seek perfection and defer a carbon price – or to start to tackle the problem. Given the severity and urgency of the task ahead it is recommended that a start be made as soon as possible and therefore it is put to the Senate that the responsible action is to pass the CPRS/ETS in the August sitting.

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.

There has been criticism from some commentators of the finance sector for *'seeking new business opportunities in the carbon market'*; others have suggested that the low carbon and environmental goods and services sector is *'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 an uncompetitive market.

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.

Capturing the opportunity by finding, supporting and deploying real value

There are five key steps to capitalise on *real value* and create an economy wide transformation that builds resilience and new opportunity.

1. Energy, resource and materials efficiency

There should be a systemic and economy-wide approach on energy efficiency in order to lower demand for primary carbon intensive fuels. Households are a good start but the big savings will come from industry, the built environment and transportation.

2. Major renewable energy projects

Imagine Australia being a regional hub for minerals processing and manufacturing with 'mega clean energy parks' fuelled by solar thermal, geothermal, marine and wind. Co-location options can cut costs, and high voltage DC transmission lines can transmit power over long distances with minimal loss.[4] The Desertec Industrial Initiative is a commercial project aimed at harnessing solar energy and export electricity from Africa to Europe, the proponents are 12 German companies. Australia's technologies and project management skills are also up-to-

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

the-task of providing sufficient electricity to meet our own needs and potentially exporting electricity to Asia as well.

3. Overhaul of transportation systems
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.

4. Drawdown of legacy CO2
Reducing atmospheric concentrations of CO2 via soil carbon and biosequestration approaches can provide long-lasting carbon sinks via approaches such as biochar, rangeland management, recycled putrescible waste/compost, reforestation and deforestation avoided, crops with a high phytolith concentration are some of the ways to rebuild degraded soils at the same time as improving agricultural productivity.

5. Prevent further CO2 emissions
and
6. Improve fuel security
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 CCS should be technology-neutral, at present in the CPRS geological storage is the 'prescribed' approach (section on Obligation Transfer Number (OTN)). CCS research should included R&D into biomimicry carbon sinks like algae where by-products such as biodiesel can improve fuel security. A biosequestration approach may help bring CCS to sufficient scale in time to be meaningful. The biodiesel production capacity 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').

Next steps

Each of the six approaches above requires an evolution in thinking about fuel and energy sourcing, transmission and end use. 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.

While there are those who decry the CPRS/ETS much of what appears in statements, submissions, media commentary carries a great deal of misinformation and in places disinformation. Government decisions must be able to rise above this and must also rise above party political interests.

It is disingenuous for commentators to suggest that 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, as a first step forward 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 CPRS/ETS and the Renewable Energy Target (RET). The answers to these questions should be shared publicly and in particular with the interested parties nominated in the preceding paragraph.

- 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?
- 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?

Global value

It is time to reinstate 'value' metrics at all levels of economies, market activity and supply chains.

While there is an initial investment cost that may '*appear'* high for energy/resource/materials efficiency, renewable energy, or rehabilitating degraded soils, these are things 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.

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.

Where are the impediments to action?

Impediment 1 – 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.

Impediment 2 – 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 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.

Impediment 3 – 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.

Impediment 4 - 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 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?

Impediment 5 – Missing the potential for soil carbon and CO2 biosequestration potential

Many of the fastest and most beneficial ways to capture and store legacy CO2 have yet to find adequate support from the Australian Government. Biochar, improved rangeland management, phytolith or 'plant stone' crops, recycled food and agricultural "wastes", have potential to help rebuild degraded soils. Soils which have low carbon content have lower food production capacity. Sequestering carbon could therefore improve soil fertility and agricultural revenues. These approaches sit well alongside forestry sequestration and reforestation and

deforestation/land-clearing avoided. A number of papers are available on this topic and EBA will be pleased to provide additional data to the Senate on request.

Improvements to the CPRS

While EBA agrees with many of the points raised regarding the imperfections of the CPRS/ETS (low targets; deferral by one year; low fixed price in first year; revenue not adequately hypothecated to achieve desired outcomes; overly prescriptive language blocking participation by new technology, inter alia) we believe that it is fundamentally important for Australia to engage in the global effort to tackle climate change. Once the basic framework of the CPRS/ETS is in place it can be refined and improved.

Our recommended improvements to the CPRS/ETS are documented in the attached submission to Government on the Green and White Papers and the draft exposure draft.

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 the CPRS, imperfect though it is, begins to price carbon.

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 tarifs in order to avoid disincentives to new market entrants
- *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)

Commercialising low-emission technologies and energy efficiency is as important today as commercialising coal-fired electricity was a century ago. Energy efficiency and 'cleantech' energy require a carbon price signal and an economic deterrent to GHG emissions.

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 ppm. This is repeated in this section as, in the context of the CPRS/ETS it is important that the scheme be flexible enough going forward to adapt to new advice and be able to promptly deliver the action plan necessary to deal with the ramifications.

What is the cost of action?

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, 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.

What is the cost of inaction?

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

Australia should 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.

Australia is lagging behind in the green energy revolution and needs to implement a far more profound suite of solutions than are currently proposed.

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.

Debate is also being framed by incorrect assumptions that have entered general parlance simply because they have repeated so often. To reiterate one of the main arguments of this submission – 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 fuel and energy, 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 – an industry that the British Government evaluated at A$6 trillion in 2008.

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 CPRS nor the 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 CPRS and 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 soil 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)

Fiona Wain
CEO, Environment Business Australia
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

While we have attached the original papers submitted to Government we do so with the caveat that we recognise recent scientific advice that recommends governments strive to limit atmospheric CO2-e concentrations to below 350 ppm