



Emissions Reduction Fund Green Paper



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MINISTERIAL FOREWORD

The Government's Plan for a Cleaner Environment will reduce Australia's greenhouse gas emissions by creating positive incentives to adopt better technologies and practices to reduce emissions. It will provide a lasting and stable policy framework for investment, underpinned by strong partnerships with businesses and the community.

Rather than a punitive carbon tax, the Australian Government will employ its Direct Action Plan to reduce Australia's domestic emissions. At the heart of that plan is the Emissions Reduction Fund.

The Emissions Reduction Fund is a classic market mechanism. It is a reverse auction to buy back the lowest-cost abatement. This is, for example, the same approach used for buying back water.

At a global level, the world has two major approaches to emissions reductions. The first is a carbon tax, or an emissions trading scheme (ETS). There has been considerable uncertainty and policy instability within many of these schemes around the world.

In addition, as the Productivity Commission has noted:

no country currently imposes an economy wide tax on greenhouse emissions or has in place an economy-wide ETS.¹

A significant distinction can be drawn between the Australian carbon tax/ETS and other models, because of the unique breadth, depth and impact of the Australian carbon tax. The previous Government's carbon tax, whether in its fixed or floating form, essentially relies on driving up the cost of electricity and gas as its primary mechanism.

The alternative global model is purchasing abatement. Instead of a heavy punitive tax, a buy-back model focuses on activities that reduce emissions. This is the basis of the largest and arguably the most effective system in the world, the United Nations Clean Development Mechanism, which to date has generated approximately 1.4 billion tonnes of emissions reductions.

It is this model, supported by a carbon buy-back or Emissions Reduction Fund, which the Government proposes for Australia. The Emissions Reduction Fund will be designed to provide a powerful and direct incentive for businesses across the Australian economy to work with the Government to reduce their emissions.

As set out in the Direct Action Plan, the Emissions Reduction Fund will extend from 1 July 2014 to 2020 and will include initial allocations of \$300 million, \$500 million and \$750 million over the forward estimates.

The Emissions Reduction Fund will provide a pool of capital to purchase the lowest cost abatement through a reverse auction, and this will be a far more effective means of reducing Australia's emissions than the carbon tax.

¹ Productivity Commission, *Carbon Emission Policies in Key Economies*, 2011.

The Government's preferred design is presented in this Emissions Reduction Fund Green Paper, and reflects feedback from the community and business. Appendix A of this paper provides the full list of the Government's preferred positions.

We want to recognise low-cost, effective abatement opportunities.

The lowest-cost abatement projects might be projects to clean up waste coal mine gas, clean up power stations or to capture landfill gas. Projects may be for improving energy efficiency in commercial buildings, replanting marginal lands, improving soil productivity or reforestation.

I would like to extend my thanks to the organisations, businesses and individuals who have taken the time so far to contribute their expertise and ideas on the design of the Emissions Reduction Fund.

I look forward to working with businesses and the community to further refine the design of the Emissions Reduction Fund for the release of the White Paper in early 2014.

Our goal is to conserve our natural environment while ensuring strong economic growth.

Greg Hunt
Minister for the Environment

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EXECUTIVE SUMMARY

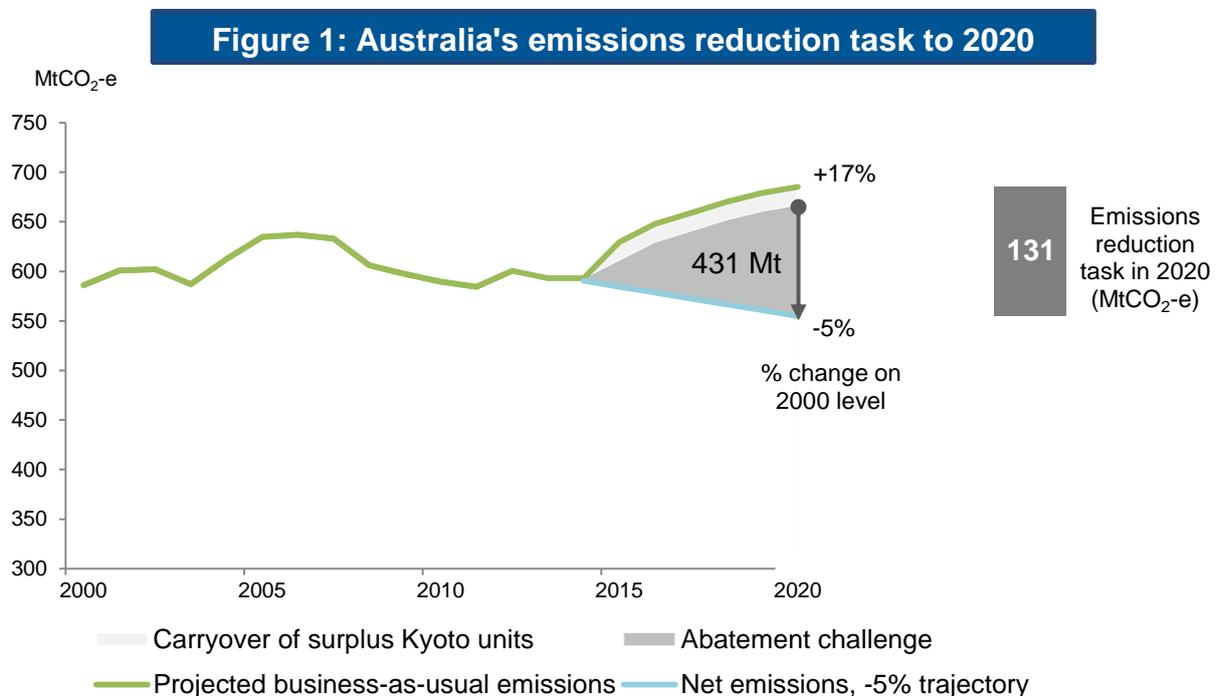
The Australian Government acknowledges the science of climate change and supports national and global efforts to reduce greenhouse gas emissions.

The Government has committed to reduce Australia's emissions to five per cent below 2000 levels by 2020 and to review our position in 2015 as part of the global negotiations regarding international commitments both pre- and post-2020. This target poses a significant challenge. Without positive and direct action by the Government, industry and community, Australia's national emissions will grow strongly to 2020 as the economy grows.

The Government will introduce a mix of policies to promote the adoption of better technologies and practices that will allow Australia to enjoy the benefits of economic growth without an accompanying rise in greenhouse gas emissions. Actions to reduce greenhouse gas emissions have valuable co-benefits. For example, households and businesses can save money by improving their energy efficiency, and revegetation can improve water quality, and reduce erosion and salinity.

Australia's emissions growth is already being offset by policy actions to reduce emissions, such as the Renewable Energy Target and energy efficiency standards on appliances, equipment and buildings.

The latest estimates of Australia's future greenhouse gas emissions reflected in *Australia's Abatement Task and 2013 Emissions Projections* confirm that on current trends, Australia faces a cumulative emissions reduction task of around 431 MtCO₂-e from 2014 to 2020, or 131 MtCO₂-e in 2020 alone (see Figure 1).



Source: Department of the Environment, *Australia's Abatement Task and 2013 Emissions Projections*, 2013.

Notes: The Kyoto Protocol allows countries that over-achieve in meeting their Kyoto target in the first commitment period to credit that over-achievement against the target for the second commitment period by 'carrying over' surplus Kyoto units. Emissions are presented using the Intergovernmental Panel on Climate Change's Fourth Assessment Report global warming potentials.

To meet this objective, the Government will implement a practical policy to achieve emissions reductions; a policy that delivers benefits to Australian landholders and businesses to strengthen our economy.

The Emissions Reduction Fund sits at the centre of the Direct Action Plan which was launched in 2010. The Direct Action Plan outlines how the Government will meet its five per cent reduction target and includes funding for the One Million Solar Roofs and the 20 Million Trees programmes, and the Solar Towns and Solar Schools initiatives. These are practical policies that together will reduce Australia's emissions at low cost and without directly adding to household and business energy costs.

Three principles will guide decisions on the design of the Emissions Reduction Fund:

- **Lowest-cost emissions reductions.** The Emissions Reduction Fund will identify and purchase emissions reductions at the lowest cost.
- **Genuine emissions reductions.** The Emissions Reduction Fund will purchase emissions reductions that make a real and additional contribution to reducing Australia's greenhouse gas emissions.
- **Streamlined administration.** The Emissions Reduction Fund will make it easy for businesses to participate.

Reflecting these three design principles, the Government proposes that the Emissions Reduction Fund should have three simple elements: crediting emissions reductions, purchasing emissions reductions, and safeguarding emissions reductions.

The Emissions Reduction Fund will be designed to achieve lowest-cost emissions reductions as its primary objective.

Views are sought on opportunities for large-scale, low-cost emissions reductions, including estimates of potential reductions.

CREDITING EMISSIONS REDUCTIONS

Businesses have identified a wide range of emissions reduction opportunities — upgrading appliances, and heating and cooling systems in commercial buildings; improving the energy efficiency of industrial facilities; reducing electricity generator emissions; capturing landfill gas; reducing waste coal mine gas; reforestation and revegetation of marginal lands; improving Australia's agricultural soils; upgrading vehicles and improving transport logistics; and managing fires in savanna grasslands.

Different estimation methods will be needed to calculate emissions reductions from different activities. Emissions reductions identified using these methods will be eligible for sale into the Emissions Reduction Fund.

The Emissions Reduction Fund will deliver the best value for money if it provides incentives for genuine emissions reductions, that is, reductions that would not have occurred without the Emissions Reduction Fund. This is often referred to as the concept of 'additionality'. To be effective and encourage participation in the Emissions Reduction Fund, emissions reduction methods should provide simple ways to identify additional emissions reduction opportunities while minimising administration costs for business.

Emissions reduction methods will be developed in consultation with business and technical experts. In the early stages of the Emissions Reduction Fund, the Government will work with

industry to develop methods that have the greatest prospect of delivering large volumes of low-cost emissions reductions. Methodologies for a range of land sector activities that have already been developed under the Carbon Farming Initiative will continue to apply under the Emissions Reduction Fund.

To enable a wide range of businesses to participate in the Emissions Reduction Fund, a menu of emissions reduction methods will be developed.

- **For specific emissions reduction activities.** Activity methods will be developed for specific emissions reduction activities, such as landfill gas capture, energy efficiency and land sector projects. For energy efficiency activities it will be important that the Emissions Reduction Fund complements rather than duplicates existing state schemes that promote energy efficiency.
- **For large facilities, including major industrial emitters.** Facility-wide methods will be developed using existing data under the National Greenhouse and Energy Reporting Scheme to measure emissions reductions.

Some emissions reduction activities such as revegetation and household and commercial energy efficiency are small-scale actions that could be most cost-effectively implemented through aggregation. The Government will therefore encourage project aggregation and facilitate project development so that small businesses, households and farm groups can simply access the Emissions Reduction Fund in a practical and cost effective way.

Emissions reductions will be recognised by the issue of Australian Carbon Credit Units, as currently occurs under the Carbon Farming Initiative. The existing National Greenhouse and Energy Reporting Scheme, including its audit framework, will help streamline the process for reporting and verification. This approach will simplify the process for purchasing emissions reductions.

As occurs under the Carbon Farming Initiative, Australian Carbon Credit Units will constitute personal property with legal title registered in the Australian National Registry of Emissions Units. The Clean Energy Regulator will issue Australian Carbon Credit Units based on actual reductions in emissions. This will provide certainty for businesses and enhance the credibility of emissions reductions. It will also provide businesses with the flexibility to sell their credits into the Emissions Reduction Fund or to keep them for alternative uses, such as voluntary offset programmes.

Emissions reduction methods will be developed to calculate genuine and additional emissions reductions from new actions that are not mandatory and have not been paid for under another programme.

Views are sought on how best to:

- *ensure that emissions reductions are genuine*
- *develop methods for calculating emissions reductions from priority activities*
- *facilitate the aggregation of emissions reductions across projects and activities.*

PURCHASING EMISSIONS REDUCTIONS

The Government proposes that the Clean Energy Regulator operate a procurement process to purchase emissions reductions at the lowest available cost.

This approach is akin to a reverse auction, a mechanism that has been used in Australia and overseas to identify the lowest cost available for emissions reductions and other types of environmental goods and services. Simple tenders and other reverse auction approaches create competitive pressures which would enable the lowest-cost emissions reductions to be identified and purchased by the Emissions Reduction Fund.

At the start of the Emissions Reduction Fund, a simple process would be adopted to make it as easy as possible for businesses to participate. Businesses could submit bids at any time and, at regular intervals, the Clean Energy Regulator could run tender rounds to select eligible offers on a lowest-cost priority basis up to a benchmark price. This benchmark would be commercial-in-confidence to encourage businesses to submit their lowest price.

Once the supply of emissions reductions is well established, the Clean Energy Regulator would move to a more formal auction process. Future auctions would take place several times a year, depending on the supply of projects.

Initially the Clean Energy Regulator could run relatively frequent tender rounds to bring forward the delivery of emissions reductions.

The Clean Energy Regulator would apply a benchmark price — the maximum amount it would pay per tonne of emissions reduced — with only bids costing less than the benchmark price being considered.

Views are sought on how best to:

- *facilitate early participation in the Emissions Reduction Fund*
- *operate an efficient auction process to secure lowest-cost emissions reductions.*

The Government will enter into forward contracts with successful bidders, a process that will guarantee payment for the future delivery of emissions reductions. Businesses could use forward contracts to secure project finance as necessary before projects are implemented.

Purchase contracts will be standardised to reduce transaction costs, increase transparency and ensure projects are assessed on equal terms. Contracts will include a range of standard commercial provisions to manage changes in circumstances that could affect the implementation of projects and the delivery of emissions reductions. The Clean Energy Regulator could seek redress if emissions reductions are found not to have occurred.

Publication of information about auction results will assist potential participants to consider future project proposals. The public is also likely to have significant interest in the progress of the Emissions Reduction Fund.

Standard contracts will be used to guarantee payments for verified emissions reductions. These would have a maximum duration of five years and include options for addressing under-delivery of emissions reductions.

Views are sought on how best to provide:

- *funding certainty for businesses*
- *confidence that projected emissions reductions will be delivered.*

SAFEGUARDING EMISSIONS REDUCTIONS

The Emissions Reduction Fund is designed to allow businesses to continue ordinary operations without penalty. It is founded on a presumption of economic growth as a positive

and inevitable good for Australia. Against that background, an essential part of the Emissions Reduction Fund is that it has a framework that sets out clear guidelines for businesses to operate within.

Businesses will be encouraged to decrease emissions below their historical business-as-usual levels through the Emissions Reduction Fund. In addition, a mechanism will be developed in conjunction with businesses to provide incentives not to exceed historical emissions baselines.

This element will safeguard the value of funds expended under the Emissions Reduction Fund and provide businesses with a stable and predictable policy landscape in which to make new investments.

The safeguard mechanism could apply to facilities currently reporting information under the National Greenhouse and Energy Reporting Scheme and could commence from 1 July 2015 to provide sufficient time for consultation with businesses on baselines and the treatment of new market entrants. Specific provision would be made to encourage efficient greenfield and brownfield expansions as an integral part of national economic development.

No revenue is sought nor will any be budgeted by the Government as part of the safeguard mechanism.

Given the significance of the electricity sector to Australia's emissions profile and the upcoming review of the Renewable Energy Target in 2014, the Government will work closely with the sector on how the policy can best apply to its needs.

A safeguard mechanism will be introduced to provide incentives to reduce emissions above historical business-as-usual levels.

Views are sought on:

- *the coverage of the mechanism*
- *how baselines could most easily be set to effectively limit increases in historical business-as-usual emissions*
- *the treatment of new entrants and significant expansions, including definitions of best practice*
- *compliance options in the event that baselines are exceeded.*

BUILDING ON THE CARBON FARMING INITIATIVE

The Government proposes to build on the Carbon Farming Initiative and make use of the National Greenhouse and Energy Reporting Scheme to implement the Emissions Reduction Fund. The Clean Energy Regulator administers both schemes and is best placed to implement the Emissions Reduction Fund. This will provide continuity for business and enable streamlined administrative arrangements.

The Carbon Farming Initiative will continue to operate while the Emissions Reduction Fund is implemented. At the same time, the Government will work with participants to improve the administration of the Carbon Farming Initiative.

Proponents of Carbon Farming Initiative projects will be well placed to bid into the Emissions Reduction Fund because there are already methodologies for many land sector activities and more will be approved before the Emission Reduction Fund begins on 1 July 2014. Methodologies made under the Carbon Farming Initiative legislation will continue to apply

under the Emissions Reduction Fund. This will allow new land sector projects to be approved using these methodologies.

Through the Emissions Reduction Fund auction arrangements, the Government may purchase emissions reductions (that is, Australian Carbon Credit Units) from existing or planned Carbon Farming Initiative projects, depending on the price of bids. This will provide a simple way for participants in the Carbon Farming Initiative to secure a return from eligible projects following the repeal of the carbon tax.

The Emissions Reduction Fund will build on and streamline the existing architecture of the Carbon Farming Initiative.

Views are sought on:

- *options for streamlining the Carbon Farming Initiative*
- *how best to encourage the uptake of land sector activities.*

IMPLEMENTING THE EMISSIONS REDUCTION FUND

The Emissions Reduction Fund will commence on 1 July 2014 and will be administered by the Clean Energy Regulator.

The Clean Energy Regulator is already established and has the required expertise, as it currently administers the Carbon Farming Initiative and the National Greenhouse and Energy Reporting Scheme, both of which provide the building blocks for the Emissions Reduction Fund.

The Emissions Reduction Fund will be implemented by expanding the coverage of the Carbon Farming Initiative legislation to enable emissions reductions across the economy to be credited, and through the National Greenhouse and Energy Reporting legislation to allow the safeguard mechanism to be applied.

The Emissions Reduction Fund will be administered by the Clean Energy Regulator.

Views are sought on the proposed governance arrangements.

The Government will undertake a review of the Emissions Reduction Fund which will commence towards the end of 2015. The findings of the review could be used to inform the Government when it considers the post-2020 architecture of its Direct Action Plan.

The Government will conduct a review of the Emissions Reduction Fund towards the end of 2015 so as to provide certainty about the policy and design intent post-2020.

Views are sought on the timing and conduct of a review.

MAKING A SUBMISSION

The Government is committed to consulting widely with the community and businesses on the development of the Emissions Reduction Fund. Already 290 submissions have been received in response to the terms of reference on the Emissions Reduction Fund.

The Government invites written submissions on the Emissions Reduction Fund Green Paper from all interested businesses and members of the community. Submissions received in response to the Green Paper will be considered in a consultative process leading up to the release of a White Paper in early 2014.

Submissions are due by 21 February 2014. Any submissions received after this date will be considered at the Government's discretion. Submissions made in response to the Emissions Reduction Fund Terms of Reference will continue to be considered. Submissions made in response to the terms of reference can be re-submitted in full or in part, taking into account the additional information reflected in the Green Paper.

Each submission, unless it is explicitly provided in confidence, will be published on the Department of the Environment's website. Submissions will remain on the Department's website. Copyright will reside with the author(s) and not with the Government.

Submission guidelines

Where possible submissions should be sent electronically, preferably in Microsoft Word or other text-based formats, to the email address listed below. Alternatively, submissions may be sent to the postal address below to arrive by close of business on the above due date.

All submissions must include a cover sheet, available at www.environment.gov.au.

Submissions can be forwarded to:

Email: emissions-reduction-submissions@environment.gov.au (preferred)

Postal: Emissions Reduction Fund Submissions
Department of the Environment
GPO Box 787
CANBERRA ACT 2601

For further information, or to request a hard copy of the Green Paper, please call 1800 852 974.

Confidentiality statement

All submissions will be treated as public documents, unless the author of the submission clearly indicates the contrary by marking all or part of the submission as 'confidential.'

Public submissions, including any personal information of the author(s) and/or other third parties contained in the submission, may be published in full on the Department's website.

If a submission contains the personal information of any third party individuals, please indicate on the cover sheet of the submission whether they have provided consent to the publication of their information.

Any request made under the *Freedom of Information Act 1982* for access to a submission marked confidential will be determined in accordance with that Act.

1. INTRODUCTION

The Australian Government acknowledges the science of climate change. The world's leading scientific organisations, including Australia's Bureau of Meteorology, the Commonwealth Scientific and Industrial Research Organisation and the Australian Academy of Science, have found that the Earth's climate is changing as a result of human activities and that further change is projected.

1.1 GLOBAL ACTION

Climate change can be effectively mitigated only if all major economies take coordinated action to restrain emissions to limit temperature rise.

Australia will work towards an international agreement that will establish for the first time from 2020 a common platform for all countries to take serious coordinated global climate action that is economically and fiscally responsible. The agreement must be one where all major economies, including Australia's key trading partners and competitors, play a real part in controlling their emissions through comparable global action.

Australia will review its climate change policy in 2015, considering further action and targets on the basis of comparable real global action, in particular by major economies and trading partners, and progress on the new agreement.

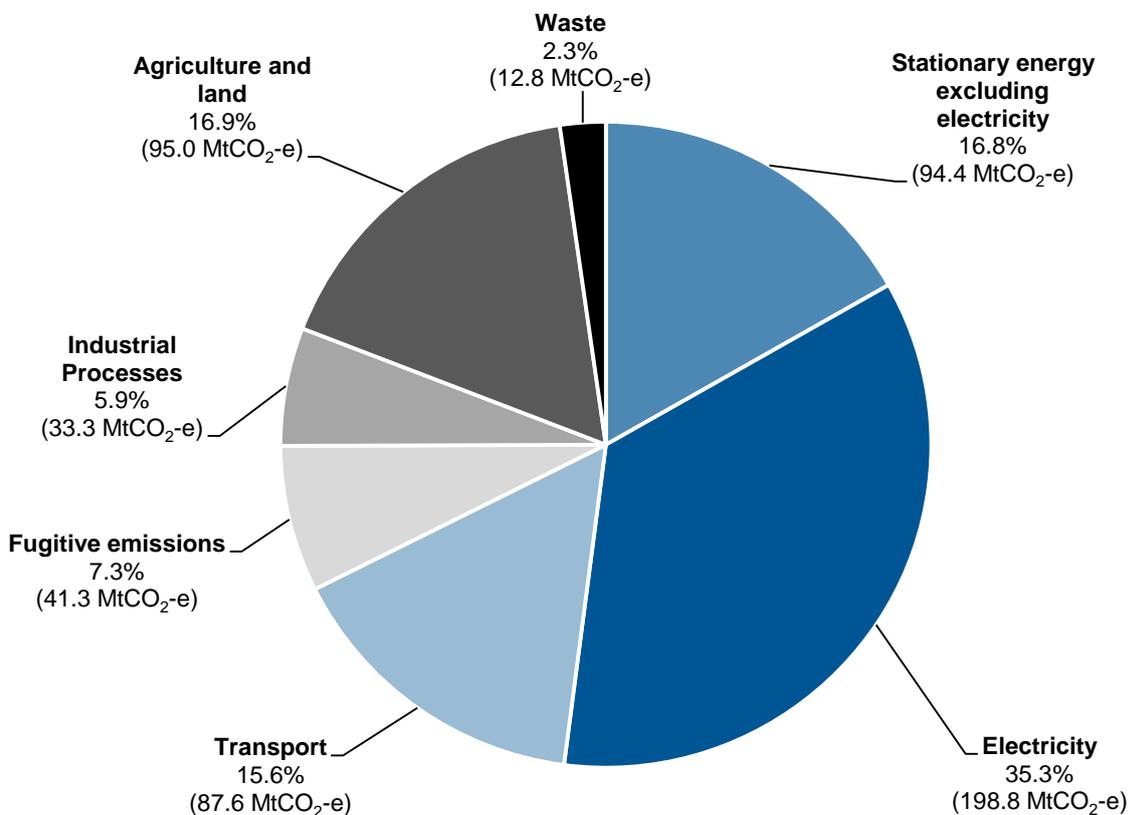
The Government has committed to reduce Australia's emissions to five per cent below 2000 levels by 2020. The latest estimates of Australia's future greenhouse gas emissions reflected in *Australia's Abatement Task and 2013 Emissions Projections* confirm that on current trends Australia faces a cumulative emissions reduction task of around 431 MtCO₂-e from 2014 to 2020, or 131 MtCO₂-e in 2020 alone (see Figure 1).

1.2 AUSTRALIA'S EMISSIONS

The starting point for Australia's challenge is to look at our current emissions profile. In 2011, Australia's emissions were 563 million tonnes of carbon dioxide equivalents (see Figure 1.1), with these emissions spread broadly across the economy.² In 2011, electricity generation contributed just over one-third of total emissions (199 MtCO₂-e), with other stationary fuel combustion, transport, and agriculture/land contributing around one-sixth each (94 MtCO₂-e, 88 MtCO₂-e and 95 MtCO₂-e respectively). Collectively, industrial (chemical) processes, fugitives and waste emissions together contributed the final one-sixth of Australia's emissions (87 MtCO₂-e).

² Australian Government, *Australia's National Inventory Report 2011*, 2013.

Figure 1.1: Australia's National Inventory 2011



Source: Australian Government, *Australia's National Inventory Report 2011*, 2013.

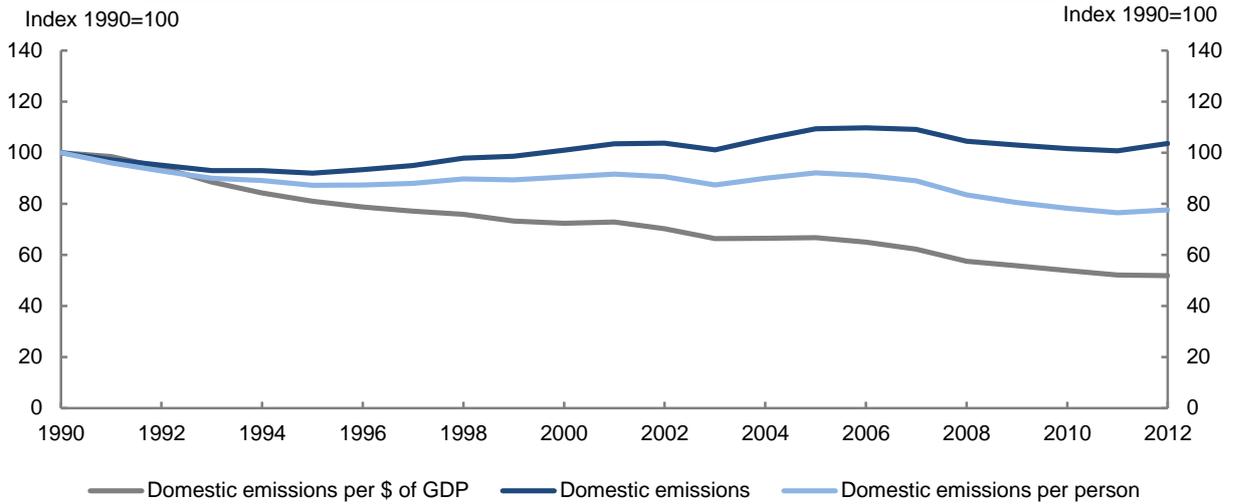
Note: Figures are expressed using Kyoto Protocol accounting rules in terms of carbon dioxide equivalents (CO₂-e), using the global warming potentials published in the Intergovernmental Panel on Climate Change's Second Assessment Report.

In total, Australia contributes around 1.3 per cent of total global emissions and is the fifteenth largest emitter of greenhouse gases in the world. Compared to many other nations, Australia has a relatively emissions-intensive economy and high per capita emissions, mostly due to the extensive use of black and brown coal in its electricity supply.

Over the past decades, coal has provided Australia with cheap and reliable power which has helped underpin Australia's economic growth and prosperity. Affordable energy has also been a key source of competitive advantage for Australia on global markets.

Australia is already reducing its emissions. Since 1990, the emissions intensity of the Australian economy has fallen by around 50 per cent from 0.8 kilograms of carbon dioxide equivalents (kgCO₂-e) per dollar of Gross Domestic Product to 0.4 kgCO₂-e per dollar of Gross Domestic Product (see Figure 1.2). This reduction has been driven by a number of factors, including the Australian economy's move away from emissions-intensive industries, and the policies in place over a long time to improve energy efficiency and reduce emissions.

Figure 1.2: Emissions intensity of the economy

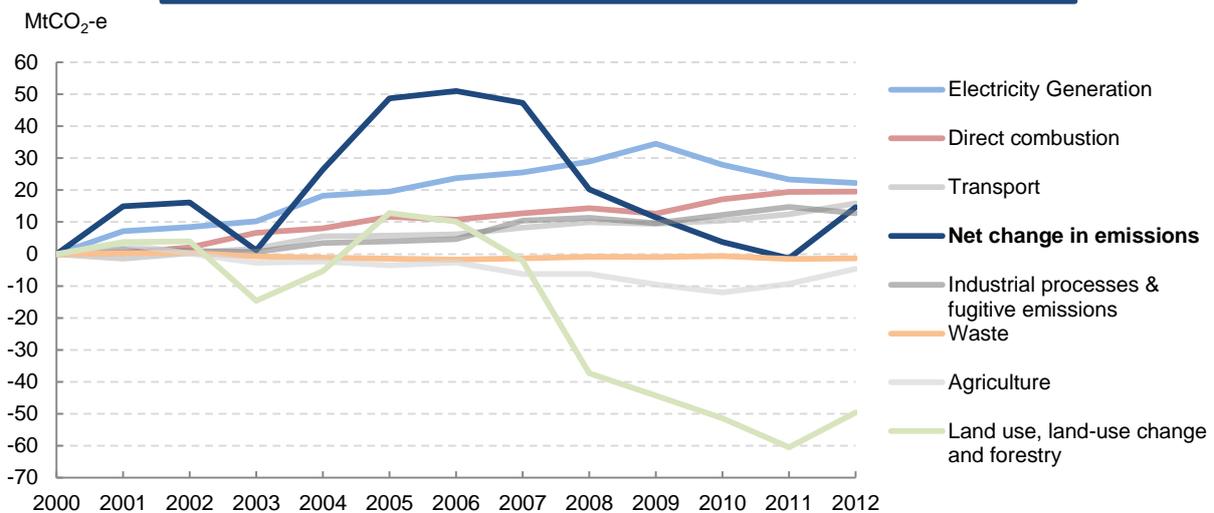


Source: Treasury and the Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education, *Climate Change Mitigation Scenarios*, 2013.

Note: Emissions are presented using the Intergovernmental Panel on Climate Change’s Fourth Assessment Report global warming potentials.

A number of key emissions reduction measures have been implemented over the past two decades and have significantly reduced emissions. These include land clearing regulations in New South Wales and Queensland, which have resulted in a significant fall in land use and land-use change emissions. Additionally, the Renewable Energy Target and energy efficiency programmes for industry, appliances and buildings have contributed to the recent decline in emissions from electricity generation (see Figure 1.3). From 2008 to 2012, these measures alone are estimated to have accounted for over 41 million tonnes (Mt) of emissions reductions per annum, or roughly three quarters of emissions reductions from policy measures.³

Figure 1.3: Change in historical emissions from 2000



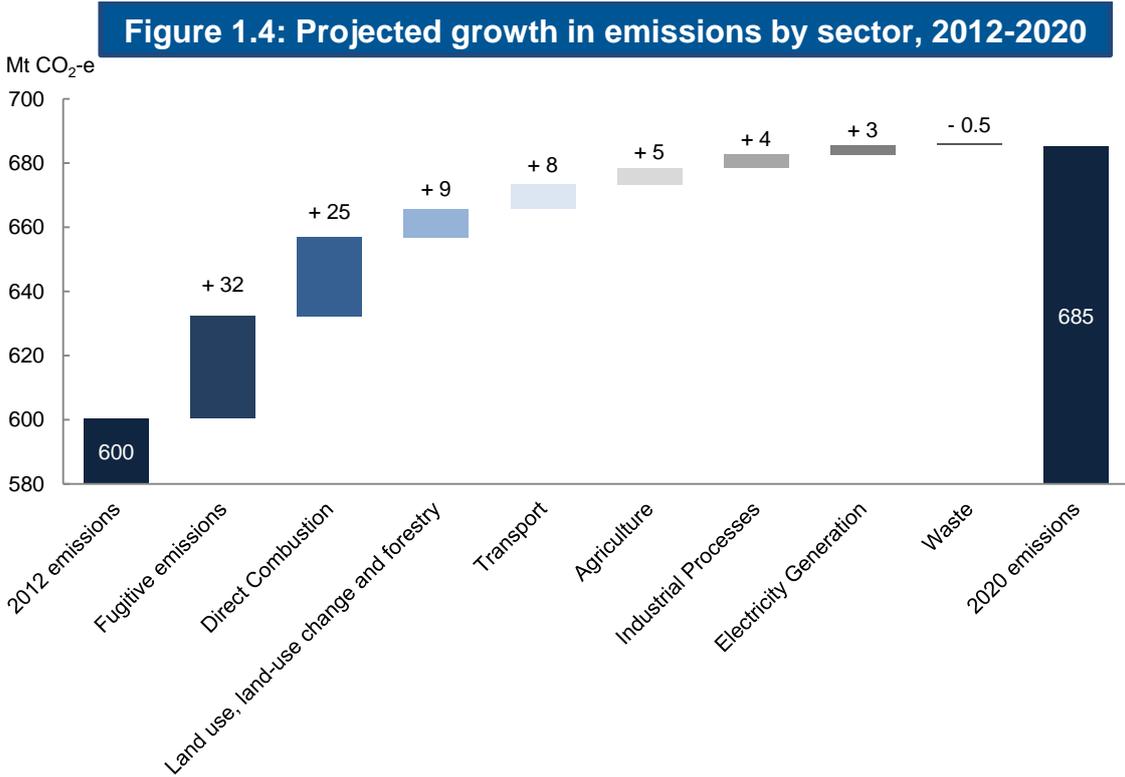
Source: Treasury and the Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education, *Climate Change Mitigation Scenarios*, 2013.

Note: Emissions are presented using the Intergovernmental Panel on Climate Change’s Fourth Assessment Report global warming potentials.

³ Australian Government, *Australia’s Emissions Projections*, 2010.

To date, policy measures, combined with structural changes in Australia’s economy, have been effective in constraining Australia’s emissions growth over the past two decades, with Australia’s total emissions being at broadly the same level in 2011 as they were in 1990.

Over the next decade, even with these measures in place, Australia’s emissions are projected to grow (see Figure 1.4). To achieve the five per cent cut in emissions, this implies an annual reduction of 131 MtCO₂-e of emissions in 2020. After taking into account that Australia is likely to over-achieve its first Kyoto Protocol target, a total of 431 MtCO₂-e of emissions reductions is likely to be needed over the period 2014 to 2020.



Source: Treasury and the Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education, *Climate Change Mitigation Scenarios*, 2013.

Note: Totals may not add due to rounding. Emissions are presented using the Intergovernmental Panel on Climate Change’s Fourth Assessment Report global warming potentials.

Projected emissions growth to 2020 is dominated by direct combustion and fugitive emissions associated with the production of energy resources. The key driver of this growth is the expected strong export demand for Australia’s natural resources, particularly liquefied natural gas (LNG) and coal.

An expansion in Australian coal production is projected to be the main driver of growth in fugitive emissions, as new mines are developed to meet export demand. The rapid expansion of the Australian LNG industry, which is likely to see Australia’s LNG production quadruple to 2020,⁴ is the main contributor to growth in direct combustion due to the use of natural gas to run stationary equipment at LNG facilities.

⁴ Bureau of Resources and Energy Economics, *Australian energy projections to 2034–35*, 2011.

Emissions from transport and industrial processes are expected to continue to grow to 2020. Agriculture emissions are also projected to grow, largely driven by growing demand for dairy and meat products overseas.

Projected emissions from electricity are projected to grow slowly to 2020 in response to existing policy measures such as the Renewable Energy Target and a reduced electricity demand outlook. Growth in the waste sector is also projected to be modest, with new technologies and the Carbon Farming Initiative helping to constrain emissions to 2020.

1.3 SOURCES OF LOW-COST EMISSIONS REDUCTIONS

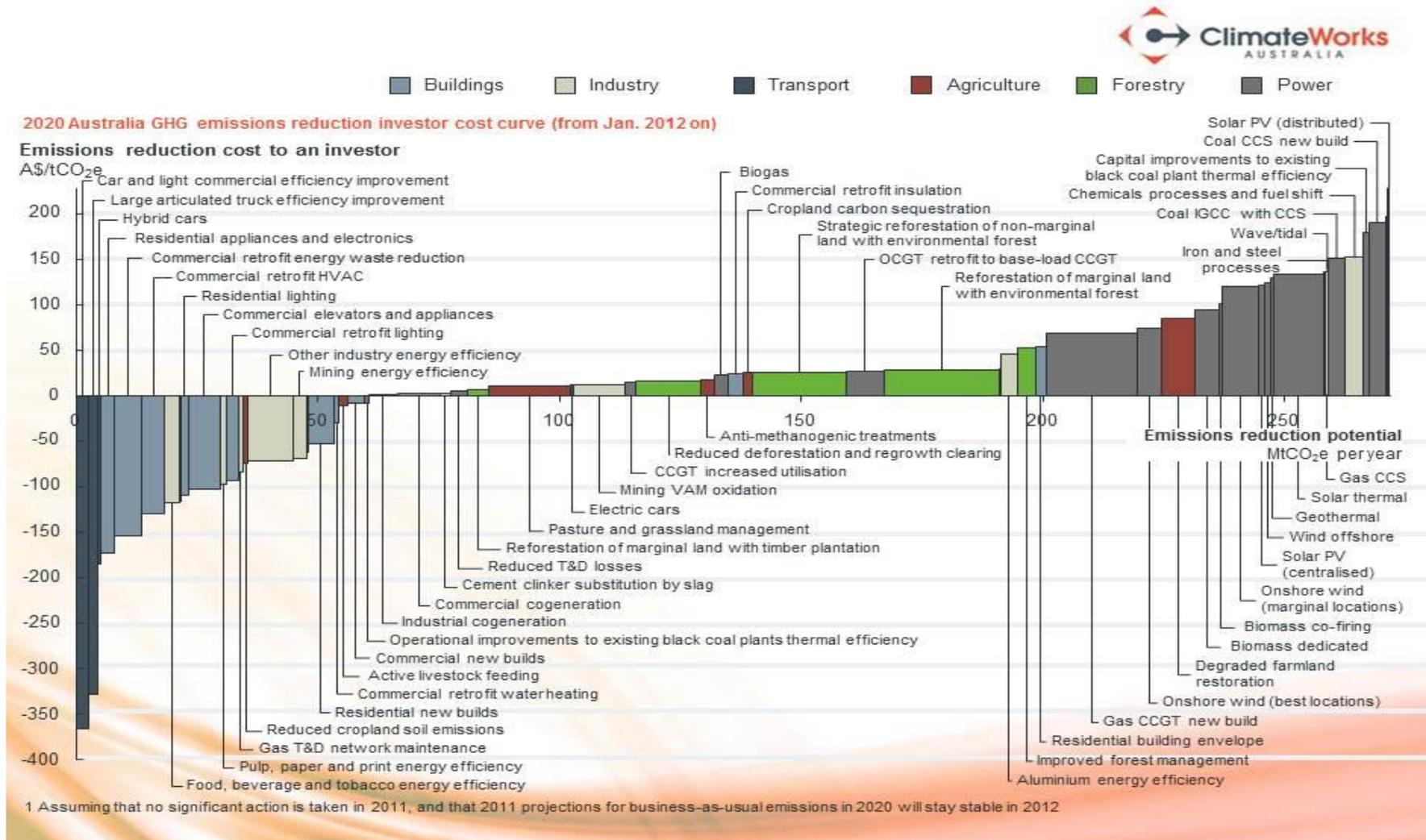
The Emissions Reduction Fund will be designed to generate emissions reductions at low cost across the economy. Businesses will determine which actions are brought forward, and the Government will work with businesses to ensure relevant measurement methods are available at the start of the Emissions Reduction Fund so that activities can be funded quickly and at scale. Input is sought from businesses on key activities that may warrant early attention to develop methodologies.

One approach to identifying sources of potential emissions reductions is through modelling, either 'top-down' analysis or 'bottom-up' technical analysis. For example, ClimateWorks has used bottom-up modelling to develop an emissions reduction cost curve that estimates the size and cost of emissions reduction opportunities across Australia for the year 2020 (see Figure 1.5).

This analysis helps to identify the scope for potential emissions reductions that could result if the identified actions were implemented across the economy. ClimateWorks found technical potential for around 60 Mt of annual emissions reductions to occur in 2020 through projects that would deliver net financial savings to investors. These projects include energy efficiency and fuel switch opportunities, as well as actions in the agriculture and forestry sectors. ClimateWorks also identified the potential for a further 80 Mt of annual emissions reductions, at higher cost in the electricity generation sector. These opportunities were identified as available between 2012 and 2020 and exclude transaction costs such as policy implementation costs.

Some, but not all, of these opportunities may be realised in the short to medium term. Some are relatively expensive, or face other non-financial barriers to uptake which can be overcome through the right mix of incentives — for example, energy efficiency improvements in the residential sector. Other opportunities reflect technologies that are not yet commercial, such as carbon capture and storage, or are still in the development stage, such as new industrial process technologies and livestock management techniques.

Figure 1.5: ClimateWorks cost curve



Source: ClimateWorks, *Low Carbon Growth Plan (2011 update)*, 2011 (© Copyright, ClimateWorks).

Information about the most prospective low-cost emissions reduction opportunities is likely to come from industry.

Large energy users — that together account for more than 50 per cent of Australia's total energy use — have identified a wide range of possible energy savings opportunities with payback periods ranging from less than two to more than four years.⁵

If those businesses implemented all the identified projects, the total annual emissions reductions would amount to around 50 MtCO₂-e in 2020. Many of the opportunities identified have not been taken up because of competing priorities for capital funding or the down time in production involved in upgrading to more efficient equipment. The Emissions Reduction Fund will provide financial incentives to bring forward many of these and other types of energy efficiency projects.

There are a number of hurdles to implementing energy efficiency projects, including capital allocation. Access to incentive-based funding opportunities will improve the feasibility of these projects, particularly if the ERF is underpinned by flexible, efficient and cost-effective administrative, reporting and compliance arrangements. The ERF could also potentially underpin hybrid integration projects such as natural gas and solar thermal or geosequestration. (Santos)

There are a range of other potential emissions reduction opportunities that have been identified by businesses. Emissions reductions from the direct combustion of fuels in industry could be achieved by reducing diesel use or improving the efficiency of industrial processes. Using more natural gas in Australia's energy mix could also significantly reduce emissions. Natural gas is less emissions-intensive than coal or petroleum and can be used in a range of settings, including manufacturing, mineral processing, power generation, transport and households.

The Australian Pipeline Industry Association considers there are many large scale abatement opportunities available through switching of energy sources from electricity to natural gas in appropriate applications. Uses of natural gas that could lead to large scale abatement opportunities include direct use applications, transport applications and on-site electricity generation applications. (Australian Pipeline Industry Association)

Energy Networks Association believes that the ERF can provide opportunities for households to choose from amongst a range of greenhouse gas efficient hot water system ... The ENA believes that, when aggregated, the abatement from the replacement of electric water heaters with gas water heaters will be significant. (Energy Networks Australia (Energy Networks Association))

Some industrial sectors have significant potential for emissions reductions through the introduction of technologies that either remove greenhouse gases, such as carbon capture, or react with them, such as nitrous oxide reduction catalysts. Emissions reductions can also be achieved through better monitoring of chemical efficiency or replacing gases or other inputs

⁵ Australian Government, *Energy Efficiency Opportunities Program – The First Five Years: 2006–11 – Overview*, 2013.

with less emissions-intensive materials. As with many emissions reduction opportunities, the major impediment to uptake is the up-front capital cost.

In the mining sector, there are opportunities to reduce fugitive emissions through destruction of waste coal mine gas.

EDL submits that:

- *WCMG [waste coal mine gas] power generation and abatement;*
- *Vent Air Methane (VAM) abatement; and*
- *LFG [land fill gas] power generation and abatement;*

are likely sources of low cost, large scale abatement to come forward under the Emissions Reduction Fund. (EDL)

Commercial buildings, such as shopping centres and office buildings, account for around seven per cent of Australia's energy consumption (mostly for heating, cooling and lighting) and represent another important source of potential emissions reductions.⁶ The commercial buildings sector has identified significant opportunities for low-cost emissions reductions with the upgrade of existing commercial buildings and clean power technologies such as co-generation and tri-generation.

There is a great deal of potential to raise the energy efficiency of new and existing buildings and doing so would significantly reduce the demand for energy and in particular reduce the need to produce greenhouse gas intensive electricity. (Property Council of Australia submission, prepared by ACIL Allen)

There are emissions reduction opportunities in the transport sector, particularly from light vehicle efficiency improvements or the use of electric vehicles. Vehicle emissions standards have been implemented with great success in many countries.

Significant opportunities exist to reduce Australia's land sector emissions. Methodologies for a range of activities, including reforestation and savanna fire management, have been developed through the Carbon Farming Initiative. Expanding the scope of those methodologies, enabling landholders to select either a 100-year or 25-year permanence option, and streamlining the administration of the Carbon Farming Initiative will promote the uptake of those projects (see Chapter 5). Landholders have expressed a strong interest in undertaking emissions reduction projects because many deliver valuable social and environmental benefits.

Carbon offset projects, such as reducing emissions from early dry season savannah burning, offer the opportunity to bring independent funding and business opportunities to Aboriginal communities and enable increased indigenous employment in remote areas. These projects have the potential to build upon and strengthen existing arrangements, including the business viability of Indigenous Protected Areas and extending training, skills development and job opportunities under Aboriginal ranger programs. (Kimberley Land Council)

⁶ ClimateWorks, *Tracking Progress Towards a Low Carbon Economy, 4.Buildings*, 2013.

In the waste sector, greater uptake of methane capture and waste diversion represent further emissions reduction opportunities.

Many individual emissions reduction opportunities are small but when aggregated can be large. Local governments and non-government organisations, as well as climate advisory businesses, have identified opportunities to become project aggregators, helping to overcome one of the key barriers to many emissions reduction activities.

1.4 DIRECT ACTION

The Government will work in partnership with businesses to meet Australia's emissions reduction challenge. This challenge will be met through a mix of complementary policies that drive the adoption of new technologies and innovations that allow Australia to enjoy the benefits of economic growth but without the accompanying greenhouse gas emissions.

The Government's Direct Action Plan, set out in 2010, will provide a stable and enduring policy framework that will enable Australia to achieve its environmental goals whilst delivering benefits to landholders and businesses and strengthening the economy.

The Emissions Reduction Fund is central to the Government's Direct Action Plan to cut emissions by five per cent by 2020. The plan also includes funding for the One Million Solar Roofs and 20 Million Trees programmes, and the Solar Towns and Solar Schools initiatives. These are practical policies that together will reduce Australia's emissions at low cost and without adding to household and business energy costs.

1.5 DIRECT ACTION IN AN INTERNATIONAL CONTEXT

Other countries are increasingly favouring targeted approaches with a proven track-record, such as direct purchasing of emissions reductions, energy efficiency and emissions standards, renewable energy targets and other measures that directly support investment in better practices and technologies.

Direct purchasing programmes operate around the world. Japan is establishing its Joint Credit Mechanism to help meet emissions reduction targets by purchasing direct abatement and funding low-carbon technology diffusion through bilateral agreements with developing countries.

Further, the United Nations Clean Development Mechanism operates as an abatement crediting scheme. From just over 2,000 projects, over 1.4 billion tonnes of abatement have been made available. Norway's Commercial Carbon Procurement Programme purchases Clean Development Mechanism credits worth millions of dollars through a competitive tender process.

The European Union, Russia, South Africa and the United States, among many others, all employ energy efficiency measures to reduce emissions. In the United Kingdom's residential building sector, all new homes built from 2016 will need to have zero emissions for heating, hot water, cooling and lighting. Under the Korean Target Management Scheme, around 500 large-emitting entities are required to meet energy efficiency targets. There are energy intensity and efficiency targets and schemes in countries such as China, India, Indonesia, Japan, New Zealand, Thailand, Turkey and the United States. New Zealand has an economy-wide energy intensity improvement target of 1.3 per cent annually to 2016.

Renewable energy targets are also common. Countries and regions as varied as Brazil, China, Europe, India, Indonesia, Mexico, New Zealand, Russia, South Korea, Vietnam, and 30 US states, have renewable energy targets. Mexico's goal is to generate 35 per cent of its electricity from renewable energy sources by 2024.

Vehicle emissions standards are another commonly employed direct emissions reduction policy. Canada, the European Union, Thailand and the United States all rely on emissions standards. The European Union emissions standard for cars aims for a fleet-wide average of 130 grams of carbon dioxide per kilometre in 2015 and 95 grams of carbon dioxide per kilometre in 2020. Fleet-wide emissions are currently on track to meet the 2015 target. Canada is also in the process of implementing regulatory fuel economy and emissions standards for new cars and trucks that mirror provisions in the United States.

In the power generation sector, regulatory standards for power stations have been tightened in the United States and Canada. New regulatory standards for coal-fired power plants in Canada will start from 2015 and, according to Environment Canada, by 2020 are expected to reduce emissions from 2005 levels by 41 Mt of carbon dioxide in 2020 from 2005 levels.

1.6. DESIGN PRINCIPLES

Three principles will guide decisions on the design of the Emissions Reduction Fund:

- **Lowest-cost emissions reductions.** The Emissions Reduction Fund will identify and purchase emissions reductions at the lowest cost.
- **Genuine emissions reductions.** The Emissions Reduction Fund will purchase emissions reductions that make a real and additional contribution to reducing Australia's greenhouse gas emissions.
- **Streamlined administration.** The Emissions Reduction Fund will make it easy for businesses to participate.

1.6.1 *Lowest-cost emissions reductions*

A focus on lowest-cost emissions reductions will deliver best value for money to the Australian community.

In many cases, reducing emissions delivers valuable co-benefits to businesses and the community. For example, businesses can reduce their energy costs and improve productivity by upgrading equipment or adopting low emissions technologies. In the land sector, projects can reduce salinity and erosion, improve water quality and protect biodiversity. Savanna fire management and revegetation can provide important employment opportunities in indigenous communities.

Several business associations support the focus on low-cost emissions reductions:

AIGN supports the focus on low cost abatement. (Australian Industry Greenhouse Network)

The CIF and NLAA therefore support the focus of the ERF on targeting low cost abatement opportunities and that industry planning may assist where other Federal and State Government policies may be inhibiting abatement opportunities. (Cement Industry Federation and National Lime Association of Australia)

APPEA supports a national climate change policy that delivers abatement at least cost. (Australian Petroleum Production & Exploration Association)

Some businesses and individuals have suggested the Emissions Reduction Fund should consider a broader set of development or environmental objectives, such as supporting emerging technologies, promoting innovation across a range of activities and reducing emissions beyond 2020.

The Emissions Reduction Fund can provide seed funding for abatement projects in all sectors. This will enable all sectors to build up knowledge, industry practice guidance and CFI methodologies, so that by 2020 all sectors have experience working on abatement projects and are working together on reducing Australia's national emissions ... This would promote innovation and learning-by-doing for a range of abatement activities. (Australian Landfill Owners Association)

Garnering participation from across the community is an important element of the Direct Action Plan. The Direct Action Plan will support community activities by promoting the aggregation of projects into bundles. Other programmes such as the One Million Solar Roofs and 20 Million Trees will also support community involvement.

While many co-benefits of emissions reductions will naturally arise, the overriding objective of the Emissions Reduction Fund should be to purchase emissions reductions at the lowest available cost. Establishing multiple objectives for the design of the Emissions Reduction Fund could raise costs, as Australia would have to forgo lower-cost emissions reductions projects in order to allocate funds to deliver other benefits.

1.6.2 Genuine emissions reductions

Many changes in business activities and practices reduce emissions. Those changes are often associated with actions to lower business costs such as energy costs. While these activities make a positive contribution to reducing Australia's emissions, they do not require incentives to take place.

In order to achieve Australia's target, the Emissions Reduction Fund must drive Australia's emissions below their projected levels and deliver best value for money to the Australian community by providing incentives for projects that would not otherwise occur.

Different approaches to assessing additionality have been tested in other emissions reduction schemes. Some examples include the international Clean Development Mechanism, international voluntary offsets schemes and the Carbon Farming Initiative.

The Carbon Farming Initiative adopts a tiered approach to additionality by crediting emissions reductions from new activities that go 'beyond common practice', ensuring actions go beyond regulated levels (called 'regulatory additionality') and calculating emissions reductions relative to emissions in the absence of the project.

Some schemes have sought to test whether individual projects would be financially viable without additional financial support — called 'financial additionality'. In general this approach is resource intensive for project proponents and regulators. Due to the high administrative costs involved, this approach is not favoured by the Government, although views are sought on this element of additionality.

The Government proposes that the Emissions Reduction Fund identify 'additional' actions in a way that minimises costs and encourages participation. The general approach would be to

credit emissions reductions from the adoption of significant new management activities and practices, the adoption of cleaner technologies or the expansion of emissions reduction activities such as tree planting or revegetation. Chapter 2 on emissions reduction methods provides more detail on the proposed approach to additionality.

1.6.3 Streamlined administration

Simple, clear and transparent rules will help to keep administrative costs low and ensure businesses, landholders, and other providers of emissions reduction projects can easily participate in the Emissions Reduction Fund. This will maximise the take-up of low-cost emissions reduction opportunities.

The key to streamlining processes under the Emissions Reduction Fund will be the use of existing reporting and institutional structures, such as the Carbon Farming Initiative and the National Greenhouse and Energy Reporting Scheme, wherever possible. This will avoid duplication and provide continuity for business.

To provide confidence for large, capital-intensive emission reduction investments, such as those that may exist in power generation, industry-accepted approaches to measurement and verification of emissions reduction should be utilised where they have previously existed (e.g. Commonwealth Generator Efficiency Standards (GES) Program and NGERs). (AGL)

Virgin Australia supports the use of the existing National Greenhouse and Energy Reporting scheme to provide the required information for the program, removing the need to develop new systems which would add complexity and unnecessary burden to participants. (Virgin Australia)

While building on these schemes, the Government will take the opportunity to streamline their operation. For example, verification arrangements for the Carbon Farming Initiative are unnecessarily onerous. Moving to risk-based verification could significantly reduce costs to business without sacrificing environmental integrity (see Chapter 5).

The Emissions Reduction Fund will be designed to achieve lowest-cost emissions reductions as its primary objective.

Views are sought on opportunities for large-scale, low-cost emissions reductions, including estimates of potential reductions.

1.7 CONSULTATION AND REVIEW

The Government is committed to consulting with communities and businesses on the development of the Emissions Reduction Fund. The purpose of this Green Paper is to invite input on the design of the Emissions Reduction Fund.

These views will inform the development of a White Paper, which will incorporate policy decisions on the Emissions Reduction Fund's design and proposed legislation. The White Paper will be released in early 2014. The Government will work with communities and businesses to ensure the Emissions Reduction Fund is designed and implemented effectively. The Emissions Reduction Fund will commence operation on 1 July 2014, to align with the removal of the carbon tax.

To support the development of the Emissions Reduction Fund, the Government has already undertaken wide-ranging consultation (see Appendix D). Technical working groups have been established to identify priority emissions reduction opportunities and how those opportunities could be unlocked. Workshops have also been held with carbon market participants to consider the design of the Emissions Reduction Fund and examine options for streamlining the Carbon Farming Initiative.

Climate change policy interacts with many other key policy areas. The development of policy in relation to the Emissions Reduction Fund will be coordinated with a range of other policy reviews being conducted by the Government, particularly the review of energy policy and the upcoming review of the Renewable Energy Target.

The continuous improvement of the Emissions Reduction Fund will be achieved through ongoing monitoring and evaluation of its performance and achievements against its stated objective of reducing Australia's emissions to five per cent below 2000 levels by 2020. Participant views and feedback will be an important part of this process.

A review of the Emissions Reduction Fund will commence towards the end of 2015. The findings of the review could be used to inform the Government's consideration of the post-2020 architecture of its Direct Action Plan. Subsequent reviews could be held periodically, to help ensure the Emissions Reduction Fund achieves its objectives in the most efficient and effective way.

The Government will conduct a review of the Emissions Reduction Fund towards the end of 2015 to provide certainty about the policy and design post-2020.

Views are sought on the timing and conduct of a review.

2. CREDITING EMISSIONS REDUCTIONS

The Emissions Reduction Fund will build on the existing arrangements under the Carbon Farming Initiative for crediting emissions reductions. In simple terms, the Clean Energy Regulator will issue Australian Carbon Credit Units for emissions reductions that are measured and verified by approved methods. These could be purchased through the Emissions Reduction Fund.

2.1 EMISSIONS REDUCTION METHODS

Emissions reduction methods will set out the rules for calculating and verifying emissions reductions from different activities. They will also identify which activities will be eligible under the Emissions Reduction Fund, ensuring that activities already occurring as part of normal business practice will not be funded.

Businesses can use these methods to identify potential projects, assess their greenhouse gas benefits and develop bids for funding.

Emissions reduction methods will be developed collaboratively with emissions reduction providers. To maximise the number of methods available at the start of the Emissions Reduction Fund, technical working groups have been established to develop methods for activities that businesses have identified as having the potential to deliver the largest emissions reductions.

The arrangements for assessing methods will be based on those under the Carbon Farming Initiative and will be streamlined significantly to enable methods to be approved more quickly. For more on streamlining the Carbon Farming Initiative see Chapter 5.

The Clean Energy Regulator will issue Australian Carbon Credit Units for emissions reductions that are measured and verified using these methods, as currently occurs under the Carbon Farming Initiative. Reductions will be credited for periods appropriate to the activity. A distinction can be drawn between the crediting period for an activity, and the period during which the Government will purchase Australian Carbon Credit Units under contract (initially intended to cover a five-year forward contract, although other periods may be considered). Credits that are generated but not contracted to the Government can be purchased by other businesses wanting to offset emissions. For example, several businesses and organisations have adopted voluntary emissions reduction targets, or sell carbon neutral products or services.

Box 2.1: The voluntary carbon market

The voluntary carbon market consists of businesses and consumers that are concerned about climate change and want to make their own contribution to reducing greenhouse gas emissions. This includes entities which buy and cancel carbon credits to voluntarily offset their emissions. Organisations that offset all their emissions can claim to be 'carbon neutral'.

The Australian Government's National Carbon Offset Standard and associated Carbon Neutral Programme provide guidance to businesses that wish to be carbon neutral or develop carbon neutral products.

The programme currently has 33 participants that are certified as carbon neutral. Participants include financial institutions such as ANZ and NAB, airlines such as Qantas and Virgin Australia, local councils such as the City of Melbourne and the City of Sydney, and businesses such as Australian Paper and Zoos Victoria. Together, current participants need to purchase approximately 1 million tonnes of emissions reductions annually to meet their carbon neutral commitments.

2.2 GENUINE AND ADDITIONAL EMISSIONS REDUCTIONS

Emissions reduction methods should provide practical and credible ways to calculate emissions reductions that are unlikely to have occurred in the normal course of business.

Emissions reductions that happen because there is a decline in business activity due to normal market conditions are not additional; nor are emissions reductions from plant and equipment that has already been installed, or from actions that are required by law.

The Emissions Reduction Fund will not purchase emissions reductions from activities that receive incentives under another government emissions reduction programme. The Government will understandably not credit activities twice. The Energy Supply Association of Australia supported the view that projects that have benefited from existing programmes should not be eligible for further payments through the Emissions Reduction Fund:

Some activities may also be receiving funds under existing state energy efficiency schemes. Providing funds through the ERF would result in a kind of 'double-dipping' where funds are provided from two sources for the same activity. (Energy Supply Association of Australia)

There are several other government programmes that promote emissions reductions. These include the Australian Government's Renewable Energy Target, other Direct Action measures such as the 20 Million Trees programme, state-based energy efficiency schemes and various grant and rebate schemes that encourage carbon storage in vegetation or the adoption of low-emissions technologies. The Emissions Reduction Fund will be designed to complement rather than duplicate these schemes.

Some government programmes deliver only incidental emissions reductions or provide indirect or limited financial benefits. For example, reforestation could be undertaken with the help of employment programmes while energy efficiency activities may benefit from state government sponsored 'environmental upgrade agreements'. The Government is not proposing to exclude those activities from the Emissions Reduction Fund.

Some projects may involve an expansion of a process or facility previously funded through another scheme. Provided no further incentives are received from the alternative scheme, further improvements beyond those already funded could be eligible for Emissions Reduction Fund funding.

To ensure value for money, Emissions Reduction Fund methods will only allow crediting of new and voluntary actions to reduce emissions that have not been counted or paid for under another programme or involve the displacement of emissions to another location.

2.2.1 State-based energy savings schemes

Energy savings schemes operate in New South Wales, Victoria, South Australia and the Australian Capital Territory. These schemes either place obligations on energy retailers to find and implement energy savings for households and businesses — for example, by installing more energy-efficient lighting or replacing an ageing refrigerator with a new energy efficient model — or to purchase certificates that have been created by accredited agents who have implemented approved energy efficiency projects. The Emissions Reduction Fund will be designed to complement these schemes. It will be important to ensure the Australian Government does not duplicate the state and territory efforts in these areas. The Australian Government will consult with state and territory governments to determine the most efficient and cost-effective ways to complement existing arrangements.

2.3 TYPES OF METHODS

As set out in Section 1.3, there are many potential emissions reduction activities that could come forward under the Emissions Reduction Fund. It will be important that businesses have access to a menu of emissions reduction methods to make it easy to bid projects into the Emissions Reduction Fund.

To accommodate a wide range of emissions reduction opportunities, the Government proposes two types of emissions reduction methods:

- **Activity methods** for specific emissions reduction actions. These methods would expand the set of land sector methodologies developed for the Carbon Farming Initiative to other areas of the economy.
- **Facility methods** for aggregate emissions reductions from multiple activities at a facility. These methods could be used by businesses that already report data under the National Greenhouse and Energy Reporting Scheme and streamline the way in which large businesses interact with the Emissions Reduction Fund.

Large facility operators could use either a facility method or relevant activity methods, provided that emissions reductions are not counted twice. Some large facility operators may prefer to use activity-specific rather than whole-of-facility methods. This is because they allow the emissions reductions from an activity, such as landfill or coal mine gas capture, to be estimated directly.

Box 2.2: New South Wales Greenhouse Gas Reduction Scheme

The proposed approach to Emissions Reduction Fund methods is similar to the approach taken in the New South Wales Greenhouse Gas Reduction Scheme where abatement certificates or credits were generated by facilities for reducing their emissions and by other business for undertaking abatement activities.

Eligible actions under the Greenhouse Gas Reduction Scheme included low-emissions generation of electricity, energy efficiency activities, sequestration activities and activities that reduced emissions from industrial processes.

The benefits of using facility and activity methods have been highlighted by some businesses and industry associations. For example, the Property Council of Australia stated that:

Due to divestments and acquisitions, the company is not really the correct level at which to calculate baselines, with the 'facility' being a better measure. In this way, baselines are more robust to changes of ownership. NGERs includes reporting at the facility level, but definitional issues can arise with some companies grouping separable operations as a single facility and some not. (Property Council of Australia, prepared by ACIL Allen Consulting)

Other businesses such as Wesfarmers identified the merits of an activity-based approach, stating that:

Baselines calculated for projects eligible for the abatement fund should be on a project basis, to ensure that additionality can be determined. (Wesfarmers)

2.4 ACTIVITY METHODS

Some of the most prospective low-cost emissions reduction opportunities exist outside major industrial settings, such as energy efficiency improvements in commercial buildings, more fuel efficient transport use and the diversion of waste from landfills.

The Government will provide methods for a range of emissions reduction activities. Methods have already been developed for many common activities under schemes such as the Carbon Farming Initiative, the New South Wales-based Greenhouse Gas Reduction Scheme, state-based energy savings schemes, the Clean Development Mechanism under the Kyoto Protocol, and the Alberta-based Offsets Credit System.

Box 2.3: International approaches

The Clean Development Mechanism, established under the Kyoto Protocol, enables crediting of emissions reduction projects in developing countries. The mechanism has made emissions reductions available for purchase since 2005. Over 200 methodologies are approved under the mechanism for more than 2,000 projects, which to date have generated approximately 1.4 billion tonnes of emissions reductions. Most of those projects are in the industrial and energy sectors. Joint Implementation, a mechanism also established under the Kyoto Protocol, enables crediting of emissions reduction projects in developed countries and is the basis for carbon offset schemes in Denmark, France, Germany and Switzerland.

The Alberta-based Offsets Credit System was established in 2007. Thirty-seven methodologies have been approved under this scheme for activities such as energy efficiency improvements, landfill and biogas capture, alternative waste treatment, recycling and several agricultural activities.

California and Quebec have also recently introduced schemes for crediting emissions reductions. These schemes cover emissions reduction activities in the electricity, agriculture, waste and forestry sectors.

It is proposed that existing international methods could be used and adapted to Australia to efficiently expand the range of available emissions reduction methods. Activity methods developed under other schemes have some features in common. They define the activity and identify the emissions that change when the activity is implemented, explain how to measure net emissions reductions, and provide guidance on project monitoring and reporting. Activity methods under the Emissions Reduction Fund will have these same features.

Each crediting scheme has slightly different requirements, which are reflected in estimation methods. For example, some schemes require project-level assessment of additionality or discount emissions reductions to reflect project-level risks or uncertainties in emissions estimation. Further, overseas methods typically use emissions factors that are different from those developed for Australian conditions under the National Greenhouse and Energy Reporting Scheme.

For these reasons, methods from other schemes may need to be amended so that they are consistent with the National Greenhouse and Energy Reporting Scheme and the Emissions Reduction Fund approach to additionality and crediting. Using National Greenhouse and Energy Reporting Scheme methods for measurement of emissions reductions will reduce transaction costs for business, and ensure emissions reductions can be easily included in Australia's national inventory and counted towards Australia's emissions reduction targets. National Greenhouse and Energy Reporting Scheme methods will also ensure all Emissions Reduction Fund participants have commensurate opportunities, requirements and transaction costs.

Rather than amending a given method, it may be appropriate to combine the most useful aspects of methods from different schemes for use under the Emissions Reduction Fund. Transaction and administrative costs are also likely to be lower if there are fewer, more broadly applicable methods rather than multiple methods for the same activity.

The Emissions Reduction Fund aims to drive participation across various sectors of the economy. Large emissions reductions could be achieved by individual farms, businesses and households undertaking many small-scale activities. Simple aggregation methods will be

developed so that there will be an opportunity for organisations to act as aggregators and bid into the market as a group. This will enable small businesses, households and farm groups can simply access the Emissions Reduction Fund in a practical and cost effective way.

As an example, an electricity retailer may work to aggregate emissions reduction achieved through energy efficiency by its customers, be they households or small businesses. Farmers may work together to deliver carbon capture and storage in soil, or landowners to achieve abatement through revegetation or reforestation of marginal lands.

Technical working groups could consider how to design methods to address this issue.

Appendix B provides examples of how activity methods could work for transport, waste, coal mines and energy efficiency.

2.5 FACILITY METHODS

Businesses currently report emissions and energy use from around 7,250 facilities under the National Greenhouse and Energy Reporting Scheme. These facilities accounted for around 60 per cent (344 MtCO₂-e) of Australia's total emissions in 2011-12.

Businesses that report under the National Greenhouse and Energy Reporting Scheme vary widely in terms of the energy sources used and the emissions that result from their production processes. Most businesses generate substantial emissions from fuel use, primarily the direct combustion of coal and natural gas. Some industrial processes — such as metal manufacturing and cement, lime and chemical production — also generate direct emissions from chemical processes. Significant fugitive emissions, generally methane, are released through coal mining, oil and gas extraction, and gas distribution.

The Government is proposing to establish simple, facility-based methods using historical National Greenhouse and Energy Reporting data. These methods would allow facility owners to be credited for emissions reductions relative to past practices, off the back of emissions and energy use data that they report under the National Greenhouse and Energy Reporting Scheme. These methods would cover all emissions reduction and energy savings opportunities within a facility's control, but would not apply to new entrants or to facility owners who are planning large expansions in capacity.

Facility methods would be a key way in which the Emissions Reduction Fund could quickly facilitate large-scale emissions reduction projects across a broad range of sectors. Potential emissions reduction activities covered by these methods include: switching to less emissions-intensive fuel sources, optimising boiler efficiency and recovering waste heat within the facility. National Greenhouse and Energy Reporting Scheme reporters would have flexibility to adopt the facility based methods described here or activity based methods (see Section 2.4) to find the simplest way to bid reductions into the Emissions Reduction Fund.

The Government will continue to consult with large industrial emitters on the simplest ways to calculate their emissions reductions. The key issues that need to be considered are set out below.

2.5.1 Identifying a starting point

The emissions reductions from new technologies or practices would be calculated relative to past practices. Emissions from past practices can be determined using existing historical data for a single year or several years.

Emissions from past practices could be derived from a **mean average** of the emissions from a facility over a four or five year period; the **median average** emissions from a facility over a four or five year period; or other approaches.

A facility's emissions generally vary from year-to-year and in any given year they may be higher or lower than the average over a historical period. The starting point should be chosen so that it accommodates normal variation and only credits improvements in technology or practices. Where businesses have suffered from impairment or abnormal effects, this can and should be normalised in the approach adopted.

2.5.2 Additionality over time

Businesses that operate large facilities are continually looking for ways to reduce costs and improve their productivity. Some improvements in production processes, system upgrades, and replacement of end-of-life equipment that are undertaken for commercial reasons also reduce emissions.

Some approaches to additionality seek to identify and prevent credits from being issued for commercially attractive activities. These approaches tend to be administratively burdensome.

Facility methods will adopt a streamlined approach to additionality over time, for example periodically re-setting the period for calculation of historical emissions levels at the end of a crediting period.

A set period will be established for crediting particular emissions reductions activities. In the case of certain industrial changes, this could be a maximum of seven years. In the land sector, this could be longer, depending on the activity. However, the crediting period is separate to any contracted purchasing period, which is envisaged to be a maximum of five years.

Emissions reduction methods will be developed to calculate genuine and additional emissions reductions from new actions that are not mandatory and have not been paid for under another programme.

Views are sought on how best to:

- ensure that emissions reductions are genuine*
- develop methods for calculating emissions reductions from priority activities*
- facilitate the aggregation of emissions reductions across projects and activities.*

2.6 COMPLEMENTARY MEASURES

Some businesses and community organisations have identified opportunities for regulatory reforms that would complement the Emissions Reduction Fund. Complementary measures are those that help achieve Australia's emissions reduction target. Regulatory reforms could provide accepted and cost-effective ways to achieve this, and may warrant further investigation.

For example, Refrigerants Australia has proposed that the Government phase down the use of hydrofluorocarbons (HFCs) under the *Montreal Protocol on Substances that Deplete the Ozone Layer*. This would be similar to the highly successful approach adopted internationally to phase out substances which damage the ozone layer, such as chlorofluorocarbons, and is in line with proposals by the United States, Canada and Mexico to gradually reduce the importation and manufacture of HFCs from 2015 under the Montreal Protocol.

The phase down could be achieved under the *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989*. Gradual restrictions on the amount of HFCs that can be imported into Australia would provide a simple and certain way to achieve emissions reductions at low cost to both industry and Government.

As noted by Refrigerants Australia:

The industry has long experience in managing refrigerants under the Montreal Protocol... By limiting the amount of refrigerant in CO₂ equivalent tonnes entering the country, emission reductions from this approach are guaranteed. (Refrigerants Australia)

Views are sought on regulatory reform opportunities that would complement the Emissions Reduction Fund.

3. PURCHASING EMISSIONS REDUCTIONS

The Emissions Reduction Fund will be built around a simple, streamlined process to purchase emissions reductions at the lowest cost across the economy. Put simply, businesses will submit emissions reduction projects into a competitive bidding process run by the Clean Energy Regulator. The bids with the lowest cost per tonne will be selected, and the Clean Energy Regulator will enter into contracts to purchase those emissions reductions. The competitive nature of this process will ensure that the best value for money is achieved.

3.1 IDENTIFYING LOWEST-COST PROJECTS

3.1.1 Tenders and auctions

Lowest-cost emissions reductions can be identified in different ways. A common approach to identifying lowest-cost is a straightforward tender process. Under this approach, businesses would tender the quantity and price of emissions reductions they are willing to offer. The Clean Energy Regulator would rank those offers and select the best-value bids.

This approach is akin to a reverse auction, a mechanism that has been used in Australia and overseas to identify the lowest cost for emissions reductions and other types of environmental goods and services.

Box 3.1: The United Kingdom Non Fossil Fuel Obligation Scheme

The Non Fossil Fuel Obligation Scheme in the United Kingdom (1990-98) was a reverse auction for the United Kingdom Government's purchase of renewable energy from new renewable energy installations. The scheme began with a tender, where project specifications included a 'cost justification', along with a bid price. This allowed the United Kingdom Government to gather information on likely costs, helping to set parameters, such as price ceilings, in future auctions.

In designing the Emissions Reduction Fund, the Australian Government has taken into account any lessons from the Non Fossil Fuel Obligation Scheme. In particular, the Clean Energy Regulator could assess the commercial readiness of projects and the credibility of their emissions reduction estimates prior to auction. Funding agreements could also include conditions precedent and contain 'make-good' provisions to support delivery of emissions reductions.

In the initial stages of the Emissions Reduction Fund's operation, when emissions reduction methods are being developed and many projects are being planned, the Clean Energy Regulator could run relatively frequent auction rounds in which proposals are compared on the basis of their cost per tonne of emissions reductions. Frequent rounds could reduce the time before bidders know whether they are successful, and could bring forward the delivery of emissions reductions.

To ensure low-cost purchases, the Clean Energy Regulator could apply a benchmark price — the maximum amount it will pay per tonne of emissions reduced — with only bids costing less than the benchmark price being considered. The benchmark would be confidential to Government, to encourage businesses to submit their most competitive offer.

Only credible bids that meet prequalification requirements would be considered, to ensure the integrity of the auction. Prequalification requirements would include checks on the identity and fit and proper person status of the participant, project eligibility under a relevant emissions

reduction method, the commercial readiness of the technology or practice to be employed in the project, and the credibility of emissions reduction estimates.

Conducting appropriate due diligence on prospective auction participants in the pre-approval stage will help to screen out unsuitable bidders and will be an important tool in managing delivery risk. (Carbon Market Institute)

We would also recommend a 'Fit and Proper' test for registration for participation in auctions, to ensure the credentials of registered participants. (Westpac)

It is suggested that abatement projects be screened prior to entry into an auction. This initial screening would need to ensure that any project going to auction is using a recognised and verifiable emissions abatement methodology; is commercially viable; and will deliver genuine and permanent emissions abatement. (Plastics and Chemicals Industries Association)

Auction rounds would be conducted in accordance with published rules. The rules would cover matters such as the cap on funds to be allocated, and how the final price paid to successful bidders would be determined. A discussion of these issues and other matters is included at Appendix C.

The Clean Energy Regulator would have the flexibility to adjust rules in response to lessons learned about the operation and efficiency of the auction. Advance notice would be given about any adjustments to the auction rules that may be required to achieve lowest-cost emissions reductions and to ensure that the process is as streamlined as possible for participants.

A minimum bid size could be used to streamline the Emissions Reduction Fund, to avoid the administrative cost of assessing a large number of small projects, and to encourage the aggregation of smaller activities that can help streamline the application process for smaller entities.

A maximum bid size is sometimes applied in auction processes to limit the ability of large participants to influence auction outcomes unfairly. The Government does not propose a maximum bid size for the Emissions Reduction Fund, as this could exclude large, viable and low-cost projects. Very large projects, involving a significant commitment of funds available under the Emissions Reduction Fund, could be assessed through a separate tender process. Other features of the Emissions Reduction Fund will include the benchmark price, and holding auctions only once a minimum number of bidders have registered.

Initially the Clean Energy Regulator could run relatively frequent tender rounds to bring forward the delivery of emissions reductions.

The Clean Energy Regulator would apply a benchmark price — the maximum amount it would pay per tonne of emissions reduced — with only bids costing less than the benchmark price being considered.

Stakeholder views are sought on how best to:

- *facilitate early participation in the Emissions Reduction Fund*
- *operate an efficient auction process to secure lowest-cost emissions reductions.*

3.2 CONTRACTING FOR SUCCESSFUL PROJECTS

Following the completion of the auction, the Clean Energy Regulator will enter into contracts with successful bidders to purchase emissions reductions. The core of these contracts will be the Government's obligation to pay for emissions reductions and a proponent's obligation to deliver them.

A participant who generates emissions reductions that are surplus to the contracted quantity could be able to bid these emissions reductions into a future auction round or into the voluntary market.

3.2.1 Forward contracts

The Clean Energy Regulator will be able to contract for emissions reductions from projects at different stages of implementation. For example, some projects will have already begun generating credits under the Carbon Farming Initiative. For these projects, the Clean Energy Regulator will purchase emissions reductions immediately after their success at auction.

Other projects will not have commenced at the time of auction. In these circumstances, forward contracts will provide proponents with certainty about the payment schedule and conditions, and could be used as security when proponents apply for finance.

In these cases, the contract will include a simple requirement to secure project finance and any necessary regulatory approvals, such as planning and environmental approvals within a specified time frame. Failure to meet the timeline would be grounds for termination. Together with the prequalification requirements, such preconditions set out in the contract will give the Clean Energy Regulator and the Government confidence that proposed projects will proceed and have the capacity to deliver the promised emissions reductions.

3.2.2 Duration of contract

The duration of the contract is the period over which the Government will guarantee to purchase emissions reductions at the price awarded through the auction process.

Contracts would have a maximum duration of five years from their date of effect. Proponents with project payback periods of more than five years would still be able to bid into the auction process to cover their costs through payment for emissions reductions delivered within the contract period.

While the Clean Energy Regulator may issue credits over a shorter or longer timeframe, up to five years purchasing through the Emissions Reduction Fund would act as an initial bankable off-take agreement.

3.2.3 Standard contracts

Project proponents will need to agree to be bound by contractual terms before being permitted to bid in the auction process. The use of standard contract terms and conditions will allow the lowest cost emissions reductions to be identified in the most efficient and transparent way, as participants will have access to the same terms. Standard contract terms may differ for project aggregators or other market intermediaries given the different business models that those arrangements may involve.

Individually tailored or negotiated contracts would reduce the efficiency and transparency of the auction process, as successful proponents could negotiate favourable terms that were not available to other proponents. This approach would also increase administrative burdens, transaction costs and time lags in the contract process.

Contracts will contain the price, quantity and delivery time for emissions reductions, as specified in the successful bids. Responsibility for managing the project and delivering the required emissions reductions will rest with the project proponent, who is best placed to manage project risks.

The final design of the standard contract will be developed through consultation with businesses and the legal profession.

Box 3.2: The Norwegian experience

The Norwegian Carbon Procurement Facility (NorCaP) was established in October 2013 by the Nordic Environment Finance Corporation (NEFCO) and the Norwegian Government. The purpose of the Facility is to purchase carbon credits in the second commitment period of the Kyoto Protocol (2013-20).

As with the Emissions Reduction Fund, NorCaP allows proponents to contract prior to delivering emissions reductions, pays for emissions reductions only after delivery, and gives proponents primary control over project development, management and delivery.

3.3 ENSURING DELIVERY OF EMISSIONS REDUCTIONS

On-time delivery of contracted emissions reductions will ensure the effectiveness of the Emissions Reduction Fund and its contribution to the Government's emissions reduction target. Projects will be subject to a range of uncertainties that could affect the timing and amount of emissions reductions delivered. For example, projects could experience unexpected technical difficulties or be affected by natural events beyond the proponent's control.

3.3.1 Emissions reduction estimates

The Government will rely on estimates of contracted emissions reductions to manage the allocation of funding under the Emissions Reduction Fund and determine progress towards the 2020 target. If emissions reduction estimates are optimistic, funds may be allocated to projects that would be better allocated to other projects. For these reasons, contracts will include provisions to encourage the delivery of contracted emissions reductions and enable the Government to monitor delivery of emissions reductions.

3.3.2 Varying or terminating the contract

If project implementation is delayed, the Clean Energy Regulator and the proponent would have flexibility to agree to vary the quantity and schedule for delivery of emissions reductions. The standard terms and conditions of the contract would not be varied.

Contracts could also be varied to substitute the contracted project for another approved Emissions Reduction Fund project. Decisions to vary the contract would rest with the Clean Energy Regulator and depend on factors such as the extent and cause of the delay, and the remaining duration of the contract.

3.3.3 Under-delivery provisions

'Make-good' provisions could also be included to support the delivery of emissions reductions. Make-good provisions are a common contractual tool that require parties to fulfil their obligations through alternative means where they are unable to satisfy the original terms of the contract.

Make-good provisions could be triggered if a proponent was unable to deliver emissions reductions through their own Emissions Reduction Fund project. Proponents could 'make good' by sourcing replacement Australian Carbon Credit Units from another project.

Several businesses support the use of make-good provisions involving either domestic or international units:

Given that the Government's primary objective is to achieve abatement, Westpac would recommend incorporating contractual penalties for under-delivery in the form of 'make good' provisions utilising domestic or international units. (Westpac)

Alternatively, the proponent could cover the costs above the agreed contract price that are incurred by the Clean Energy Regulator in purchasing replacement emissions reductions from a subsequent auction. This approach will allow emissions reduction targets to be met, despite under-delivery by some projects.

Standard contracts will be used to guarantee payments for verified emissions reductions. These would have a maximum duration of five years and include options for addressing under-delivery of emissions reductions.

Views are sought on how best to provide:

- *funding certainty for businesses*
- *confidence that projected emissions reductions will be delivered.*

3.4 PUBLICATION OF INFORMATION

Publishing information about auction results and contracts entered into by the Clean Energy Regulator would assist potential participants to consider future project proposals, and would provide information to the public on the progress of the Emissions Reduction Fund.

Published information could include details of each forward contract entered into by the Clean Energy Regulator, including the name of the emissions reduction provider, the name of the project, the relevant auction date, the total amount of emissions reductions to be delivered, the amount of emissions reductions delivered to date, and the duration of the contract. Aggregated information could also be published for each auction round, including information on the total

amount of emissions reductions offered in the successful bids and the total amount of funding allocated to successful bids.

Details that are commercially sensitive, including the Government's benchmark price for auctions and the price of emissions reductions in individual contracts, would be kept confidential in order to encourage participation and to preserve competition in auction processes.

Details about projects currently published under the *Carbon Credits (Carbon Farming Initiative) Act 2011* will continue to be published under the Emissions Reduction Fund. Details will include information on all eligible offsets projects, including the proponent, project description, applicable methodology, location, and units issued for each project.

Information will be published under the Emissions Reduction Fund to supplement information currently published under the Carbon Farming Initiative, including additional contract and auction information.

4. SAFEGUARDING EMISSIONS REDUCTIONS

The Emissions Reduction Fund provides positive financial incentives to unlock business investment in projects that reduce emissions. These emissions reductions will help achieve Australia's five per cent emissions reduction target.

Many businesses will take up these opportunities, leveraging funding to both reduce emissions and increase productivity. As lower emissions technologies and practices are taken up over time, lower emissions ways of doing business will become business-as-usual.

The Emissions Reduction Fund is designed to allow businesses to continue ordinary operations without penalty. It is also founded on a presumption of economic growth as a positive and inevitable good for Australia. Against that background, an essential part of the Emissions Reduction Fund is a framework that sets out clear guidelines that allow businesses to operate as normal.

Businesses will be encouraged to decrease emissions below their historical business-as-usual levels through the Emissions Reduction Fund. In addition, a mechanism will be developed in conjunction with business stakeholders to provide incentives not to exceed historical emissions baselines. This element will safeguard the value of funds expended under the Emissions Reduction Fund and provide businesses with a stable and predictable policy landscape within which to make new investments.

The Government values new investments which support Australia's economic prosperity and create jobs for the future. It is important that new investments are made at best practice in terms of efficiency and emissions intensity. The Emissions Reduction Fund will also establish a framework to ensure new investments are encouraged at best practice. This will provide business with a predictable policy landscape to make new investments over time.

Businesses have highlighted the need for an enduring framework that provides investment certainty.

There is a pivotal role for the Clean Energy Regulator and other institutions to develop and establish mechanisms for emissions reduction post 2020, providing signals that can guide the long-term decision making that determines the investments that all industries and businesses make. (Australian Pipeline Industry Association)

The ERF should form a stable and durable foundation for Australia's national climate change policy approach. APPEA does not wish to see a return to the costly hotch-potch of State and Territory as well as national climate change approaches that has historically characterised many aspects Australia's greenhouse policy response. (Australian Petroleum Production & Exploration Association)

The Government could stage the implementation of these design elements of the Emissions Reduction Fund over time. In particular, the safeguard mechanism could commence from 1 July 2015. This will provide lead time to consult comprehensively with businesses on these elements and allow time for access to the Emissions Reduction Fund's crediting and purchasing elements to help reduce emissions.

An effectively designed framework to discourage emissions growth above historical levels will require consideration of a number of elements. This chapter discusses some of the issues that will need to be considered in the establishment of these elements of the Emissions Reduction Fund. These can broadly be categorised as:

- which entities would be covered and what emissions would be included (coverage)
- how baseline emission levels would be determined (baselines)
- what action would be required from businesses if baselines were exceeded
- the appropriate treatment of new investments.

The Government invites feedback on each design element.

4.1 COVERAGE

The first issue to consider is which entities would be subject to baseline levels and which types and sources of greenhouse gas emissions would be included in these baselines.

The simplest approach would be to ensure that coverage is limited to a subset of National Greenhouse and Energy Reporting Scheme entities which already report emissions annually. Only corporations which meet a threshold are subject to reporting requirements under the National Greenhouse and Energy Reporting Scheme. Restricting coverage of any baseline to these entities will ensure small businesses, that do not give rise to significant emissions, do not need to engage with these elements of the Emissions Reduction Fund.

Drawing on National Greenhouse and Energy Reporting Scheme reporting also means that the greenhouse gases reported under the National Greenhouse and Energy Reporting Scheme can easily be incorporated in baselines. Those gases include carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons and perfluorocarbons.

4.1.1 Scope of emissions covered

Two sources of emissions are reported under the National Greenhouse and Energy Reporting Scheme: scope 1 emissions (direct emissions) and scope 2 emissions (indirect emissions such as electricity use). It will need to be determined whether only scope 1 or both scope 1 and scope 2 emissions would be included when setting a baseline. If only scope 1 emissions were covered, an entity could switch between energy sources and undermine the baseline.

To avoid creating perverse incentives, it may be appropriate to include both scope 1 and scope 2 emissions when considering baselines. This would be done in such a way as to avoid the double counting of scope 2 emissions with those of the electricity sector. Section 4.6 below discusses the treatment of the electricity generation sector.

4.1.2 Coverage thresholds

Coverage thresholds should be set at a level that maximises emissions coverage but minimises the number of entities that may need to interact with these elements of the Emissions Reduction Fund.

Baselines could be set at the facility level. This could relate to either scope 1 or both scope 1 and 2 emissions. For example, coverage could be restricted to facilities with combined scope 1 and 2 emissions of 25,000 tonnes of carbon dioxide equivalents (CO₂-e) a year (the current facility threshold under the National Greenhouse and Energy Reporting Scheme) or up to 100,000 tonnes CO₂-e a year or more. The 100,000 tonnes CO₂-e approach would significantly streamline coverage by covering around 50 per cent of Australia's emissions, but limiting the number of covered entities to around 190.

4.2 SETTING BASELINES

Baseline parameters need to be designed to help achieve the goals of the Emissions Reduction Fund with minimal complexity. A facility's emissions are likely to fluctuate over time due to a variety of influences such as changes in production levels, the mix of outputs produced, plant maintenance, and the quality of inputs used. Baselines could be set in a way that takes account of these normal variations.

Some businesses support setting historical business-as-usual baselines based on emissions intensity.

APIA considers that a critical issue of any 'business as usual' approach is to ensure that businesses and the Australian economy can continue to grow without being unduly penalised. It is likely that emissions intensity baselines will be more appropriate than baselines focussed on gross emissions. (Australian Pipeline Industry Association)

Others favour setting historical business-as-usual baselines based on absolute emissions levels on the basis that emissions intensity baselines would be complex to establish and would require ongoing reporting of information.

CSR favours absolute baselines. The company has a large variation in carbon intensity between its production processes and an analysis over a four year period shows swings greater than 15% on this basis... Variations at a facility level can be much greater than this. (CSR Limited)

The use of emissions intensity for determining baselines is in theory attractive as it may provide an automatic hedge against changes in the level of production from a facility. In practice however, this approach can only be simply applied where a facility produces only one uniform output and even then would require the additional reporting of production volumes, increasing the complexity and burden of the NGER. For facilities which produce multiple products, the use of an intensity baseline requires the emissions from each facility to be apportioned to each of the different products produced. This requires the development and verification of complex apportionment methodologies and the reporting of significantly more data, both of which run counter to the objective of limiting regulatory/compliance burden. Consequently the use of absolute emissions from a facility is preferred as the basis for the determination of baselines for the purposes of the mechanism. (Chevron)

Baselines could be based on the absolute level of emissions from a facility during a historical period. Such baselines would be simple to determine using the existing National Greenhouse and Energy Reporting Scheme reporting framework without requiring any new reporting.

Where baselines have been impaired due to external events, baselines could be set to accommodate those factors. For example, in some cases overall emissions may increase due to a return to full production capacity after a sustained downturn. The Global Financial Crisis and the more recent high Australian dollar mean that many facilities may be in this situation. Baselines set on the absolute level of emissions from a facility would also need to accommodate situations where the variability in emissions results from normal commercial production decisions.

The above issues could be addressed by setting initial baselines using data that represents a high point in historical emissions for a facility. This would ensure baselines accommodate situations where a facility increases production in the future back towards fully installed

capacity or where normal variation occurs as a result of the issues described above. While this approach may provide sufficient flexibility in baselines to accommodate historical variations, significant expansions in the production capacity at a facility are likely to require specific treatment.

4.3 COMPLIANCE

The Government has a clear objective not to raise revenue from these elements of the Emissions Reduction Fund and it is not anticipating any revenue.

Consistent with this intention, in the event that an entity did exceed its baseline, there would be flexible compliance arrangements available.

One approach that could be considered would be to set an initial transition period during which compliance action for exceeding baselines would not apply. This would enable businesses to make investments in emissions reduction projects, potentially with support from the Emissions Reduction Fund. This period would need to be limited to avoid the risk of locking in increases in emissions that might offset reductions financed through the Emissions Reduction Fund.

Another approach could be to allow a multi-year compliance period, where a facility could exceed a baseline in one year so long as its average emissions over the full compliance period remained below the baseline. Further flexibility could be provided by enabling businesses to 'make-good' by purchasing emissions reduction credits to bring their net emissions back within baselines. These credits could be used as an offset for emissions growth occurring at a facility.

Penalties should not apply where businesses are clearly operating as usual. If penalties are to apply, then the ESAA considers that a range of 'make good' provisions could be used. (Energy Supply Association of Australia)

In response to the terms of reference some entities suggested that international units could be used to offset emissions above the baseline. For example, whilst suggesting that new facilities should be allowed five years of steady-state operation in order to determine emissions baselines, QGC stated:

It is QGC's view that organisations operating within the ERF should be able to utilise international carbon permits to satisfy penalty obligations incurred from the Australian Government. Making provision for the use of international permits in the ERF would not only contribute to global emissions reduction, it would also assist in ensuring Australia reaches its 5% emissions reduction target by 2020. (QGC)

Submissions are invited from industry and other stakeholders on other options to make good in rare cases where an entity consistently exceeded baselines.

4.4 NEW INVESTMENTS

The Government welcomes and supports growth in new economic activity and facilities. New investments are nevertheless projected to be a significant source of emissions growth in Australia in the short to medium term.⁷

New investments will typically be made in the most efficient, commercially viable technology available, and so are likely to perform better than existing industry practice in comparable

⁷ Former Department of Climate Change and Energy Efficiency, *Australia's Emissions Projections*, 2012.

circumstances. The Emissions Reduction Fund would put in place a framework that supports new facilities or significant expansions at best practice.

In this context, the definition of ‘best practice’ is a key issue (see Section 4.5). For new investments, other key considerations will include:

- what constitutes a new investment, and
- at what point a new investment, facility or significant expansion ceases to be classified as new.

Setting historical baselines is not possible for new entrants due to a lack of historical data. Given this, one approach could be to set baselines at industry average or best practice emissions intensity.

New entrants could also be separated into two categories: those that have made final investment decisions and those that have not. New facilities or significant expansions prior to a final investment decision have the opportunity to invest in best practice technologies, while entities that have already made final investment decisions may be more limited in scope to change their plant set up in the short term.

The definition of ‘significant expansion’ could include facilities that undergo an expansion in which the maximum productive capacity of the equipment used to produce the relevant product is significantly greater than the maximum productive capacity of the equipment that existed before the installation. Under business-as-usual conditions, it is expected that businesses will undertake expansions using the best technologies and practices available. The Emissions Reduction Fund may need to treat baselines for significant expansions at facilities in the same way it treats new entrants.

The experience in Australia and other jurisdictions is that new entrant facilities or significant expansions typically have a ‘ramp-up’ phase characterised by lower production and higher emissions intensities compared to when fully operational. For this reason it will be difficult to apply benchmarking baselines to facilities while production is ramping up after commencing operations. It will be important to consider how the ramp-up phase should be treated for new investments and expansions and how to set an objective, consistent and repeatable test to determine when the ramp-up phase is over and baselines should be applied.

Finally, once a new facility or expansion has been operating for a period, it will be important to consider whether the baseline for the new investment should continue to be the benchmark applied or whether the baseline should be the lower of the best practice benchmark and the facility’s own baseline data following the completion of the ramp-up phase.

4.5 BEST PRACTICE

Experience from Australia and other jurisdictions is that best practice is typically defined with reference to existing practices and the performance of domestic or international peers in a given industry. This requires definitions of what is considered to be the scope of comparable entities or facilities, as well as what constitutes best practice.

Issues that may be relevant to identifying comparable facilities or entities with which to benchmark new investments include production processes, technologies, input types and facility location. In considering how to define best practice it will also be important to establish an objective, repeatable test to apply fairly across industries.

While best practice could be defined with reference to the use of specific technologies at a facility, this would not translate naturally to setting facility-level baselines. To be used in setting facility-level baselines, best practice would need to be defined with reference to the overall performance of other facilities within an industry. Defining best practice in relation to technologies could also be inflexible and lead to the 'mandating' of particular technologies. A more flexible approach would allow businesses to determine their own approaches to ensuring emissions are at best practice levels. Best practice benchmarks could be based on a single best performer (for example, an existing facility with the lowest emissions-intensity of production in an industry) domestically or internationally, or on the average performance of, for example, the most efficient 10 per cent of industry peers.

Industries that are new to Australia pose unique challenges as domestic performance data would not be available for setting benchmarks for industries. In these circumstances, benchmarks could be based on a reasonable interpretation of international best practice.

4.6 ELECTRICITY GENERATION

The electricity generation sector produces over 35 per cent of Australia's emissions and is the single largest source of emissions by sector (see Figure 1.1). Recent modelling suggests that growth in electricity sector emissions will be relatively modest to 2020. The electricity sector also represents a key source of potential emissions reduction, much of which lies in supplying electricity from less emissions-intensive sources as well as improvements in efficiency.

Australia's Renewable Energy Target supports the deployment of renewable technology, driving emissions reductions in the electricity generation sector. The Renewable Energy Target comprises a Small-scale Renewable Energy Scheme and a Large-scale Renewable Energy Target. Liable entities under the Renewable Energy Target have obligations under both schemes to acquire and surrender renewable energy certificates created from both large-scale and small-scale renewable energy technologies. The Renewable Energy Target already provides a significant incentive for emissions reductions in the electricity sector by supporting the deployment of renewable energy technologies.

The Government will review the Renewable Energy Target in 2014 to ensure it is operating efficiently and effectively. The review will be an open and transparent process and will consider the impact of the Renewable Energy Target on electricity prices and the needs and future of the Australian manufacturing sector.

Given the significance of the electricity sector to Australia's emissions profile and the upcoming review of the Renewable Energy Target in 2014, the Government will work closely with the sector on how the policy can best apply to its needs.

A safeguard mechanism will be introduced to provide incentives to reduce emissions above historical business-as-usual levels

Views are sought on:

- *the coverage of the mechanism*
- *how baselines could most easily be set to effectively limit increases in historical business-as-usual emissions*
- *the treatment of new entrants and significant expansions, including definitions of best practice*
- *compliance options in the event that baselines are exceeded.*

5. CARBON FARMING INITIATIVE

The land sector makes a significant contribution to Australia's emissions and has significant potential to generate emissions reductions to 2020.

Many land sector emissions reductions activities also deliver valuable co-benefits. For example, reforestation projects can reduce erosion and improve water quality, address salinity and provide habitat for native species. Reducing livestock emissions can increase meat production. Increasing soil carbon can improve soil health, water retention and plant growth. Many land sector projects also provide important community benefits. For example, savanna fire projects provide employment for Indigenous communities as well as reducing fire risks to people and property.

The Carbon Farming Initiative was established in 2011 and enables farmers and landholders to earn credits for reducing greenhouse gas emissions. The scheme is established through the *Carbon Credits (Carbon Farming Initiative) Act 2011* and is administered by the Clean Energy Regulator.

Under the Carbon Farming Initiative, methodologies support emissions reductions from different land sector activities. New methodologies are assessed by an independent expert committee, the Domestic Offsets Integrity Committee, and approved for use under the Carbon Farming Initiative by the Minister for the Environment.

Farmers and landholders then use these methodologies to develop emissions reduction projects. Once a project is approved by the Clean Energy Regulator and implemented, the project owner submits a verified project report to the Clean Energy Regulator and receives Carbon Farming Initiative credits. Those credits can be sold to companies or individuals wanting to offset their emissions.

Over the Carbon Farming Initiative's first two years of operation, more than 20 methodologies have been approved for land sector emissions reductions activities. These methodologies cover:

- increasing environmental plantings and farm forestry
- reducing emissions from savanna burning
- reducing methane emissions from piggeries and dairies
- reducing landfill gas emissions.

The Clean Energy Regulator has registered nearly 100 Carbon Farming Initiative projects and issued over three million credits.

The Emissions Reduction Fund will be built on the Carbon Farming Initiative by expanding its coverage beyond the land sector to enable the Clean Energy Regulator to credit emissions reductions from across the economy (see Chapter 2). There is also potential to streamline the Carbon Farming Initiative arrangements for assessing methodologies and approving projects. Building on the Carbon Farming Initiative will be a simple way to implement the Emissions Reduction Fund and will provide continuity for business.

This chapter addresses two key issues: transitional arrangements for current Carbon Farming Initiative participants; and options for streamlining the Carbon Farming Initiative to make it

easier to provide incentives for projects in the land sector and to unlock emissions reduction opportunities in other sectors.

5.1 TRANSITIONAL ARRANGEMENTS

The Carbon Farming Initiative will continue to operate while it is expanded and streamlined in the context of the Emissions Reduction Fund. While the Emissions Reduction Fund policy process is underway, the Government will work with participants to improve the administration of the Carbon Farming Initiative within the constraints of the current legislation.

The Clean Energy Regulator will continue to approve Carbon Farming Initiative projects and issue Carbon Farming Initiative credits under the current legislation. Carbon Farming Initiative credits represent emissions reductions that are genuine and verified, and are personal property. This provides legal certainty and allows buyers to have confidence in Carbon Farming Initiative credits and the emissions reductions they represent. Carbon Farming Initiative credits can continue to be traded, banked or used to offset emissions. Carbon Farming Initiative credits will also continue to be able to be used for compliance under the carbon tax until final payments are due in February 2015.

The Government will continue to approve new Carbon Farming Initiative methodologies and variations to existing methodologies under the current legislation until the Emissions Reduction Fund is implemented. The Domestic Offsets Integrity Committee will continue to assess methodologies and provide advice on these to the Minister for the Environment.

Methodologies made under the Carbon Farming Initiative legislation will continue to apply under the Emissions Reduction Fund, allowing new land sector projects to be approved using these methodologies.

The Government is already working closely with the land sector to develop new Carbon Farming Initiative methodologies, which will support increased participation under the Emissions Reduction Fund. Priority areas for methodology development in the land sector include:

- increasing soil carbon
- reducing livestock emissions
- expanding opportunities for environmental and carbon sink plantings
- reforestation and deforestation.

Following the implementation of the Emissions Reduction Fund, new methods will support land-based projects to bid for funding under the Emissions Reduction Fund.

5.1.1 *Purchase of Carbon Farming Initiative credits*

Companies can purchase Carbon Farming Initiative credits instead of paying the carbon tax. Carbon Farming Initiative credits can continue to be used to meet carbon tax obligations for emissions to 1 July 2014 up until February 2015 when final carbon tax payments are due. Carbon Farming Initiative credits can also be used in the voluntary market or exported.

The Emissions Reduction Fund will provide ongoing demand for Carbon Farming Initiative credits following the repeal of the carbon tax.

Proponents of Carbon Farming Initiative projects will be well placed to bid into the Emissions Reduction Fund because methodologies for many land sector activities are already in place and more will be approved before the Emissions Reduction Fund's commencement. Emissions reductions from Carbon Farming Initiative projects that are successful at auction would be purchased by the Government. Forward contracts for credits will provide a guaranteed revenue stream for companies that invest in Carbon Farming Initiative projects for the duration of the contract. The price paid for Carbon Farming Initiative credits will be determined in the context of Emissions Reduction Fund auctions.

5.2 OPTIONS FOR STREAMLINING

5.2.1 Developing methods

The development and assessment of land-based emissions reduction methods can be an intensive process because there is limited data about the effect of different management practices on greenhouse gas emissions. Through the development of the Emissions Reduction Fund, options will be considered for streamlining Carbon Farming Initiative processes for methodology development so that the Emissions Reduction Fund can more easily provide incentives for land sector projects.

For example, currently, in order for a Carbon Farming Initiative methodology to be approved, the emissions reductions activity is subject to an additionality test and included in regulations on a 'positive list'. The additionality test involves an assessment of whether the activity is 'common practice' within the relevant industry.

The most commonly used methodologies were developed in consultation with industry, through technical working groups. Previously, the methodology development process did not give priority to large-scale emissions reduction opportunities. Under the Emissions Reduction Fund, large-scale emissions reductions opportunities will become a focus.

Proposals for methodologies are subject to public consultation for at least 40 days but there is no requirement for public consultation on methodologies in the form approved by the Minister. Carbon Farming Initiative methodologies generally include detailed reporting, monitoring and record-keeping requirements.

To streamline method development under the Emissions Reduction Fund and ensure that large emissions reduction opportunities from across the economy can bid into the Emissions Reduction Fund, the following process improvements will be considered:

- establishing clear priorities for methodology development in consultation with industry, abolishing the positive list and addressing additionality through methods
- simplifying methods and, where possible, incorporating models and processes used in the National Inventory
- improving transparency by releasing draft methods in their final form for public consultation, and reducing the consultation period from 40 to 28 days.

Participants in the Carbon Farming Initiative have expressed support for streamlining.

We need agreed but conservative values for carbon sequestered from any particular on farm practice rather than cumbersome and costly site by site monitoring systems. Keep it simple and implementable. (Colin Creighton)

See Chapter 2 on crediting emissions reductions for more information about methods.

5.2.2 Project approval and aggregation

There will also be opportunities to streamline Carbon Farming Initiative project approval processes and aggregation.

Carbon Farming Initiative projects are approved by the Clean Energy Regulator. Forestry and soil carbon projects can be approved only if the project developer owns the land or has another relevant property right, such as a lease or carbon property right. Under the current arrangements it might be difficult to aggregate projects because landholders who would otherwise participate may be unwilling to transfer property rights to a project aggregator. Aggregation would be easier if, instead, the project aggregator needed only to demonstrate that they have the agreement of landholders to take part in the project. This will also make participation more attractive by enabling risks and transaction costs to be shared across multiple properties and property owners.

Other approaches to supporting project aggregation will also be considered.

Box 5.1: Aggregating dairy feed additives under the Carbon Farming Initiative

The Carbon Farming Initiative's methodology for dairy feed additives was developed in close consultation with industry to support aggregation of emissions reductions across many dairy farms into a single Carbon Farming Initiative project.

This methodology makes use of information that is routinely collected by farmers, such as herd numbers and milk production. Information can be included in a spread-sheet tool that makes the methodology easy to use. The tool helps individual farmers and aggregators to gather and summarise the information needed to report on the project.

Dairy co-operatives are likely to act as aggregators.

5.2.3 Permanence

Under the Carbon Farming Initiative, forestry, revegetation and soil carbon projects (called carbon sequestration) are subject to a 100-year permanence obligation. This means that carbon stores must, on average, remain on the site for 100 years because the environmental benefits from these projects can be lost when vegetation and trees are cleared or soil carbon is lost and not replaced. The 100 year permanence rule also means that sequestration credits are seen as equivalent to other emissions reduction activities and have the same value. This approach is consistent with many comparable international schemes, such as the Climate Action Reserve and the Verified Carbon Standard.

The 100-year permanence rule is appropriate for conservation or environmental planting projects that are designed to be permanent. However, the 100-year rule can be a significant barrier for other types of sequestration projects, particularly for soil carbon and replanting projects. Farmers and foresters have expressed concern about permanence obligations that restrict future land use and could have serious consequences for future generations.

These concerns could be addressed by introducing a 25-year permanence option for sequestration projects. The number of credits issued for sequestration projects would be reasonably discounted to reflect the revised period. Project proponents would also retain the

option of agreeing to the full permanence period and receiving the full carbon value for their project.

The Government would amend the National Carbon Offset Standard to allow any credits issued under the Carbon Farming Initiative and the Emissions Reduction Fund to be used to offset emissions under the Government's Carbon Neutral Programme.

5.2.4 Reporting and verification

Under the Carbon Farming Initiative, emissions reductions must be independently verified to ensure they are genuine and project reports must undergo a reasonable assurance audit by an independent auditor registered under the National Greenhouse and Energy Reporting Scheme.

Streamlining of these reporting and verification requirements will be considered in the context of the Emissions Reduction Fund. For example, adopting a risk-based approach to verification could significantly reduce costs, particularly for smaller projects, with minimal impact on the environmental integrity of credits. Under this approach, the Clean Energy Regulator could apply risk criteria or rules in emissions reduction methods which determine how often a project's reports would have to be independently verified. The Clean Energy Regulator could still require reasonable assurance audits in cases of doubt and the courts can impose penalties for providing false or misleading information. A true-up may be needed to take account of any discrepancies discovered through the audit process in project reports which are submitted between audits.

Under current arrangements, Carbon Farming Initiative project owners can choose when to report on their project, provided that the reporting period is no less than 12 months and no more than five years. Under the Emissions Reduction Fund, consideration could be given to more frequent reporting and credit arrangements, for example, every six months. This will improve cash flow for some project operators and, with reduced verification requirements, improve the cost effectiveness of some projects.

The Emissions Reduction Fund will build on and streamline the existing architecture of the Carbon Farming Initiative.

Views are sought on:

- *options for streamlining the Carbon Farming Initiative*
- *how best to encourage the uptake of land sector activities.*

6. ADMINISTRATION

Stable and effective administration of the Emissions Reduction Fund will provide certainty for participants and facilitate long-term investment in emissions reductions projects. This chapter outlines administrative arrangements which would be built on the existing legislative architecture of the Carbon Farming Initiative.

6.1 ASSIGNING ROLES AND RESPONSIBILITIES

The following principles will guide the administrative framework:

- Administrative arrangements will provide certainty and predictability, with clear rules and transparent decision-making for proponents. A legislated scheme would provide for objective decision-making on individual emissions reductions projects, external review of decisions and certainty about participants' rights and obligations.
- Roles will be allocated, where possible, to existing institutions with the skills, capabilities, infrastructure and experience needed to administer the Emissions Reduction Fund and manage any implementation risks.
- Administrative arrangements will safeguard the integrity of the Emissions Reduction Fund by avoiding conflicts of roles, for example, by separating any technical and other assistance for project development from the assessment of projects.
- Administrative arrangements will be streamlined. Minimising the number of agencies involved in the Emissions Reduction Fund's administration will reduce implementation risks and the administrative burden on proponents. Processes will be streamlined wherever possible and unnecessary bureaucracy avoided.

6.2 ADMINISTERING THE EMISSIONS REDUCTION FUND

The Government, through the Minister for the Environment, will be responsible for Emissions Reduction Fund policy design, while the Clean Energy Regulator will be responsible for implementing the Emissions Reduction Fund.

Policy and administrative functions would be separated to avoid conflicts of role.

The Clean Energy Regulator is well-placed to perform Emissions Reduction Fund administrative functions, including:

- approving projects
- registering and administering auctions
- contracting
- managing reporting and verification processes
- issuing Australian Carbon Credit Units for certified emissions reductions
- making payments on delivery of emissions reductions.

The Clean Energy Regulator is already established and has the required expertise, as it currently administers the Carbon Farming Initiative and the National Greenhouse and Energy Reporting Scheme — the building blocks for the Emissions Reduction Fund.

APPEA supports the continuation of the Clean Energy Regulator and the assignment to it of key responsibilities for administration of the ERF in addition to its ongoing responsibilities around the administration of NGERs. APPEA recommends, as is usual practice, ongoing policy responsibility remain with the Minister and with the Department. (Australian Petroleum Production & Exploration Association)

The Clean Energy Regulator has been a highly efficient scheme regulator. (Sheepmeat Council of Australia)

Having an independent authority with appropriate expertise undertaking the governance arrangements of the Emissions Reduction Fund is strongly supported by the CIF and NLAA. (Cement Industry Federation and National Lime Association of Australia)

Management of the Emissions Reduction Fund processes by a single agency from project start to finish would:

- provide a 'one-stop-shop' for businesses
- help to streamline processes and minimise implementation costs, risks and timeframes
- facilitate participation in the Emissions Reduction Fund.

One of the key ways in which the ERF can bring forward a range of bids for low cost large scale emission reduction opportunities is to ensure the ERF is underpinned by streamlined, efficient and effective administrative, reporting and compliance arrangements. (Australian Petroleum Production & Exploration Association)

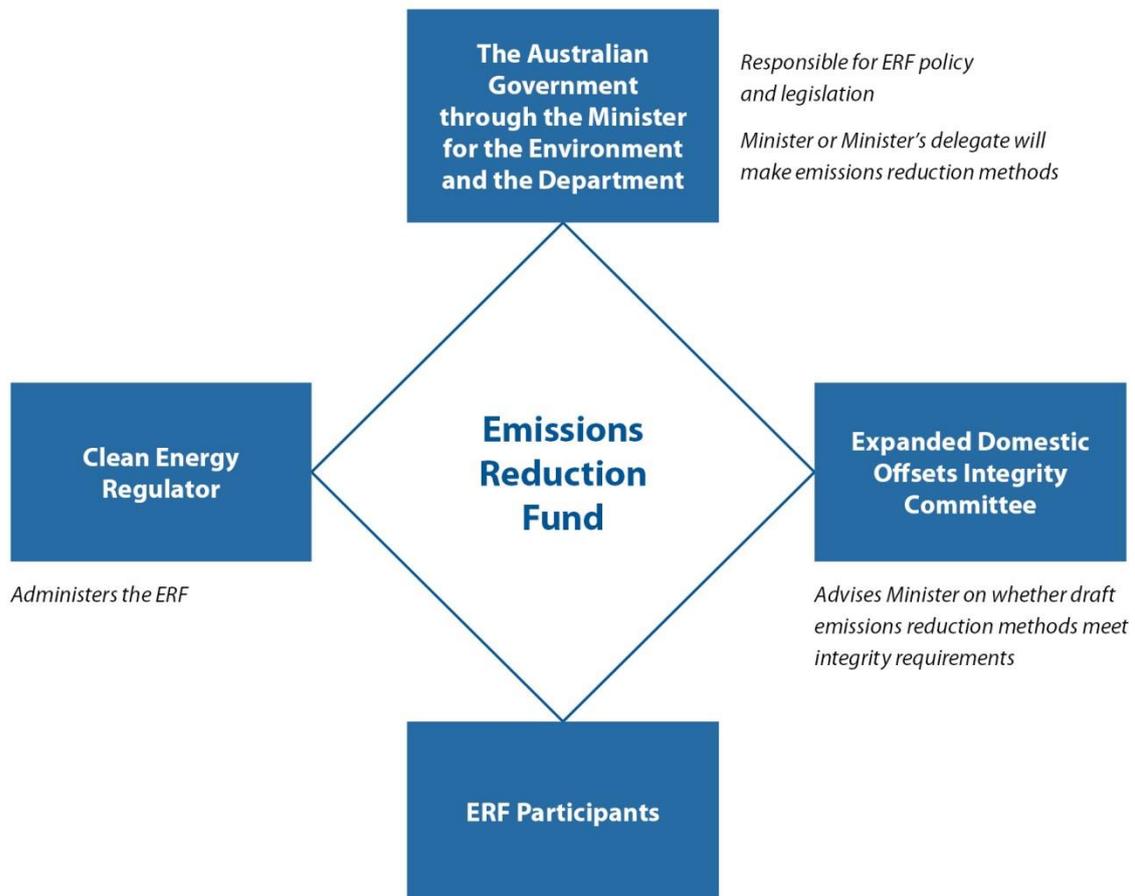
The Clean Energy Regulator could also operate the safeguard mechanism to discourage rises in emissions above historical levels, as the National Greenhouse and Energy Reporting Scheme would provide the systems for monitoring and reporting emissions under the mechanism.

Legislative changes would be made to expand the role of the Clean Energy Regulator.

The Domestic Offsets Integrity Committee would continue to provide independent advice on whether proposed emissions reduction standards meet integrity requirements. This committee would be modified and its areas of expertise broadened to reflect the economy-wide coverage of the Emissions Reduction Fund.

The proposed administrative structure for the Emissions Reduction Fund is shown in Figure 6.1.

Figure 6.1: Proposed administrative structure



Participation in the Emissions Reduction Fund could be enhanced through the provision of project facilitation services, such as outreach and technical support for the development of project plans. To avoid conflicts of role, these services should be provided by entities other than the Clean Energy Regulator, which is responsible for project approval.

The Emissions Reduction Fund will be administered by the Clean Energy Regulator.

Views are sought on the proposed governance arrangements.

APPENDIX A: LIST OF PREFERRED POSITIONS

1. Design principles and sources of emissions reductions

The Emissions Reduction Fund will be designed to achieve lowest-cost emissions reductions as its primary objective.

Views are sought on opportunities for large-scale, low-cost emissions reductions, including estimates of potential reductions.

The Government will conduct a review of the Emissions Reduction Fund towards the end of 2015 to provide certainty about the policy and design post-2020.

Views are sought on the timing and conduct of a review.

2. Crediting emissions reductions

Emissions reduction methods will be developed to calculate genuine and additional emissions reductions from new actions that are not mandatory and have not been paid for under another programme.

Views are sought on how best to:

- *ensure that emissions reductions are genuine*
- *develop methods for calculating emissions reductions from priority activities*
- *facilitate the aggregation of emissions reductions across projects and activities.*

Views are sought on regulatory reform opportunities that would complement the Emissions Reduction Fund.

3. Purchasing emissions reductions

Initially the Clean Energy Regulator could run relatively frequent tender rounds to bring forward the delivery of emissions reductions.

The Clean Energy Regulator would apply a benchmark price — the maximum amount it would pay per tonne of emissions reduced — with only bids costing less than the benchmark price being considered.

Stakeholder views are sought on how best to:

- *facilitate early participation in the Emissions Reduction Fund*
- *operate an efficient auction process to secure lowest-cost emissions reductions.*

Standard contracts will be used to guarantee payments for verified emissions reductions. These would have a maximum duration of five years and include options for addressing under-delivery of emissions reductions.

Views are sought on how best to provide:

- *funding certainty for businesses*
- *confidence that projected emissions reductions will be delivered.*

Information will be published under the Emissions Reduction Fund to supplement information currently published under the Carbon Farming Initiative, including additional contract and auction information.

4. Safeguarding emissions reductions

A safeguard mechanism will be introduced to provide incentives to reduce emissions above historical business-as-usual levels

Views are sought on:

- *the coverage of the mechanism*
- *how baselines could most easily be set to effectively limit increases in historical business-as-usual emissions*
- *the treatment of new entrants and significant expansions, including definitions of best practice*
- *compliance options in the event that baselines are exceeded.*

5. Carbon Farming Initiative

The Emissions Reduction Fund will build on and streamline the existing architecture of the Carbon Farming Initiative.

Views are sought on:

- *options for streamlining the Carbon Farming Initiative*
- *how best to encourage the uptake of land sector activities.*

6. Administration

The Emissions Reduction Fund will be administered by the Clean Energy Regulator.

Views are sought on the proposed governance arrangements.

APPENDIX B: CREDITING EMISSIONS REDUCTIONS

B.1 Energy efficiency

Energy consumption from the residential, commercial and industrial sectors accounts for just over half of Australia's overall emissions. Reducing energy consumption has the dual benefits of lowering business and household costs whilst also reducing emissions. Due to these dual benefits, energy efficiency improvements are expected to play a significant role in achieving Australia's 2020 emissions reduction target.

To achieve this target at lowest-cost, the Emissions Reduction Fund will need to unlock large-scale emissions reductions. In this context, the commercial, manufacturing and industrial sectors are likely to present the most prospective energy saving opportunities.

B.2 Commercial buildings

Commercial buildings account for 53 MtCO₂-e or around 9.4 per cent of Australia's national emissions and 7.2 per cent of Australia's total energy consumption, with the largest commercial energy users being retail spaces (38 per cent), stand-alone office buildings (25 per cent), education facilities (9 per cent), hotels (8 per cent) and hospitals (8 per cent).⁸ Most of the energy consumed by the commercial building sector is for heating and cooling, followed by lighting, then appliances. There is likely to be significant potential for low-cost emissions reductions in this sector.

The property industry has a demonstrated capacity to reduce greenhouse gas (GHG) emissions. Between 2003 and 2011, emissions from the built environment grew by only 8 per cent, despite higher growth in commercial floor space and households (17 per cent and 12 per cent respectively). Despite progress to date, there remains significant potential for further abatement through energy efficiency and clean power technologies such as co- and tri-generation. (Property Council of Australia)

There are considerable commercial incentives for new commercial buildings to exceed minimum efficiency standards set under the 2010 National Construction Code.

For example, many owners of existing premium grade commercial buildings are increasingly carrying out energy efficiency upgrades in response to growing demand for sustainable buildings. Further improvements in new buildings could be achieved by increasing efficiency standards under the code.

There are more limited incentives and a range of barriers to energy efficiency improvements to non-premium commercial buildings. These barriers include split incentives (where the building owner pays for energy efficiency upgrades, but the tenant benefits from the reduced energy bills); difficulties obtaining finance; high hurdle rates for energy efficiency investments compared to other investments; and information failures.

Emissions reduction activities in the commercial buildings sector could include:

- Making whole-of-building improvements to central services in existing commercial buildings. This could include building shell improvements, upgrading major equipment (for example, HVAC systems, chillers, boilers) and installing co-generation or tri-generation

⁸ ClimateWorks, *Tracking Progress Towards a Low Carbon Economy, 4.Buildings*, 2013.

systems. Emissions reduction methods for such activities could allow for a range of projects to deliver an aggregate energy saving.

- Giving initial priority to large, whole-of-building retrofits of offices, hotels and shopping centres, where emissions reductions could be measured by comparing the building's energy meter pre- and post-retrofit.
- Measuring and comparing the direct consumption of electricity before and after the emissions reduction activity.
- Using the National Australian Built Environment Energy Rating System (NABERS) to adjust for changes in occupancy or floor space, and to determine eligible projects.

B.3 Industrial energy efficiency

Industrial energy use is responsible for about a quarter of Australia's national emissions. The Emissions Reduction Fund will stimulate the take up of industrial energy efficiency opportunities through facility-based methods. Activity-based methods may also provide opportunities (see Chapter 2 for a discussion of facility- and activity-based methods).

Activity methods would provide rules for estimating energy savings arising from the replacement of commonly used equipment — for example, high-efficiency motors; variable-speed drives; heating, ventilation and cooling systems; commercial refrigeration; and boilers and furnaces. These methods would allow the electricity consumed before and after the emissions reduction activity to be easily measured and compared.

B.4 Residential energy efficiency

Residential buildings account for 60 MtCO₂-e or just over 10 per cent of Australia's national emissions.⁹ Energy use from space heating, hot water systems and lighting represent the three largest energy consuming activities in the average Australian household.

Energy efficiency opportunities are individually small and widely dispersed across millions of households, but they can make a significant impact when aggregated. Methods would set out simple approaches so that direct consumption of electricity before and after the emissions reduction activity could be easily measured and compared.

B.5 Fugitive emissions from coal mining

Fugitive emissions from coal mining are greenhouse gases (mainly methane) released from coal seams during mining activities. In 2011, these emissions accounted for 28 MtCO₂-e or five per cent of Australia's emissions.

Australia's 48 underground coal mines are typically more emissions-intensive than surface mines. They contribute about two-thirds of fugitive emissions within the sector (18 MtCO₂-e), while producing around one-third of Australia's annual coal production.

Methane emitted from underground mines poses safety risks and gas drainage is often required to make the mine safe for operation. The implementation of cost-effective methane reduction activities can yield a range of benefits, such as improved mine safety, greater mine productivity, increased revenues and reduced greenhouse gas emissions.

⁹ ClimateWorks, *Tracking Progress Towards a Low Carbon Economy, 4.Buildings*, 2013.

Where coal mine methane is captured in appropriate concentrations, it can be flared or used to generate power. The technologies for this are well proven and are already applied in many Australian mines to comply with safety regulations or to generate electricity and receive incentives under the Renewable Energy Target. There are further opportunities for new gas capture and increasing the efficiency of gas capture in existing methane drainage systems.

Once a mine is in operation, methane is typically in low concentrations and is combined with ventilation air. Opportunities to reduce ventilation air methane are still in the early stages of development. The mining industry is working to address safety and technological barriers to cost-effective reduction of ventilation air methane.

Emissions reductions from methane flaring or use can be measured simply and directly. Early consultation with the industry has identified that an activity-based method that builds on those already available under the Clean Development Mechanism (CDM) would be likely to provide a good starting point for an Emissions Reduction Fund method. These CDM methodologies may need to be tailored to take account of baseline methane capture, state regulatory requirements and measurement methods that mine operators already use under the National Greenhouse and Energy Reporting Scheme (NGERS)..

B.6 Transport sector

Transport emissions come from road transport, rail, domestic aviation and domestic shipping. In 2011, emissions from this sector accounted for 88 MtCO₂-e or 16 per cent of Australia's total emissions. Road transport makes up the largest share of those emissions, with around 13 million cars, 750,000 motorcycles, 2.7 million light commercial vehicles, nearly 600,000 heavy trucks and over 90,000 buses. In addition, heavy haulage and other off-road vehicles operate at mine sites and other industrial facilities. Emissions from these vehicles are typically reported along with other industrial emissions.

Activities that could reduce transport emissions include: switching to lower emissions fuels, using more efficient vehicles; improving management practices (for example, driver training or supply chain optimisation); and shifting between transport modes (for example, from road to rail).

Transport emissions reductions could be measured using a generic method that compares reductions in emissions with a baseline. Different metrics could apply to different subsectors; for example, buses and trains could be rewarded for reducing emissions per passenger per kilometre, and fleet operators could be rewarded for reducing emissions per tonne of freight per kilometre. This is similar to the approach used in the *Quantification Protocol for Fuel Switching in Mobile Equipment* approved for use under Alberta's Offset Credit System.

The advantage of this approach is that it would enable emissions reductions to be calculated easily across different modes of transport and emissions reduction activities, and it could be applied to fleets of different sizes.

This approach could encourage logistics and fleet managers in a variety of settings to consider a range of emissions reduction opportunities, including upgrading technology, converting existing fleet to lower emission fuels and adopting more fuel-efficient driving practices. It could also encourage aggregators (for example, technology or fuel suppliers) to work with transport companies to collectively achieve a greater amount of emissions reductions than could be delivered by individual fleet or vehicle operators.

B.7 Waste sector

Waste emissions come from decomposition of organic material in landfill and during waste treatment. In 2011, emissions from this sector accounted for 13 MtCO₂-e or 2 per cent of Australia's total emissions. Around 80 per cent of these emissions came from Australia's estimated 460 landfills. Domestic and commercial wastewater treatment facilities contributed a further 13 per cent of waste emissions, with about a third of this coming from large municipal facilities. The remaining waste emissions come from industrial wastewater treatment, for example meat and poultry facilities.

Existing Carbon Farming Initiative methodologies cover landfill gas capture, waste diversion to alternative waste treatment facilities, and capture of waste water emissions from piggeries and dairies. These methodologies will be available for use under the Emissions Reduction Fund and enable crediting of ongoing emissions reductions from existing Carbon Farming Initiative projects and the provision of incentives for new projects.

Under the Emissions Reduction Fund, these methodologies could be expanded to cover a broader range of emissions reduction opportunities in the sector. Once available, emissions reduction providers could choose to apply the revised methods or an existing Carbon Farming Initiative methodology.

New methods will also continue to be developed under the current Carbon Farming Initiative. For example, a method for reducing landfill gas emissions through the use of biofilters or biocovers is due for completion in early 2014. Smaller landfills will have the opportunity to adopt this method and bid emissions reductions into the Emissions Reduction Fund.

APPENDIX C: PURCHASING EMISSIONS REDUCTIONS

The Emissions Reduction Fund will use a competitive bidding process to identify lowest-cost emissions reductions. This appendix discusses detailed design issues related to the auction process. These design issues include the content of bids, auction format, how often auctions could be held, the benchmark or maximum price the Government would pay at each auction, and minimum and maximum bid sizes. The appendix concludes with a discussion about alternatives to a 'pay-as-bid' model, which could be used by the Clean Energy Regulator over time.

C.1 Content of auction bids

The Emissions Reduction Fund will use auctions to identify lowest-cost projects for funding. Auction bids must therefore include both a price (expressed as dollars-per-tonne of emissions reduced) and a quantity of emissions reductions (expressed in tonnes of CO₂-e) from an identified project that the bidder is willing to supply at that price. This information would be used to rank projects and to ensure that potential funding commitments did not exceed the funding available.

C.2 Auction format

The process by which the Emissions Reduction Fund will select lowest-cost bids from project proponents is akin to a reverse auction. A common format for a reverse auction is a sealed bid auction. A sealed bid auction asks each participant to state a price at which he/she is willing to supply a quantity of emissions reductions. These bids are submitted via a private (sealed bid) communication. After all the bids have been submitted, they are sorted and ranked from (in this case) the lowest cost to the highest cost per tonne of emissions reductions.

Sealed bid auctions have the advantages that they are simple, can be completed in a single round, and many potential bidders into the Emissions Reduction Fund are likely to have had experience with sealed bid auctions. Because information is not revealed about the other bidders and of competition during the auction process, a sealed bid auction would support bidding on the basis of emissions reduction costs.

C.3 Benchmark price

In a reverse auction, a benchmark price (or maximum price) acts like a price ceiling, and protects the Government from paying unacceptably high prices. Without a benchmark price the Government could be obliged to purchase high cost emissions reduction projects where few emissions reduction projects are bid at a given auction. Such an approach may not represent value for money.

The benchmark price could be set in advance of each auction, having regard to factors such as:

- progress towards meeting the five per cent emissions reduction target;
- the amount of funding allocated at previous auctions; and
- the observed cost per tonne of emissions reductions in projects previously bid at auction.

A variant of a benchmark or price ceiling is a 'declining budget curve', where the Government's budget for the auction declines as the clearing price increases. Both approaches are consistent with the idea that the Government should spend less when prices are high.

C.4 Budgeting for each auction

There will be annual budgets for the Emissions Reduction Fund, but funding constraints could also be set for each auction. If the funding constraint for the auction was reached, the auction would stop at the price and emissions reduction quantity reached. If the funding constraint was not met, the benchmark price would apply and excess funds could be carried over to future auctions.

The budget for each auction would need to be set so that the supply of funds was matched as closely as possible to demand for those funds. If the budget were too tight, low cost projects that fall under the benchmark price would miss out on funding and would need to re-bid at subsequent auctions.

If no budget was set for an individual auction, the amount of funds allocated at auction would depend on the number and size of projects that bid emissions reduction at prices lower than the benchmark price. If the supply of emissions reductions is high, the entire annual funding amount could theoretically be allocated at a single auction. This would ensure that the Emissions Reduction Fund 'locked in' low-cost emissions reductions as they became available. This could also mean that there would be no auctions until the next financial year.

In general it would be preferable to maintain flexibility about whether to apply a funding constraint to each auction or not. Decisions on funding constraints for individual auctions could be made by the Clean Energy Regulator, as administrator of the Emissions Reduction Fund.

C.5 Auction schedule

A decision would be needed on how many auctions to hold each year. Larger but fewer auctions are likely to lead to greater participation and therefore competition at each auction. Competition at auction is crucial to a cost-effective outcome.

In practice, there is likely to be a need for flexibility in setting the auction schedule, to enable the ability to adjust to the level of supply of emissions reductions in the market. Decisions on timing could be made by the Clean Energy Regulator, as administrator of the Emissions Reduction Fund.

In the initial stages of the Emissions Reduction Fund, as emissions reduction methods are being developed and projects planned, the Clean Energy Regulator could run frequent rounds to reduce the amount of time before bidders know they are successful, and bring forward the delivery of emissions reductions.

Over time, the Clean Energy Regulator could reduce the number of rounds held per year and announce an auction schedule that specified which months it is intending to conduct each auction. Auctions would then occur according to the schedule but subject to a specified minimum proposed tonnage of abatement or a minimum number of bidders being registered. The minimum tonnage would ensure adequate supply, while the minimum number of independent bidders would help to ensure competition. Once these requirements had been satisfied, the Clean Energy Regulator could then give appropriate notice of the next auction date to enable proponents to finalise and submit their projects.

C.6 Minimum project size

A minimum project size could be implemented to streamline the Emissions Reduction Fund. A minimum project size could encourage the aggregation of smaller activities and streamline the application process for smaller entities.

The administrative costs of conducting an emissions reduction project are likely to represent a greater share of overall project costs for smaller activities. By encouraging aggregation, these costs can be reduced and the financial viability of smaller activities improved.

A minimum project size could be set in terms of total estimated emissions reductions over the life of the contract.

C.7 Maximum project size

A maximum bid size is sometimes applied in auctions to limit the influence large participants have on auction outcomes. By restricting the size of projects, no participant would be able to overly influence auction outcomes and inflate the average auction price, undermining the objective of least cost emissions reduction.

However, a maximum project size might preclude large, viable and low-cost projects from being funded under the Emissions Reduction Fund. This could reduce the amount of emissions reductions on offer and increase the average cost per tonne of emissions reductions purchased. It would also be difficult to determine the appropriate level for the maximum project size that would best balance these risks.

There are a number of Emissions Reduction Fund design elements that could work towards mitigating the risks of large participants overly influencing auction outcomes. A sealed bid auction format would mitigate some of these risks. As each bidder would only see their own bid, large bidders may not know that their relative size in the market and so may not be able to take advantage of their size.

The ability for one or two large bidders with significant size to drive up auction prices would also be mitigated by the existence of a benchmark price and a requirement for a minimum number of bidders to have registered before an auction can take place. The risk of large bidders overly influencing market outcomes can also be reduced by measures to increase participation, and hence competition, at auction.

C.8 Comparing alternative models

By paying less for lower-cost emissions reductions, the Government will be able to achieve maximum value for money. The broad approach to auction design that could achieve this is to have the price paid to successful bidders equal to their bid (known as 'pay-as-bid' auctions). The Government has proposed a pay-as-bid model in this Green Paper, however the Clean Energy Regulator could have flexibility to consider alternative models over time based on learnings from early auctions.

There are pros and cons for different approaches. While pay-as-bid auctions may introduce incentives for participants to bid more (because they will receive more)¹⁰, they can also be successful in achieving lower costs in aggregate in instances where clearing prices from one auction do not inform future auctions.

¹⁰ Wolfram, C. D., *Electricity markets: Should the rest of the world adopt the United Kingdom's reforms*, 1999; Woo, C-K., Lloyd, D., Tishler, A., *Electricity market reform failures: UK, Norway, Alberta and California*, 2003.

APPENDIX D: CONSULTATION PHASES

The Australian Government is committed to consulting widely on the design of the Emissions Reduction Fund. Consultation on the Emissions Reduction Fund began in 2010 with the release of the Direct Action Plan. By the time the Emissions Reduction Fund is implemented in July 2014, there will have been five phases of consultation over four years.

The consultation phases are set out below:

- 1. Release and consultation on the Direct Action Plan:** after the release of the Direct Action Plan in 2010, and prior to coming to Government, the Coalition held around 200 meetings and various roundtables and the-then shadow Minister for the Environment, the Hon Greg Hunt MP, delivered a number of speeches setting out design features of the Emissions Reduction Fund.
- 2. Terms of reference:** once elected, the Government held consultations and meetings with interested business and community groups on the design of the Emissions Reduction Fund. These discussions helped inform the terms of reference which were released on 16 October 2013.
- 3. Green Paper:** the Government released the terms of reference for the Emissions Reduction Fund White Paper on 16 October 2013. 290 submissions were received in response to the terms of reference and the views expressed in those submissions have informed the draft policy positions outlined in this Green Paper. The Government also met with numerous stakeholders across a range of sectors to discuss, among other things, technical issues related to the establishment of possible emissions reduction methods, and approaches to auction and contract design. The Minister for the Environment, the Hon Greg Hunt MP, engaged extensively with stakeholders, including by participating in workshops and delivering keynote speeches on the policy considerations involved in developing the Emissions Reduction Fund.
- 4. White Paper:** the Government invites submissions in response to this Green Paper by 21 February 2014. Those responses will inform the development of the Emissions Reduction Fund White Paper. The Government will also seek community and business views on the proposed policy in the Green Paper, including through existing technical forums to develop emissions reduction methods. Consultation sessions will also be held to provide an opportunity for stakeholders to ask questions prior to finalising their written submissions.
- 5. Post White Paper:** the Government will continue to engage with business and the community following the release of the White Paper. The Government will also consult with industry on the development of emissions reduction methods for the most prospective large scale emissions reduction activities.

The Government is committed to a 1 July 2014 start for the Emissions Reduction Fund.

GLOSSARY

Additionality	A requirement that a project or activity produce emissions reductions that are additional to any that would have occurred in the absence of the project or activity: policy intervention, in this case the Emissions Reduction Fund.
Australian Carbon Credit Units	A type of emissions unit which is held in the Australian National Registry of Emissions Units.
Australian National Registry of Emissions Units	A secure electronic system which tracks the location and ownership of emissions units and which was established through the <i>Australian National Registry of Emissions Units Act 2011</i> .
Baseline	A projected level of future emissions or a historical level of emissions that would have occurred without policy intervention.
Benchmark price	The maximum price that can be successful at an auction/tender.
Best practice	The performance, in terms of emissions levels, of leading facilities or technologies.
Business-as-usual	An estimate of the future pattern of greenhouse gas emissions which assumes that there will be no major changes in attitudes and priorities of governments, business and the community.
Carbon	Short for carbon dioxide equivalents which refers to the six major greenhouse gases.
Carbon Farming Initiative	A voluntary carbon offsets scheme that enables farmers and landholders to earn credits for reducing greenhouse gas emissions. The scheme was established through the <i>Carbon Credits (Carbon Farming Initiative) Act 2011</i> and is administered by the Clean Energy Regulator.
Clean Energy Regulator	An independent Government body responsible for administering legislation to reduce carbon emissions and increase the use of clean energy.
Coverage	Which entities would be eligible to participate in a scheme, which entities a scheme may apply to, and what emissions would be included.
Direct Action Plan	A plan proposed by the Government to reduce Australia's emissions and improve Australia's environment. The plan includes a range of measures, including the Emissions Reduction Fund and the One Million Solar Roofs and 20 Million Trees programmes.
Domestic Offsets Integrity Committee	An independent expert committee which assesses proposals for methodologies under the Carbon Farming Initiative and advises on their approval.
Emissions-intensity	The ratio of emissions per unit of output.
Emissions reduction contract	A contract between the Government and a project proponent, capturing the Government's promise to pay for emissions reductions and the proponent's promise to deliver them.
Emissions Reduction Fund	The central measure set up under the Government's Direct Action Plan to reduce Australia's emissions in a simple and practical way by sourcing lowest-cost emissions reductions through the use of a market mechanism.
Emissions reduction project	A project with an approved methodology for delivering emissions reductions.

Forward contract	A standard contractual practice that involves contracting parties signing a contract in expectation of their respective obligations under the contract being performed at an agreed point in the future.
Fugitive emissions	Greenhouse gases that are released in the course of oil and gas extraction and processing, through leaks from gas pipelines and as waste methane from black coal mining.
Make good provisions	A standard contractual term which defines how a party that is unable to deliver upon its obligations under a contract can meet those obligations through alternative means.
Methods	Emissions Reduction Fund methods set out the rules and instructions for undertaking Emissions Reduction Fund projects, estimating emissions reduction and reporting to the Clean Energy Regulator. Methods must be approved by the Government to be eligible for use under the Emissions Reduction Fund or Carbon Farming Initiative.
National Greenhouse and Energy Reporting Scheme	A mandatory reporting system for corporate greenhouse gas emissions and energy production and consumption established under the <i>National Greenhouse and Energy Reporting Act 2007</i> .
New entrants	Facilities that are new to Australia when the Emissions Reduction Fund is operating.
Permanence	An obligation placed on carbon sequestration projects to prevent sequestered carbon from being released back into the atmosphere through project reversal. Permanence requirements ensure credits genuinely offset emissions occurring elsewhere.
Positive list	A register of emissions reduction activities that are eligible to earn carbon credits under the Carbon Farming Initiative. The positive list aims to ensure credits are issued only for additional emissions reductions. A methodology cannot be approved for use under the Carbon Farming Initiative unless it relates to an activity on the positive list.
Renewable Energy Target	A legislated scheme which aims to source at least 20 per cent of Australia's electricity from renewable energy by 2020.
Reverse auction	A type of auction in which the roles of buyer and seller are reversed. The auctioneer buys the good or service from sellers who compete to provide the good or service to the buyer.
Scope 1 emissions	The release of greenhouse gas into the atmosphere as a direct result of an activity or series of activities (including ancillary activities) that constitute the facility.
Scope 2 emissions	Emissions released into the atmosphere as a direct result of one or more activities that generate electricity, heating, cooling or steam consumed by the facility, but do not form part of the facility.
Sequestration	The removal of atmospheric carbon dioxide, either through biological processes (for example, photosynthesis in plants and trees), or geological processes (for example, storage of carbon dioxide in underground reservoirs).