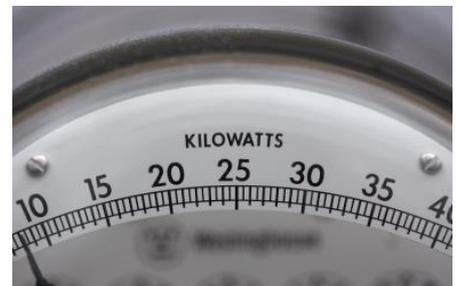


ACHIEVING AUSTRALIA'S EMISSIONS REDUCTION TARGETS IN THE CONTEXT OF A DIRECT ACTION APPROACH

Submission to the Australian
Government Emissions
Reduction Fund Terms of
Reference consultation

November 2013



Purpose

This submission outlines the opportunities for achieving Australia's emissions reduction targets in the context of the Australian Government's Direct Action policy, including the Emissions Reduction Fund, based on ClimateWorks' research. It does not comment on the merit of this policy over any other but seeks to identify how the Direct Action policy can achieve the maximum abatement possible within the parameters of this policy.

Summary

1. If current trends continue, ClimateWorks' research indicates that Australia would need to find a further 108 MtCO₂e of annual emissions reductions by 2019-20 in order to meet the minimum 5 per cent emissions reduction target through domestic abatement.
2. If well designed, the proposed Emissions Reduction Fund could effectively target opportunities that are not expected to occur without additional incentives yet are large in volume, technologically proven and can be captured at reasonable cost. Among these, major focus areas include capture of waste methane from coal mines, increased deep retrofitting of commercial buildings and industrial facilities, and carbon farming and forestry. Combined, these could represent over 140 MtCO₂e of annual abatement in 2019-20 with the right mix of incentives. However this potential becomes more difficult to achieve with each year of delay.
3. In addition to using budgetary measures through the Emissions Reduction Fund, a suite of other policy measures should be applied within the Government's Direct Action policy to effectively reduce emissions in each sector of the economy. In particular, setting sector-specific emissions standards for vehicles, buildings, industrial developments and land clearing will be important for achieving the 2020 targets within budget constraints.
4. Current momentum would contribute 80 MtCO₂e annually by 2019-20, if that momentum is not lost. Most of this comes from large scale renewable energy and industrial emissions improvements which have been price-responsive. These activities rely on the current mix of economic conditions and policies and will be critical to maintain in another way if these economic or policy settings change, otherwise the abatement task increases.
5. Aggregation of opportunities will help deliver larger-scale projects at lower cost, with low-hanging fruit offsetting some of the higher cost abatement, and enhance opportunities for regional communities to participate.
6. Careful scheme design and complementary policies are required in order to address barriers and motivate investors to develop projects and bid in to an Emissions Reduction Fund.
7. There is much more potential to deliver additional emissions reductions domestically and through international offsets, in line with a 25 per cent emissions reduction target by 2020 – the minimum recommended by scientists for developed nations. It is

important that Australia's 2020 target puts us on an achievable and lowest cost pathway to deep decarbonisation of the economy by 2050, consistent with international commitments to limit global warming to 2°C. The business-as-usual baselines used in the Emissions Reduction Fund should align with a 25% national emissions reduction target by 2020 and with the national trajectory for deep decarbonisation by 2050, for example by reducing each year in line with this trajectory.

Background

ClimateWorks' July 2013 research, *Tracking Progress Towards a Low Carbon Economy*, assesses emissions reduction activity sector-by-sector across the Australian economy, in the key sectors of power, industry, buildings, land-use and waste. It highlights where emissions reductions have already been made, where they are likely to occur over the next decade under existing policy and economic settings, and where opportunities exist for more emissions reduction activity. ClimateWorks has recently completed a number of other research reports which provide further evidence of specific abatement opportunities and policy implications for best harnessing their potential in achieving Australia's emissions reduction targets. These include regional Low Carbon Growth Plans, the 2013 *Industrial Energy Efficiency Data Analysis* project and a 2013 report on the potential for vehicle fuel efficiency standards, *Improving Australia's light vehicle fuel efficiency*.

This submission applies the findings of that research to the task of maximising the emissions reductions that could be achieved under the Direct Action policy, as outlined by the recently-elected Australian Government. The core of that policy as it is currently understood is the establishment of an Emissions Reduction Fund to purchase domestic abatement.

Summary table

Below is a summary of the abatement potential identified in ClimateWorks Australia's research, available through proven technologies and without changes to lifestyle or structural change to Australia's industry mix, which could be delivered by 2019-20 if the right mix of incentives are provided and are well designed and current momentum is maintained.

This submission discusses abatement volumes in annual emissions reduction volumes required by the financial year 2019-20. The table below illustrates a linear acceleration toward this to illustrate cumulative totals for the period since the last published national emissions inventory.

Expected emissions and required & potential emissions reductions	Assumes linear to 2020, for simplicity									Cumulative 2012-13 to 2019-20
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	
Emissions, MtCO2e										
Continuation of current trends - if no further abatement	566	586	606	626	645	665	685	705	725	5,243
Continuation of current trends - if current momentum not lost	566	576	586	595	605	615	625	635	645	4,883
5% reduction target	566	562	559	555	551	548	544	540	537	4,396
15% reduction target	566	555	544	534	523	512	502	491	480	4,141
25% reduction target	566	548	530	513	495	477	459	442	424	3,887
Gap, MtCO2e										
No abatement compared to current trends	0	10	20	30	40	50	60	70	80	360
Current trends to 5% target	0	14	27	41	54	68	81	95	108	487
5% to 15% target	0	7	14	21	28	35	42	49	57	254
5% to 25% target	0	14	28	42	57	71	85	99	113	509
<i>Total</i>		45	89	134	179	224	268	313	358	1610
Emissions reduction potential, MtCO2e										
Emissions Reduction Fund - potential major focus areas for a targeted purchasing fund										
Fugitive emissions, eg waste coal mine gas capture		1	2	3	4	5	6	7	8	36
Industrial energy efficiency and fuel switch		2	3	5	6	8	9	11	12	54
Commercial buildings retrofits		4	7	11	15	18	22	25	29	131
Carbon farming (afforestation, reduced deforestation, agriculture)		12	23	35	47	58	70	81	93	419
<i>Total</i>		18	36	53	71	89	107	124	142	639
Standards, regulation, other support measures										
Vehicle CO2e emissions standards		0	0	1	1	2	3	3	4	14
Land clearing rules reintroduced or tightened									TBD	
Best practice emissions reduction or capture standards applied in environmental approvals									TBD	
Improved access to capital									TBD	
National Energy Savings Initiative (white certificate scheme)									TBD	
<i>Total (before policies TBD)</i>		0	0	1	1	2	3	3	4	14
Maintaining current momentum (observable pipeline based on current economic and policy settings)										
Power sector - increasing large scale renewables		4	8	12	16	20	24	28	33	
Industry sector - energy efficiency and fuel switch		2	4	6	8	10	12	13	15	
Industry sector - process emissions reductions		1	1	2	3	4	4	5	6	
Industry sector - fugitive emissions reductions		1	2	2	3	4	5	5	6	
Buildings		2	3	5	6	8	9	11	13	
Land		1	2	3	4	5	6	7	8	
<i>Total</i>		10	20	30	40	50	60	70	80	360
Further power sector potential		9	17	26	35	43	52	60	69	311
Total identified potential if implementation barriers can be overcome		36	73	110	147	184	221	258	295	1323

Explanation

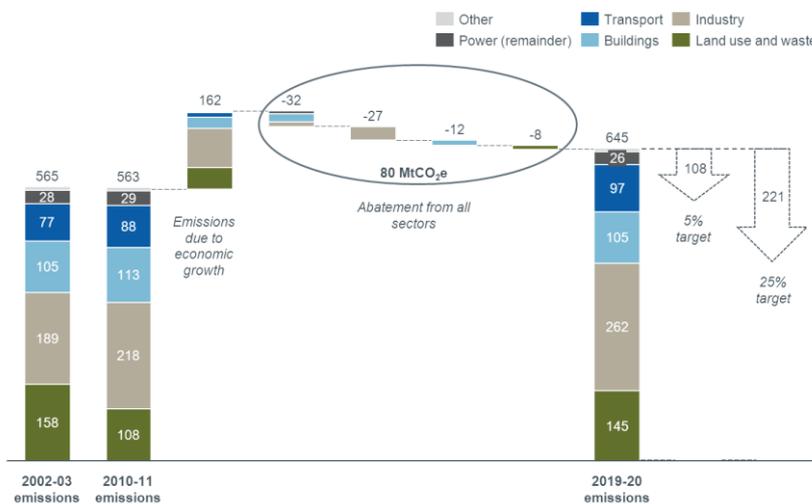
1. If current trends continue, ClimateWorks' research indicates that Australia would need to find a further 108 MtCO₂e of annual emissions reductions by 2019-20 in order to meet the minimum 5 per cent emissions reduction target through domestic abatement.

The *Tracking Progress* research shows that there has been a shift towards low carbon activity in all sectors of the economy over the last decade. This shift has meant that while the economy has been growing strongly, emissions have remained stable. The main emissions reduction activities observed over the past decade were reduced deforestation, increased plantation forestry and a combination of more renewables and lower demand for grid-supplied electricity which has reduced coal-fired power generation.

If no further activity were undertaken to reduce emissions, Australia's emissions would grow by 162 MtCO₂e between 2010-11 and 2019-20 (based on best available data at June 2013 when the research was published). However, if current trends in emissions reduction activity continue, this growth in emissions would be reduced by half. Current trends rely upon existing economic and policy settings (including those currently subject to proposed repeal legislation), and may not continue at the same rate if these settings change (see section 4 below).

This would take Australia over 40 per cent of the way towards the 5 per cent emissions reduction target through domestic abatement. A further 108 MtCO₂e would be required to meet the minimum 5 per cent target. This shortfall can be achieved in Australia using known technologies and activities, with appropriately targeted incentives.

Exhibit 1. Australian emissions, MtCO₂e¹



¹ This chart is taken from ClimateWorks' *Tracking Progress Towards a Low Carbon Economy - National Progress Report*, available via www.climateworksaustralia.org/project/current/tracking-progress.

2. If well designed, the proposed Emissions Reduction Fund could effectively target opportunities that are not expected to occur under current settings yet are large in volume, technologically proven and can be captured at reasonable cost. Among these, major focus areas include capture of waste methane from coal mines, increased deep retrofitting of commercial buildings and industrial facilities, and carbon farming and forestry. These could represent over 140 MtCO₂e of annual abatement in 2019-20 with the right mix of incentives. However this potential becomes more difficult to achieve with each year of delay.

Evidence from *Tracking Progress* shows that the least-cost opportunities to reduce emissions domestically would total almost three times what is required above current trends to meet the minimum 5 per cent target, with the right mix of economic and policy incentives. This only includes opportunities available through proven technologies and excludes changes to lifestyle or structural change to Australia's industry mix. More may be available through emerging technologies or behavioural change.

Of these opportunities, those considered most suitable for the proposed Emissions Reduction Fund are opportunities that require financial assistance to occur. Other abatement opportunities exist that could be better targeted through other complementary policy measures (such as standards), and these are outlined in following sections.

Below is a summary of the abatement identified in the *Tracking Progress* research which is not expected to occur under current settings, yet is large volume, technologically proven and can be captured at reasonable cost. These together could comprise over 140 MtCO₂e in abatement potential, and depending on how the Fund is designed could represent major focus areas for the Fund:

- Reduction of industrial fugitive emissions, particularly through **waste coal mine methane capture**. This activity could contribute around 8 MtCO₂e in annual emissions reductions by 2019-20. Projects to capture waste methane from coal mines are technologically proven. Five major projects were completed under the former NSW Greenhouse Gas Reduction Scheme (GGAS) and two demonstration projects of ventilation air methane oxidation have been established. However, the technology requires a source of revenue for the CO₂e abated, and investment is therefore dependent on policy certainty ensuring this revenue is available to make the projects financially viable. A number of additional projects are ready for deployment once sufficient policy certainty is in place.

- **Commercial buildings retrofitting.** The opportunity in existing commercial buildings is large, almost 30 MtCO₂e. Around half of this opportunity (14.7 MtCO₂e²) represents ‘low hanging fruit’ such as improved lighting, more efficient appliances and reduction in energy wastage, all of which are low cost but can suffer from other barriers preventing implementation. However, there is a risk that only these ‘low hanging fruit’ would be delivered in early rounds, which would make it harder to capture more extensive (and often higher abatement volume) opportunities later. It is strongly recommended that the Fund be utilised to catalyse delivery of the full abatement potential (and address additionality concerns) by taking a ‘whole of house’ approach which requires packaging of the low cost energy efficiency actions with more extensive retrofit measures that, individually, have longer payback periods such as insulation and heating, ventilation and air conditioning (HVAC). One good example of this approach is the Victorian Greener Government Buildings program, which provides funding for retrofits of government buildings that can deliver a return within seven years. If the payback is shorter than this, the proponent is asked to include more extensive measures to ensure the project achieves greater energy savings while also lowering the cost of the longer term measures by combining them with the quick return measures. To encourage a similar approach, the Fund should include ‘project-based’ methodologies that can accommodate a bundle of technologies, and will need to ensure that applications for funding using these methodologies are able to compete against ‘activity- or technology-based’ methodologies, which may deliver lower volumes of abatement but have shorter payback periods and incur lower transaction costs and therefore out-compete more holistic bundled projects.
- **Industrial energy efficiency.** ClimateWorks has undertaken extensive research into the further potential for industrial energy efficiency. The research found that energy savings projects with a payback period of more than two years are less likely to be implemented, yet these projects offer energy savings worth over \$2 billion a year.³ The *Tracking Progress* research on the industry sector identified further potential of 12 MtCO₂e per annum in 2019-20 beyond what would occur if current trends were sustained. Additional research⁴ finds that access to internal capital, payback period, opportunity cost and operational risk are key reasons why further savings are not being

² Note that some of these opportunities may be more effectively incentivised through other policy measures such as appliance standards or a national energy savings initiative (see section 3 below).

³ See the *Industrial Energy Efficiency Data Analysis Project (IEEDAP)* reports available at: www.climateworksaustralia.org/project/current/industrial-energy-efficiency-data-analysis and the Industry Sector Report, Report 2 in the research series, *Tracking Progress Toward a Low Carbon Economy* available at: www.climateworksaustralia.org/sites/default/files/documents/publications/climateworks_trackingprogress_industry_summary_july2013.pdf.

⁴ See the *Special Report on factors influencing large industrial energy efficiency*, Report 6 in the research series, *Tracking Progress Toward a Low Carbon Economy*. Available at: www.climateworksaustralia.org/sites/default/files/documents/publications/climateworks_trackingprogress_specialreport_summary_july2013.pdf.

implemented. Payments from the proposed Emissions Reduction Fund for projects with longer than two years payback could overcome some of the factors inhibiting more large industrial energy efficiency (but not necessarily all – see further research on the importance of dedicated energy management accountability, data and skilled staff⁵). ClimateWorks’ research on energy efficiency in large industrial companies⁶ shows that within seven years, over half of projects identified in the first year proceed to implementation. At the same time, many projects at later stages (for example projects identified as “to be implemented”) ultimately did not proceed to implementation. This suggests that additionality for the purposes of the Fund should not be limited to projects at an early feasibility stage, nor should it exclude projects at later stages. However, a consideration in setting business-as-usual baselines should be the historic and projected rates of improvement in each sector. For example, ClimateWorks’ *Tracking Progress* reports demonstrated that industrial energy users have achieved energy efficiency improvements of around 1.3 per cent per annum in the period between 2007-08 and 2009-10, and that continuation of this level of energy efficiency is expected and likely to lead to a 9 per cent overall reduction by 2019-20.⁷

- **Afforestation, reduced deforestation and other land-based activities.** Afforestation and reduced deforestation were amongst the biggest contributors to national emissions reductions (over 40 MtCO₂e) over the past decade. These activities can also deliver a range of on-farm benefits such as productivity improvements and ecosystem enhancement. ClimateWorks’ *Low Carbon Growth Plan for Australia*⁸ identified that the opportunity to reduce emissions or sequester carbon on the land is very large, around 93 MtCO₂e. It is important to note that there has been almost no progress in delivering land sector abatement since 2010, and achieving this by 2020 becomes more difficult with every year of delay. For example, many forestry projects take around six to seven years to reach their maximum volumes of abatement– this suggests that forestry projects will need to be included in early funding rounds if they are to deliver significant volumes of abatement by or near 2020. That research also estimated that this land-based abatement had an average cost to investors of around \$25/tCO₂e. This cost is an average across a multitude of projects, therefore some may be lower cost and some higher. The average cost is higher than energy efficiency and lower than many other abatement options, as shown in the diagram at Exhibit 2 below. Forestry projects are also an example of long life projects, and the Fund’s contract lengths should be designed to cover costs until they’ve recovered the economic cost of investment, which may be longer than seven years for projects such as forests or other long life assets.

⁵ Ibid.

⁶ See *Tracking Progress Towards a Low Carbon Economy: Discussion Paper*, available via www.climateworksaustralia.org/tracking-progress.

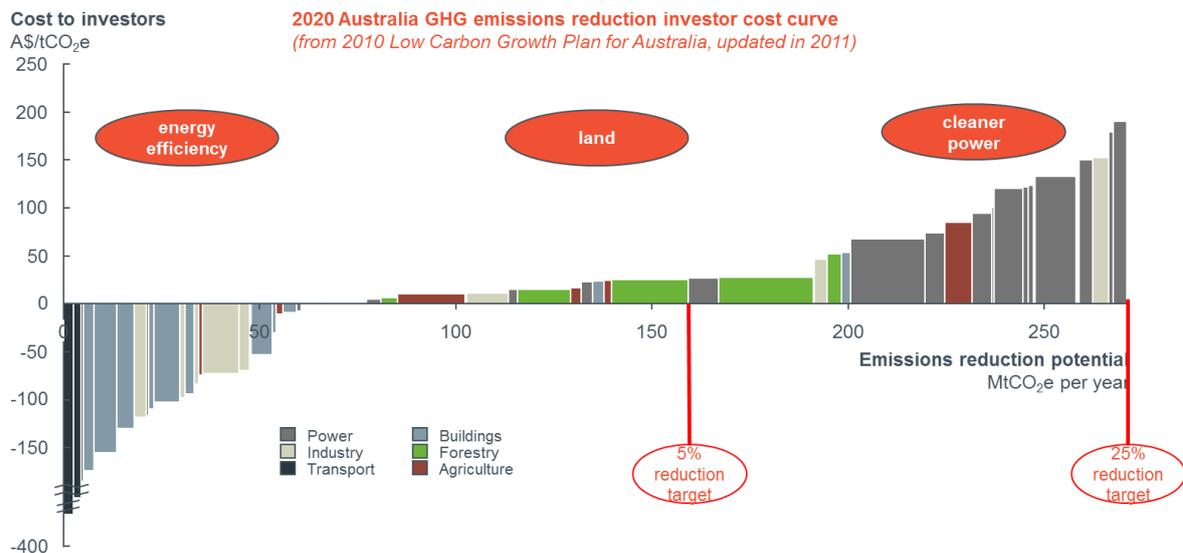
⁷ *Tracking Progress towards a Low Carbon Economy – Industry Summary Report*, July 2013, pp 7-8

⁸ ClimateWorks Australia, *Low Carbon Growth Plan for Australia*, 2010, available via www.climateworksaustralia.org/project/national-plan/low-carbon-growth-plan-australia

Exhibit 2 below shows that both energy efficiency and carbon farming are necessary categories of abatement in a least cost approach to achieving a 5 per cent target. Given the significant difference in abatement costs between these large abatement opportunities, it will be important for a system of sector-specific auctions to be considered in the design of any reverse auction proposed for the Emissions Reduction Fund. Similar approaches have been successfully used in policies that offer an incentive for abatement activities where there are distinct types of eligible activity and their inherent costs differ such that one or more of the desired categories would fail to access the funds if a single clearing-price is used.

Sector-specific auction rounds would facilitate price-based competition within distinct abatement categories such as carbon farming separate from energy efficiency. Without this, it is likely that carbon farming projects would fail to compete in the first rounds of a reverse auction for the Emissions Reduction Fund, as illustrated by the cost curve below. If carbon farming projects are not able to start in the early rounds of funding, the costs of delay would result in lower abatement volumes being achieved by 2019-20 from this sector, which could put at risk the achievement of the minimum 5 per cent target higher targets.

Exhibit 2. Simplified 2020 GHG emissions reduction investor cost curve⁹



In addition, opportunities that have higher upfront costs and longer payback periods require certainty of revenue for the entire project period. The design of the Emissions Reduction Fund must consider how to avoid uncertainty for projects whose duration is longer than the forward estimates period in which Government funds have been allocated.

⁹ This diagram is taken from the August 2011 update to ClimateWorks' *Low Carbon Growth Plan for Australia*, available via www.climateworksaustralia.org/sites/default/files/documents/publications/climateworks_lcgp_impact_of_the_carbon_price_package_revised_edition_aug2011.pdf.

3. **In addition to the financial incentive provided through an Emissions Reduction Fund, a suite of other policy measures should be applied within the Government’s Direct Action policy to effectively reduce emissions in each sector of the economy. In particular, setting sector-specific emissions standards for vehicles, buildings, industrial developments and land clearing will be important for achieving the 2020 targets within budget constraints.**

ClimateWorks’ research suggests that recent activity to reduce emissions has been driven by a combination of factors: economic conditions, including energy price rises; increased community awareness of climate change, leading to increased business focus on reducing emissions; and Government policies and programs, including financial incentives and penalties, standards, regulation and other support such as information, training and improved access to capital.

Examples of regulatory and other policy measures that have been used effectively to achieve large scale emissions reductions are detailed in the *Tracking Progress* reports and include:

- **Land-clearing regulations**, which were the main driver behind a 30 MtCO₂e reduction in annual emissions from deforestation over the past decade, offsetting almost two thirds of all other growth in Australia’s emissions.
- **Building and appliance standards**, which are the main driver of half of the 12 MtCO₂e in expected annual emissions reductions from buildings in 2019-20 and could contribute even more as technology has advanced faster than the standards. For example, a third of office space built in the last decade has emissions performance 46% better than the minimum standards. Set trajectories for constantly increasing standards can drive industry to continually innovate. Building and appliance standards have the additional benefit of reducing the cost of living for consumers, by ensuring that new buildings and appliances keep up with advances in energy efficient technology, generally at little or no overall cost to consumers or industry.
- **The Renewable Energy Target**, which is the main driver behind the increase in large-scale renewable energy and corresponding reduction in overall power generation emissions over the past decade and the expected 32 MtCO₂e in annual emissions reductions from the power sector in 2019-20.
- **The Energy Efficiency Opportunities (EEO) program**, which enabled over 40 per cent of the energy savings achieved by industrial companies between 2006-07 and 2011-12, representing net annual financial savings of \$291 million¹⁰.

In addition to maintaining and strengthening these measures, there are further areas of major abatement potential where standards and other policy measures could capture emissions reduction opportunities cost effectively. These are briefly described below.

¹⁰ From ClimateWorks’ research in the *Energy Efficiency Opportunities Program Additionality Analysis* (undertaken in partnership with the then Australian Department of Resources, Energy and Tourism), eeo.govspace.gov.au/files/2013/05/EEO-Additionality-Report.pdf.

Complementary policy measures to consider alongside the Emissions Reduction Fund within the Direct Action policy:

- **Vehicle CO₂e emissions standards** – ClimateWorks has found that strong standards have been successfully introduced or tightened in other economies in parallel with rejuvenation of domestic vehicle manufacturing and other complementary measures. These standards could deliver substantial financial savings to Australian businesses and households of \$3.2 billion per annum by 2020 (\$7.9 billion by 2024) through fuel savings and over 4 MtCO₂e of least-cost emissions reductions annually by 2020 (8.7 MtCO₂e by 2024).¹¹ Australia currently has no regulated standards, and the average efficiency of our national fleet will fall further behind many other countries which have adopted standards, including the US, EU, Japan and China.
- **Re-introduction of land-clearing regulations** – the latest Commonwealth projections estimate that annual deforestation emissions will increase from 37.6 MtCO₂e in 2010-11 to 47 MtCO₂e in 2019-20. Since this projection, state-based land-clearing laws have been loosened, particularly in Queensland, which could further increase deforestation emissions. Tightened land-clearing regulations could avoid some or all of this increase.
- **Inclusion of energy efficiency or abatement requirements in streamlined environmental approvals processes** – There is opportunity to ensure that new one-stop-shop environmental approvals arrangements between the Commonwealth and State governments require the inclusion of best practice energy efficiency and emissions reduction measures. A recent example is the inclusion of carbon capture and storage technology into the environmental approval for the Gorgon LNG project in WA.
- **Improved commercial building standards**, which are indicated to have a positive economic return by ensuring that new buildings keep pace with improvements in technology, delivering emissions reductions and cost savings for owners and tenants.
- **A national energy savings initiative (white certificate scheme)**, which could harmonise existing state-based schemes and extend the white certificate approach to those states which do not have schemes, reducing costs for energy retailers while increasing abatement by helping to overcome high transaction costs which prevent the capture of many low cost energy efficiency opportunities in buildings. A national scheme was found to deliver \$2.2 billion overall net benefit to the Australian economy between 2015 and 2020.¹² A national energy savings initiative would be well placed to provide the financial incentive for rolling out standard retrofit technologies such as LED lighting, thus reducing the financial burden on an Emissions Reduction Fund. In order to avoid overlap, any measures eligible under such a scheme would need to be excluded from funding through the Fund, but could still be packaged with ERF-funded projects.

¹¹ This research will be published shortly.

¹² Modelling by SKM MMA for the Australian Government, available via www.ret.gov.au/energy/efficiency/savings/nesi_consultant/Documents/Economic-benefits-from-NESI.pdf

4. **Current momentum would contribute 80 MtCO₂e annually by 2019-20, if that momentum is not lost. Most of this comes from large scale renewable energy and industrial emissions improvements which have been price-responsive. These activities rely on the current mix of economic conditions and policies and will be critical to maintain in some other way if economic or policy settings change, otherwise the abatement task increases.**

The *Tracking Progress* findings are based on the assumption that current trends in emissions reduction activity will continue to 2019-20, whilst taking account of changes that are already underway and more recent forecasts that are expected to change future trends.¹³

However, these trends rely on the current mix of economic conditions and policies, including a number of policies and programs that the Government proposes to repeal, such as the carbon price mechanism and associated complementary measures. If economic conditions or government policies change, alternative policies with at least equivalent effect would need to be introduced in order to maintain the current momentum and level of activity. If that momentum is not maintained, a further 80 MtCO₂e per annum by 2019-20 would need to be found in addition to the 108 MtCO₂e noted above, in order to achieve the minimum 5 per cent target by 2019-20 in Australia.

Of the 80 MtCO₂e per annum in emissions reductions that would be achieved by 2019-20 on current trends, over two thirds (almost 60 of the 80 MtCO₂e) would come from three key activities which have shown responsiveness to the current combination of conditions and incentives. It will be particularly important to maintain momentum in these areas:

- Activity in the power sector, driven in particular by the increase in **large-scale renewables**, which on current trends would contribute the largest emissions reductions (32 MtCO₂e) in 2019-20. The Renewable Energy Target has been a key driver of this abatement, alongside demand reductions.
- Improvements in **industrial energy efficiency**, which on current trends would contribute 15.4 MtCO₂e in 2019-20. These activities have been driven by a combination of energy price rises, the carbon price and other government programs such as Energy Efficiency Opportunities.
- Reductions in process and fugitive emissions, particularly in the oil and gas, chemicals and cement industries, which on current trends would contribute 11.7 MtCO₂e in 2019-20. Many of these emissions involve methane or other greenhouse gases with higher global warming potential than carbon dioxide. Liable entities under the carbon price have faced a multiplier effect for these gases, and many activities to reduce these emissions have been particularly responsive to financial incentives based on the volume of carbon dioxide equivalent abated.

¹³ Further details on the methodology used in the Tracking Progress report series can be found in the full reports, available via www.climateworksaustralia.org/tracking-progress.

5. Aggregation of opportunities will help deliver larger-scale projects at lower cost, with low-hanging fruit offsetting some of the higher cost abatement, and enhance opportunities for regional communities to participate.

ClimateWorks' regional Low Carbon Growth Plans have demonstrated the regional benefits of low carbon growth. Most regions we have studied are able to achieve more than 5 per cent emissions reductions below 2000 levels (excluding improvements to centralised grid electricity supply) at a significant net economic benefit to the region. For example:

- **Rural/regional:** In Gippsland, ClimateWorks identified emissions savings of 10 per cent below 2000 levels, which could deliver financial savings of almost \$100 million annually by 2020 and attract around \$1 billion in inward investment to the region.
- **Regional city:** In Geelong, ClimateWorks identified emissions savings of 6 per cent below 2000 levels, generating more than \$1 billion in capital investment and savings of more than \$37 million per year in 2020.
- **Major city:** In Melbourne, ClimateWorks identified emissions savings of around 30 per cent below business-as-usual levels, 86 per cent of which are of net financial benefit.

All of these plans take a whole of economy approach, and the financial savings detailed above represent an aggregation of financially attractive opportunities (typically energy efficiency) and those that come at net financial cost (most often from land-based activities and cleaner power generation).

A similar aggregated approach could be used to scale up and help drive implementation of opportunities at a regional or sector level. These plans provide a mechanism for local and regional leaders to engage business and community groups and link low carbon activities to broader strategic objectives such as jobs growth and economic resilience. It is possible that through the Emissions Reduction Fund proposed in the Direct Action policy, regions with a community-wide plan (or sector plan) could reduce transaction costs and attract larger scale suppliers through aggregation and coordination of abatement opportunities. However initial funding support is likely to be required to assist communities in identifying and agreeing their region-wide opportunities, preparing aggregated plans that are transaction-ready, and supporting coordinated implementation.

6. Careful scheme design and complementary policies are required in order to address barriers and motivate investors to develop projects and bid in to an Emissions Reduction Fund

Achieving the volume of abatement required to meet Australia's international commitments by 2020 is a large-scale task, and every year of delay pushes the cost of meeting these commitments higher. For this reason, it is important for an Emissions Reduction Fund to provide sufficient **motivation for investors** to bid at sufficiently large scale in the first auction rounds.

In particular, the Fund needs to be designed to address the **extra 'first mover' costs**, such as uncertainty around price, a lack of standardisation of contract terms, a lack of prior experience in dealing with the Fund and a potential risk premium from potential external financiers. This could potentially discourage viable projects based on a belief that the project cost is too high to be considered, or simply because there is not sufficient incentive to bid. In the absence of a carbon price, companies have less motivation to incur the transaction costs of making a binding bid, especially when the likelihood of success is unknown in the first rounds before price discovery has occurred. The design of the Fund could ensure all viable abatement opportunities are captured early by compensating for this cost, for example by making the first round unlimited in terms of abatement volume.

Improved access to capital will help overcome investment barriers. This can take a variety of forms and is relevant to most categories of abatement. There are also new financing mechanisms such as Environmental Upgrade Agreements (EUAs), which if well supported could unlock large abatement potential, particularly in commercial buildings.

Gaps in **knowledge and skills** required to identify and implement abatement opportunities could hamper the effectiveness of the Fund. Programs such as the Energy Efficiency Opportunities (EEO) program have successfully addressed this barrier, with participants reporting that the reporting and compliance obligations of the program provided a useful structure for energy management and assisted them to better understand their energy efficiency data, and ultimately affected efficiency activity.¹⁴

Some abatement opportunities may also be limited by **market constraints** such as supply chains, lack of appropriate infrastructure, technology availability (e.g. to enable bio-energy to tap into a grid) and availability of relevant expertise. These market constraints mean that some industries will not be immediately prepared to participate in the Emissions Reduction Fund because the supporting market measures, for example a supply chain, are not sufficiently developed. Complementary measures may go some way to addressing these constraints.

¹⁴ See the *Special Report on factors influencing large industrial energy efficiency*, Report 6 in the research series, *Tracking Progress Toward a Low Carbon Economy*, p 19. Available via www.climateworksaustralia.org/tracking-progress.

7. There is much more potential to deliver additional emissions reductions domestically and through international offsets, in line with a 25 per cent emissions reduction target by 2020 – the minimum recommended by scientists for developed nations. It is important that Australia’s 2020 target puts us on an achievable and lowest cost pathway to deep decarbonisation of the economy by 2050, consistent with international commitments to limit global warming to 2°C. The business-as-usual baselines used in the Emissions Reduction Fund should align with a 25% national emissions reduction target by 2020 and with the national trajectory for deep decarbonisation by 2050, for example by reducing each year in line with this trajectory.

Opportunities to reduce emissions by almost three times what is required to meet the minimum 5 per cent target are available through proven technologies and without changes to lifestyle or structural change to Australia’s industry mix, as outlined in Exhibit 3 below.

Exhibit 3. Estimated annual emissions reduction potential by 2019-20 by sector¹⁵



In summary, the main activities in each sector to further reduce emissions include:

- **Power:** Further shift from coal generation through increased large-scale renewable energy (including above the RET target of 41,000 GWh by 2020), increased gas generation, and further demand reduction in other sectors;
- **Land:** Significant remaining opportunities across the range of Land-use and Waste activities, particularly in avoided deforestation and afforestation;
- **Industry:** Increased uptake of energy efficiency (including greenfield developments and retrofits, and technology and process changes) and further decreases in fugitive emissions, in particular from coal mines through further drainage of coal seam gas and ventilated air methane oxidation. Savings in gas use represents the largest volume of

¹⁵ Further detail on the methodology used to estimate remaining emissions potential can be found in *Report 1 – National Progress Report* in the *Tracking Progress* report series, available via www.climateworksaustralia.org/tracking-progress. Abatement corresponding to demand reduction in the buildings and industry sectors were attributed to those sectors, not the Power sector, however resulting changes to the emissions intensity of power generation were attributed to the Power sector.

energy efficiency savings in industry, and ClimateWorks research has demonstrated that the gas energy efficiency opportunities available in industry would save gas usage the equivalent of almost three quarters of NSW annual gas consumption¹⁶;

- **Buildings:** Improved building standards and operational performance for all buildings, and increase in retrofitting opportunities for existing residential and especially commercial buildings; and
- **Transport:** Transport emissions are the second fastest growing source of emissions, yet substantial reductions can be achieved through simple regulatory changes such as vehicle emissions standards that deliver financial benefit to businesses and households through reduced fuel costs.

This potential needs further incentive to be delivered. The conclusions from the *Tracking Progress* research are summarised below, as they are relevant to the design of the Emissions Reduction Fund and Direct Action policy more broadly¹⁷:

- **price signals are powerful** — activity trends are strong in sectors that can respond easily to effective price signals;
- **uncertainty is a drag** — There is less evidence that activities to reduce emissions will take place in the future in areas that have higher upfront costs and rely on an expectation of stable and sufficient policy drivers or incentives over the longer term for their financial return on investment;
- **regulation is reliable** — where regulation sets a minimum standard or requirement, there is clear evidence of steady, ongoing abatement activity; and
- **macroeconomic factors can still throw a curve ball** — some of the largest changes in emissions per sector are linked to macroeconomic factors. Changes in these factors can outweigh or weaken the momentum from emissions reductions activities.

The remaining years from now to 2019-20 must be used to build on these conclusions and identify increased incentives to support local action, explore the role of international offsets, and increase the target to a 25 per cent emissions reduction by 2020, the minimum recommended by scientists for developed nations¹⁸. Australia's 2020 target should enable ongoing emissions reductions beyond 2020 to be consistent with the internationally agreed

¹⁶ See ClimateWorks' IEEDAP research cited above and quoted in Climate Spectator at www.businessspectator.com.au/article/2013/10/8/policy-politics/could-macfarlane-learn-love-clean-energy-future

¹⁷ See page 34 of the National Progress Report in the *Tracking Progress* series, available via http://www.climateworksaustralia.org/sites/default/files/documents/publications/climateworks_tracking_progress_overview_july2013.pdf.

¹⁸ Intergovernmental Panel on Climate Change, 2007, *Mitigation of Climate Change, Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Box 13.7, Geneva, Switzerland.

commitment to limit global warming to 2°C – which requires deep decarbonisation of the economy by 2050.

The most cost-effective pathway for achieving this requires a 2020 target substantially greater than 5 per cent – according to the Climate Change Authority’s *Targets and Progress Review* Draft Report, “a 5 per cent target would leave such large reductions for later that future Australians would either face a very large emissions reduction task or have to abandon the long term national emissions budget.” Further, any delay in capturing abatement or setting a clear trajectory will increase the later costs of achieving the same abatement.

In this context, the business-as-usual baselines used in the Emissions Reduction Fund should align with a 25% national emissions reduction target by 2020 and with the national trajectory for deep decarbonisation by 2050, for example by reducing each year in line with this trajectory.