



**Submission to the  
Prime Minister's Task Group  
on Energy Efficiency**

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ClimateWorks Australia is pleased to make this submission to the Prime Minister's Task Group on Energy Efficiency. Our submission draws primarily on the findings of the Low Carbon Growth Plan for Australia, released in March 2010.

## Overview of the Low Carbon Growth Plan for Australia

The Low Carbon Growth Plan found that Australia can significantly reduce its greenhouse gas (GHG) emissions between now and 2020 at low cost. Reducing GHG emissions can protect Australia's economy into the future, provide immediate benefits for society and create profitable opportunities for business.

The Low Carbon Growth Plan identifies 54 separate opportunities – across all sectors – that can be implemented over the next ten years to reduce emissions in Australia by 249 MtCO<sub>2</sub>e<sup>1</sup> - a 25% reduction from 2000 levels.

Although a price on carbon will significantly increase the number of opportunities that are financially attractive, almost one quarter of the total opportunities (or 54 MtCO<sub>2</sub>e) generate a positive return for businesses without a carbon price. By using resources more efficiently and thus reducing input costs, many businesses will be able to achieve returns above their cost of capital while at the same time reducing GHG emissions. These profitable opportunities, which are achieved primarily through energy efficiency, are concentrated in the buildings, transport and industry sectors.

As many of these opportunities are already profitable for business, non-price barriers – such as market structure and supply, information gaps, decision processes, capital constraints and investment priorities - must be overcome. The barriers vary by specific opportunity and sub-sector, so a portfolio of tailored measures is needed for the different opportunities.

Delaying action will mean that some low cost opportunities are lost. Many emissions reduction opportunities, like avoiding the installation of inefficient equipment that has a 20-30 year life, exist for only a finite period. Without prompt action the reduction potential will disappear, and any remedial measure to later "make up" the deficit will cost more.

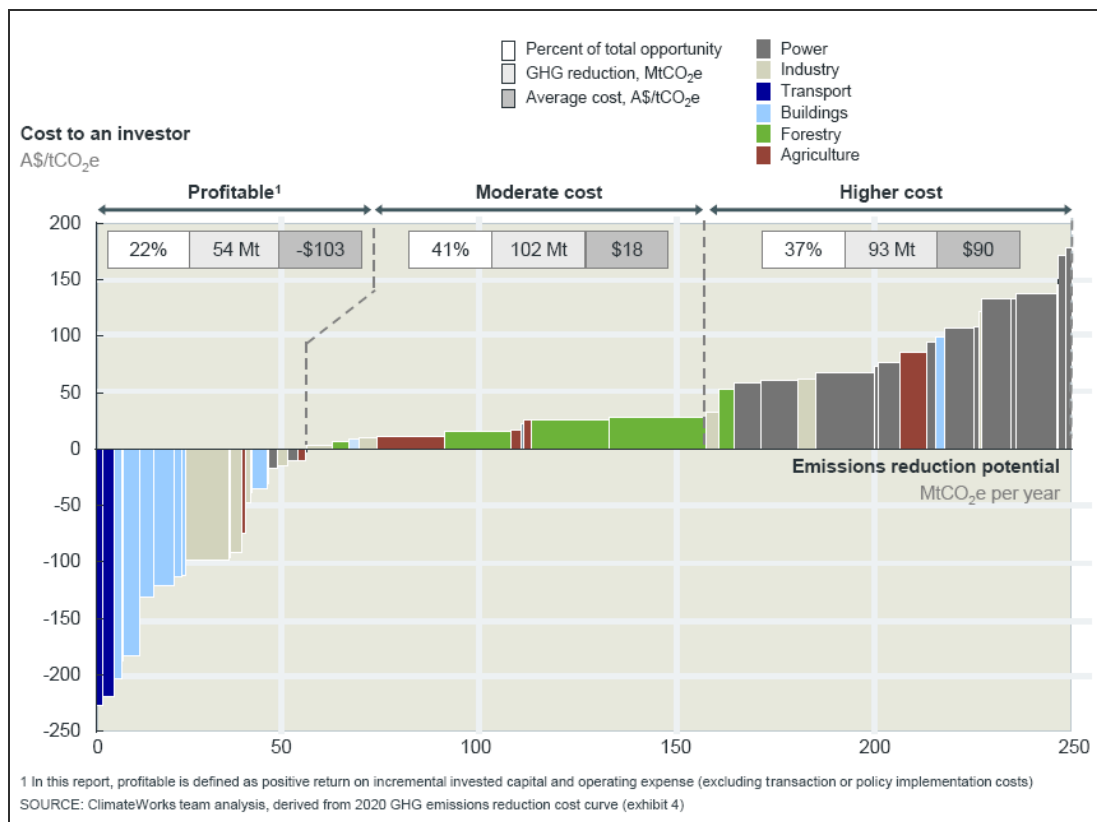
## Energy efficiency opportunities identified in the Low Carbon Growth Plan

Of the 54 MtCO<sub>2</sub>e of opportunity that is already profitable from an investor's perspective, 51 MtCO<sub>2</sub>e can be captured through energy efficiency. The financial value for the Australian economy of this energy efficiency opportunity is A\$5 billion per annum in 2020. It is important to note that this is money that the Australian economy will *save*, net of the investment required to capture each opportunity. A failure to capture these opportunities will see A\$5 billion per annum in 2020 spent on energy bills unnecessarily, money that could

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<sup>1</sup> Million tonnes of carbon dioxide equivalent

otherwise be directed towards other opportunities for economic growth and emissions reduction.



Key investor cost curve metrics in 2020. Source: *Low Carbon Growth Plan for Australia*, Exhibit 9

Exhibit 9 from the Low Carbon Growth Plan (reproduced above) illustrates that most of the opportunities that are already profitable from an investor’s perspective can be found in the Transport, Buildings, and Industry sectors, with some smaller opportunities also to be found in the Power sector. These opportunities offer an average profit of A\$103 per tCO<sub>2</sub>e, and are mostly captured through energy efficiency. Note that the electricity price assumptions underlying this analysis are taken from MMA’s 2008 report to Treasury<sup>2</sup>. These forecasts exclude any CPRS impact and show prices rising by 33% from 2010 to 2020. Recent market reports suggest that price rises will be much greater than this due to network investment requirements. However even at this modest rate of increase, the power price savings are sufficient to make 51 Mt of emission reduction opportunities profitable.

## Understanding the investor’s perspective

The investor’s perspective illustrates the net direct cost faced by a company or consumer to implement an emissions reduction opportunity, and includes the private cost of capital for each sector (8 to 14%), and energy taxes, retail margins and subsidies.

<sup>2</sup> McLennan Magasanik Associates, *Impacts of the Carbon Pollution Reduction Scheme on Australia’s Electricity Markets*, 2008

However, the investor's perspective does not incorporate some factors which impact investor costs but vary depending on how the opportunity is captured, such as management time, project transaction or policy implementation costs.

## Sector by sector analysis of energy efficiency opportunities

The 51 MtCO<sub>2</sub>e of profitable energy efficiency opportunities are focused in the Buildings, Industry, Transport and Power sectors.

### Buildings

Buildings will account for 18% of Australia's greenhouse gas emissions in 2010, with residential buildings accounting for 58% of these and commercial buildings responsible for the remaining 42%. The emissions from the buildings sector are by-products of the energy used for heating and cooling, lighting, and appliances, combining direct emissions (from gas, wood and oil combustion) and indirect emissions (from electricity use), and the emissions reduction opportunities in the sector are driven by energy efficiency improvements. Although Australia has a mild climate compared to other developed nations and so requires less energy for the heating and cooling of buildings, cheap energy prices have led to inefficient equipment and buildings shells.

The key energy efficiency opportunities in the buildings sector are:

#### *Commercial sector*

- **New builds.** Increasing new builds' energy efficiency above current standards (by the equivalent of a one star improvement for office buildings in the NABERS rating system) could deliver 2 MtCO<sub>2</sub>e of emissions reduction by 2020 with net savings<sup>3</sup> of A\$73 per tCO<sub>2</sub>e. These improvements could be achieved through improved building design and orientation, improved insulation and air tightness, usage of better materials and more efficient heating, ventilation and air conditioning (HVAC) and water heating systems.
- **Improved efficiency through technology.** Technological improvements represent a 14 MtCO<sub>2</sub>e opportunity. These include actions such as replacing inefficient light bulbs, improving the energy efficiency of all appliances and equipment, but also decreasing energy losses experienced with open refrigeration, insufficiently insulated ovens or water mains. It also involves switching to less carbon-intensive fuels when possible, for example using more gas and solar-powered instead of electric water heaters. Implementing or upgrading control systems for lighting and HVAC systems can also reduce fixed energy use, especially in sub-sectors such as offices or hotels. Most technological improvements also deliver secondary benefits in terms of reduced need for HVAC. For example, putting doors on refrigeration systems reduces the heating load of supermarkets and improving the insulation of large ovens or installing more efficient light bulbs decreases the cooling load of restaurants or offices. These

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<sup>3</sup> 'Net savings' represents the societal rather than the investor perspective, and excludes taxes and subsidies and uses a cost of capital close to the long term government borrowing rate.

secondary benefits, which come at no or very low capital cost, have been estimated to represent 2 MtCO<sub>2</sub>e of emissions reduction in 2020.

- **Energy waste reduction.** The cheapest opportunity in existing buildings is in reducing energy waste, which could deliver at least 10% energy savings with very little capital expenditure. This includes actions such as reducing oversized and unnecessary equipment and better management of existing controls systems. This represents 4.4 Mt of emissions savings per annum across all non-residential buildings.

The Low Carbon Growth Plan identifies 10 low-cost opportunities for energy efficiency in the Commercial buildings sector. These are:

- Commercial retrofit energy waste reduction
- Commercial retrofit electronics
- Commercial retrofit HVAC
- Commercial retrofit appliances
- Commercial retrofit lighting
- Commercial new builds elevators and appliances
- Commercial retrofit cooking and refrigeration
- Commercial new builds
- Commercial retrofit water heating
- Commercial retrofit insulation

For further detail on these opportunities, please refer to pages 134-136 of the Low Carbon Growth Plan.

### ***Residential sector***

- The residential sector accounts for the remaining 23% of the potential identified with 6 MtCO<sub>2</sub>e reductions by 2020. As most of the potential from increased insulation of existing buildings and replacement of greenhouse intensive water heaters by heat pumps or solar and high efficient gas water heaters is already captured in BAU, most of the further opportunity lies in the improvement of new house shells. Specifically, upgrading new homes to 7.2 stars in the HERS rating system (compared to 4 and 5 stars for NSW and other states in the current standards) could unlock 4 MtCO<sub>2</sub>e in 2020 with net savings<sup>4</sup> of A\$98 per tonne. Other major opportunities include the replacement of CFL light bulbs by LEDs and increased efficiency of appliances and equipment above current levels.
- Opportunities in the residential sector include:
  - Residential appliances and electronics
  - Residential lighting high efficiency halogen
  - Residential lighting CFLs to LEDs

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<sup>4</sup> 'Net savings' represents the societal rather than the investor perspective, and excludes taxes and subsidies and uses a cost of capital close to the long term government borrowing rate.

- Residential HVAC
- Residential new builds to 7.2 stars
- Residential building envelope

For further detail on these opportunities, please refer to pages 132-134 of the Low Carbon Growth Plan.

### *Barriers*

- **Price of GHG emissions.** Profitability is not a major barrier in the buildings sector as significant opportunities are already profitable for investors. However, deeper structural retrofits, which could deliver additional emissions reduction, are not economically viable today but could become so if energy prices increase.
- **Market structure and supply.** Market barriers include non-market electricity pricing, split incentives and lack of scale. Some large businesses have little incentive to reduce their energy consumption as they pay low energy rates, or some combination of a fixed fee or discounted unit price. Split incentives arise when buildings are occupied by tenants or short-term owners: any capital investment made by the owner to improve energy efficiency will be recouped in part by the tenant or the next owner. In addition, the fragmented nature of the sector means the transaction costs of pursuing energy efficiency can be very high—small businesses or homeowners in particular need to invest significant time to acquire the information, set up the financing and find the equipment or contractors to install it.
- **Information gaps and decision process.** In many cases, homeowners and businesses - in particular those with low energy bills as a proportion of outgoings - may not closely follow how much energy they use, and the savings which could be achieved through improved energy efficiency. Moreover, the equipment needed to estimate and verify energy savings is not readily available and comes with a cost, making it difficult to build traction on energy efficiency measures. Even when energy efficiency measures are pursued, savings are often undermined by a lack of understanding of the proper use of new equipment, or inadequate investment in the skills of auditors and contractors.
- **Capital constraints and investment priorities.** Some improvements such as lighting or high-efficiency appliances come at a low additional cost, but some other measures such as insulation, switch to solar-powered equipment or whole systems upgrade are capital intensive, offer long payback periods and are usually perceived as non-critical to the business. Moreover, banks are reluctant to offer loans for such projects at reasonable rates due to the lack of collateral and their already high level of property exposure. The situation is even worse for SMEs who generally already face higher borrowing rates.

### *Tools to overcome these barriers*

- **Information.** Awareness campaigns, expansion of labelling (e.g. NABERS, Energy Star), and disclosure of energy efficiency performance can all increase public awareness and stimulate demand for energy efficient equipment and spaces. Communicating the secondary benefits of improvements such as increased value of properties or

improved productivity and health for office workers could also help trigger interest in energy efficiency.

- **Energy price structure.** Increasing the use of “smart meters” and removing energy pricing distortions (such as fixed costs or retail price caps) would provide better incentives for reducing energy use.
- **Third-party funding.** Innovative forms of financing which allow loan repayments to be collected through utility meters, energy performance contracts, leasing contracts or property levies can enable investors to maintain a positive cash flow on energy efficiency investments and in some instances overcome split incentives barriers.
- **Increased facilitation services.** Transaction costs can be reduced by facilitating a competitive market in energy service companies for smaller scale projects, and creating facilitation centres in large corporations or services (e.g. public administration) that have many small scale buildings.
- **Mandatory standards, rebates and tax incentives.** Well targeted energy efficiency regulation has a proven track record in unlocking emissions reductions and energy savings potential (e.g. MEPS or Solar Hot Water Rebate).
- **Market-based initiatives.** A cap and trade system dedicated to commercial building retrofits could release most of the emissions reduction potential at a low cost to investors, but it may involve higher costs to energy users in the short term.
- **Leading by example.** Role modelling has been shown to be a very effective means of raising awareness and commitment. In residential buildings this can be achieved through education campaigns and networking, and in commercial buildings experience has shown that the attitude of the CEO plays a major role in thought and behaviour leadership when it comes to energy efficiency.

## Industry

Energy efficiency improvements represent an opportunity of 17 MtCO<sub>2</sub>e in 2020 (47% of total industry emissions reduction potential) at average net savings<sup>5</sup> of A\$100 per tCO<sub>2</sub>e. Low energy prices have led to little focus on energy efficiency historically, leaving potential savings of about 10% overall.<sup>6</sup> Major improvements typically include: improved control systems and processes, reduction of duplicated or oversized equipment, upgrade of motor systems, decrease of energy losses in boilers and steam distribution systems, waste heat recovery for pre-heating or other uses, and building utilities. Emerging technologies in aluminium smelting (drained wetted cathode and inert anode) and mining (improved weighing system to optimise truck loads or more accurate autonomous drilling) should also contribute to energy efficiency by 2020.

Specific energy efficiency opportunities identified in the Low Carbon Growth Plan include:

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<sup>5</sup> ‘Net savings’ represents the societal rather than the investor perspective, and excludes taxes and subsidies and uses a cost of capital close to the long term government borrowing rate.

<sup>6</sup> This number represents an estimate of the technological potential, not including the impact of behavioural changes.

- Cement energy efficiency
- Food, beverage and tobacco energy efficiency
- Mining operational/controls improvements
- Pulp, paper and print energy efficiency
- Other industry energy efficiency
- Mining equipment improvements known technologies
- Other industry cogeneration
- Aluminium smelting energy efficiency existing technologies
- Petroleum and gas maintenance
- Chemicals motor systems
- Petroleum and gas energy efficiency

For further detail on these opportunities, please refer to pages 117-127 of the Low Carbon Growth Plan.

#### **Barriers**

- **Price of GHG emissions** – Most of the energy efficiency opportunities in Industry are already profitable to investors, but a price on carbon increases the attractiveness of those opportunities.
- **Market structure and supply.** A number of factors in the market can restrict the take up of emissions reduction opportunities: some large industries benefit from extremely low energy prices, which decrease the profitability of energy efficiency measures; some businesses can also be reluctant to implement costly upgrades to aging plants when facing low cost competitors or an uncertain future. As for supply, low demand for energy efficient equipment has led to a gap or lack of variety in the equipment being offered in some sectors. Moreover, equipment replacement often follows a break-down and needs to be completed in a short timeframe to prevent operations disruptions. Replacements are therefore mostly taken from available inventory, made up of the most standard products.
- **Information gaps and decision process.** Limited understanding of energy consumption and the value of efficiency improvement –due to a lack of sub-metering and benchmarks –continues to limit the emissions reduction action in this sector. Moreover, risks of operational disruptions and production quality or timelines degradation involved in setting up new equipment or suppressing some back-up systems are often overestimated compared to the energy savings potential.
- **Capital constraints and investment priorities.** Competition for capital is intense and energy efficiency improvements or GHG emissions reductions are often a low priority as they are not a core business activity and offer returns which are lower and perceived as riskier than other potential investments, in part because future policy settings are currently highly uncertain.

### *Tools to overcome these barriers*

- **Promote energy management practices.** Strong company-wide energy management practices supported by accountable energy managers, sufficient capital, comprehensive energy assessments, performance targets and tracking have proven effective in achieving energy efficiency improvements of up to 20–30%.
- **Provide information.** Distributing training material (including benchmarks and guidebooks targeted at given sub-sectors or technologies) and increasing awareness has provided good results in the past (e.g. first results of the EEO program). Industry organisations can play a key role in sharing knowledge and increasing awareness in a given sector.
- **Set up targets and standards.** Voluntary agreements, under different formats and with various incentives (e.g. financial, regulatory, brand image, CEO commitment), have been seen to drive significant improvements. For example, long term agreements between The Netherlands Government and the chemical industry (LTA1 and LTA2) resulted in a 23% improvement in energy efficiency from 1998 to 2006. Efficiency standards can be effective for most standard support-system equipment such as air conditioners or standard boilers, but need to be developed by industry organisations or by companies themselves for more specialised equipment.
- **Develop third party financing.** Enabling “pay as you save” type of repayment reduces capital constraints and cost pressure on industries while increasing potential demand for energy efficient equipment and creating a profitable activity for new market players. For example, manufacturers can decrease the upfront cost of equipment and set up shared savings arrangements, or large industries with low capital constraints and high supply costs can provide capital to their suppliers and get repaid through decreased costs of goods reflecting the energy savings. Energy service companies can also offer this type of arrangement for larger scale projects. A public entity may have to play that role for investments with high perceived risk.
- **Improve economics of emissions reduction investments.** Energy price increases, for example by introducing a price for carbon, would significantly improve the economic attractiveness of a number of energy efficiency measures

## **Transport**

Transport accounts for 14% (82 MtCO<sub>2</sub>e) of Australia’s GHG emissions in 2010, with road transport accounting for the majority of this (87%) and the remaining being split between air (8%), sea (3%) and train (2%) transport. Large distances, relatively low fuel prices and heavy vehicles have shaped a road transport sector that is among the most emissions intensive per capita in the world (i.e. 4t of CO<sub>2</sub> per person, versus 3t OECD average, and 1t world average<sup>7</sup>).

The Low Carbon Growth Plan identifies four opportunities for energy efficiency in the transport sector, as follows:

- Diesel car and light commercial efficiency improvement

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<sup>7</sup> Garnaut. *The Garnaut Climate Change Review: Final Report*. 2008

- Petrol and light commercial efficiency improvement
- Large articulated truck efficiency improvement
- Bus and rigid truck efficiency improvement

These energy efficiency opportunities come from improvements to the Internal Combustion Engine (ICE), and offer 5 MtCO<sub>2</sub>e of emissions reduction potential in 2020. The opportunities are created through a range of technology improvements in new cars, for example decreasing the accelerating and rolling resistance and weight of the vehicles. The opportunities for petrol and diesel passenger cars, light commercial vehicles and large articulated trucks are economically attractive (average net savings<sup>8</sup> of A\$67 per tonne), as the fuel savings are expected to be larger than the incremental expenditure required to improve the vehicles.

For further detail on the Transport sector opportunities listed above, please refer to pages 137-140 of the Low Carbon Growth Plan.

### **Barriers**

- **Price of GHG emissions.** – Most of the energy efficiency opportunities in Transport are already profitable to investors, but a price on carbon increases the attractiveness of those opportunities.
- **Market structure and supply.** Australian cars are typically operated for about five years longer than cars in Europe or Japan. This is in part due to policy related issues, such as the relatively high costs of new cars (reflecting tariffs and vehicle policies) and relatively low fuel excise (which reduces the benefits of purchasing new more efficient vehicles). Due to the age structure of the vehicle fleet, any action to reduce the emissions of new cars will have a more limited effect on total car emissions than it would have in other countries. Australia's vehicle manufacturing sector, which represents about 20% of total cars bought in Australia each year, is focused primarily on the production of larger, less fuel efficient vehicles.
- **Information gaps and decision process.** Customers consider many criteria when choosing a car—safety, comfort, aesthetics, price—and fuel efficiency is only a small part of the decision process. Australia's relatively low fuel prices and high upfront costs for new cars, compared to other countries, also serve to reduce the importance of fuel efficiency. Fleet cars could be expected to be more sensitive to factors such as total cost of ownership, but these are also chosen based on other factors, such as preference for local manufacture or size requirements.

### **Tools to overcome these barriers**

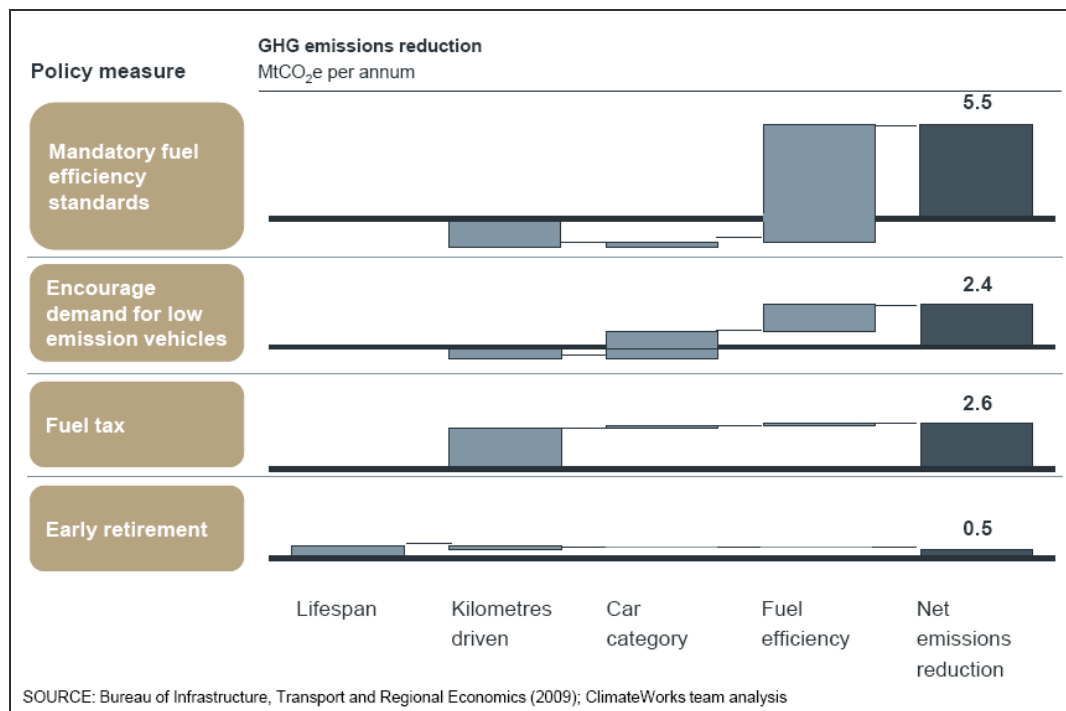
Given the challenges above, a suite of interdependent, coherent policy measures will be necessary to realise the identified emissions reduction opportunities and minimise the impact of the aforementioned challenges. Options to overcome these challenges include:

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<sup>8</sup> 'Net savings' represents the societal rather than the investor perspective, and excludes taxes and subsidies and uses a cost of capital close to the long term government borrowing rate.

- Set mandatory vehicle emissions standards for manufacturers. In the shorter term, a mandatory vehicle emissions standard offers a low-cost way of realising the large profitable emissions reduction opportunity in the road transport sector (see the Focus Area – cars and light commercial vehicles, pages 77-80 of the Low Carbon Growth Plan). Voluntary fuel efficiency standards may also be implemented but there is an implied risk that they will not be met in practice. The existing voluntary national average fuel consumption (NAFC) target, while in place, has led to no agreement between government and car manufacturers on new emissions levels which changes with the scope of vehicles covered by the new procedures. Finally, there has been debate regarding the compatibility of mandatory fuel efficiency standards and proposed emissions trading legislation. The Federal Government has recognised the need for additional, ‘complementary’ measures to operate in tandem with emissions trading. These measures should address a market failure that is not expected to be adequately addressed by a carbon price alone.<sup>9</sup>

The Low Carbon Growth Plan reviews four distinct policies to limit road transport emissions (mandatory fuel efficiency standards, encouraging demand for low emissions vehicles, fuel tax, early retirement), and finds that mandatory fuel efficiency standards are likely to have the largest impact of any single policy measure operating in isolation, as demonstrated below.



Comparison of policy measures to encourage fuel efficient passenger vehicles. Source: *Low Carbon Growth Plan for Australia*, Exhibit 41

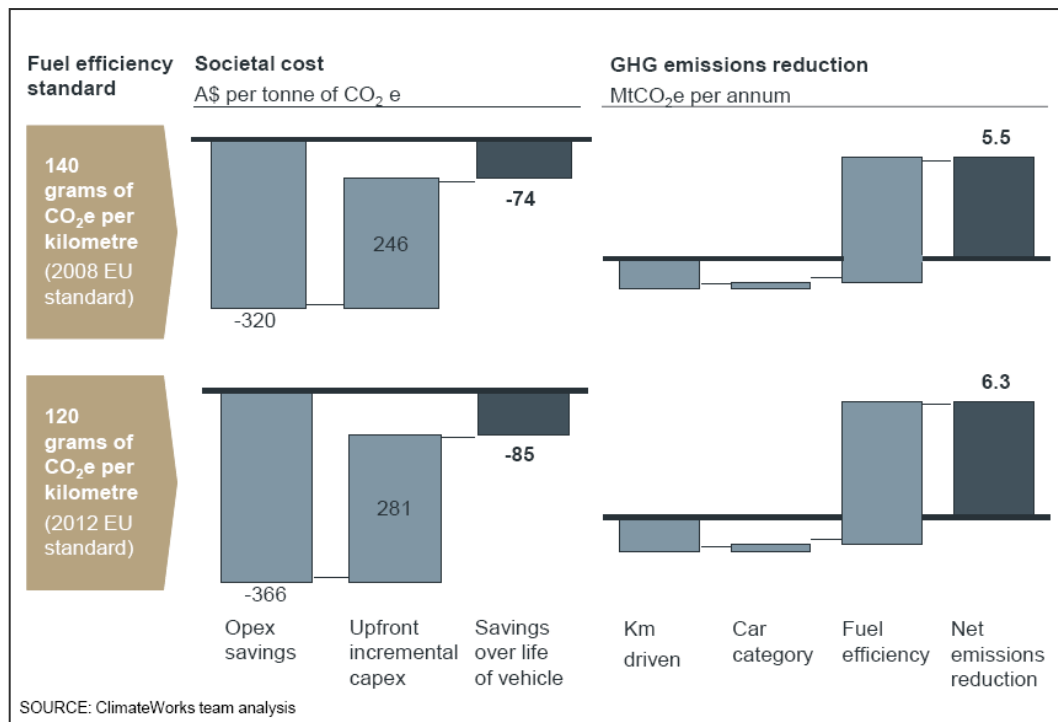
ICE improvements through mandatory fuel efficiency standards represents a 5 MtCO<sub>2</sub>e

<sup>9</sup> Australian Transport Council. *Vehicle Fuel Efficiency: Potential Measures to Encourage the Uptake of More Fuel Efficient Low Carbon Emission Vehicles*. 2009.

opportunity for emissions abatement, and also offers significant savings to investors of \$194 per tonne of CO<sub>2</sub>e in 2020.

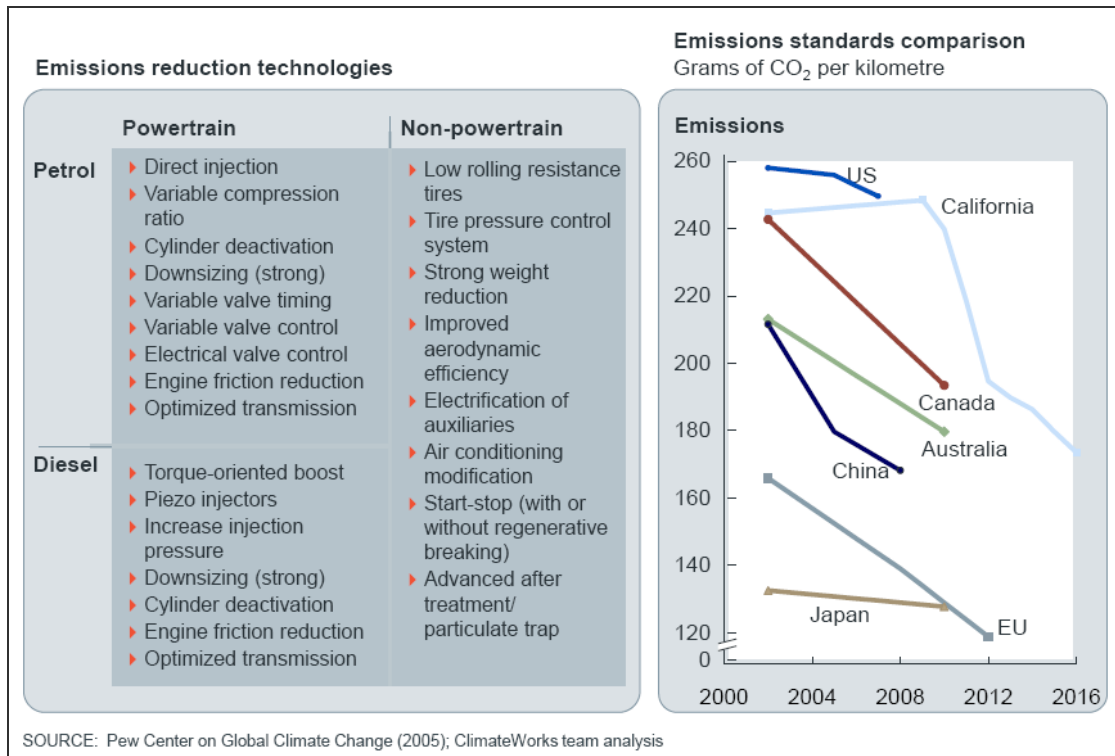
As further demonstrated in Exhibit 42 from the Low Carbon Growth Plan reproduced below, as well as providing additional emissions abatement, a more stringent mandatory fuel efficiency standard also provides greater savings to vehicle owners over the life of the vehicle.

Adopting a fuel efficiency standard in line with EU standards would also help to place Australia at the forefront of OECD energy efficiency improvement – which is one of the explicit objectives from the Prime Minister for the Task Group.



Impact of alternative mandatory fuel efficiency standards. Source: *Low Carbon Growth Plan for Australia*, Exhibit 42

The barriers to implementing mandatory fuel efficiency standards largely centre on upfront capital requirements of more fuel efficient vehicles, relatively low petrol prices in Australia (which makes fuel economy a lesser priority), and costs to local manufacturers of transitioning to more fuel efficient vehicles (or market share loss if they fail to respond adequately). However, this emissions reduction opportunity is technically straightforward, as other jurisdictions already achieve these fuel efficiency levels and the vehicles exist, as illustrated by Exhibit 43 of the Low Carbon Growth Plan, reproduced below.



Emissions reduction bundles and comparable international standards. Source: *Low Carbon Growth Plan for Australia*, Exhibit 43

- **Set mandatory or voluntary standards for fleets.** As 46% of passenger cars are private or government fleet vehicles,<sup>10</sup> which have less capital sensitivity and more rapid turnover, key barriers should be more surmountable for fleets. Requiring a minimum fuel efficiency or promoting the set up of voluntary standards for fleets could both unlock a significant amount of emissions reduction and help overcome some of the supply constraints (this policy has already been implemented by the NSW government).
- **Financial incentives for low-emissions vehicles.** Setting pre-existing state and territory registration charges or stamp duties to reflect the emissions performance of the vehicle. This policy alters the economics of car ownership over the long term but most EU jurisdictions have only implemented it on new vehicles, and not enacted it retrospectively due to technical difficulties in calculating emissions of older vehicles. The impact of this measure in Sweden has been estimated to be approximately 5% per annum after 20 years.<sup>11</sup>
- **Include the cost of carbon in fuel prices.** A broad-based emissions price or tax that adds to the price of fuels according to carbon content, or a general increase in vehicle fuel prices, would help ensure that road users consider the environmental impact of their transport choices. This would increase the attractiveness of more fuel efficient cars, lowering the emissions of road transport over the medium term.

<sup>10</sup> National Transport Commission. *Carbon Emissions from New Australian Vehicles*. 2009.

<sup>11</sup> European Conference of Ministers for Transport. *Review of CO<sub>2</sub> Abatement Policies for the Transport Sector*. 2007.

- **Collaborate to transform local manufacturing.** It will be difficult for local manufacturers to adapt to higher fuel efficiency constraints on their own. As scale is an important element in making new technologies economically viable, building alignment between the government and major stakeholders to agree on priorities for future development would help transform the local manufacturing sector into a leader in greener car technologies.
- **Improve traffic flow and public transport use.** Congestion in major cities is expected to rise significantly over coming decades. Congestion disrupts traffic flow and increases fuel consumption at peak hours, causing increased emissions. Implementation of policies and programs to improve traffic flow can be very cost effective for society, including various forms of incentives such as time based road use charges. This is also valid for air transport, where congestion at major airports is responsible for significant wasted fuel that could be avoided by better air traffic control systems. Improving the public transport network or increasing the extent of high-quality, separated bicycle lanes can also reduce emissions.
- **Promote efficiency measures.** Reducing unnecessary travel can lead to significant fuel savings and emissions reduction. Examples include better utilisation of trucks—limiting the kilometres travelled by empty trucks—and increasing the use of tow trucks to move planes on the ground.
- **Educate consumers.** Better information through improving vehicle labelling (although this is typically not effective unless matched to differentiated registration), raising consumer awareness of the risk of lock-in caused by purchase of new inefficient vehicles.
- **Direct financial incentives to scrap older vehicles** that produce a disproportionate level of emissions assists in stimulating the renewal of the Australian fleet towards more fuel efficient vehicles.
- **Promote behavioural changes in drivers.** Travel provides a unique opportunity for individuals to have a sizeable impact on the level of emissions produced. For example, there are opportunities to promote greater public transport use and increased car pooling.

## Power

Although most of the Power sector opportunities identified by the Low Carbon Growth Plan are focused on shifting from fossil fuels to cleaner sources of electricity generation, three opportunities exist that focus on improved energy efficiency and are profitable for investors, offering an emissions abatement opportunity of 5.7 MtCO<sub>2</sub>e. These are:

- Reduced transmission and distribution losses
- Operational improvements to existing coal plant thermal efficiency
- Operational improvements to existing gas plant thermal efficiency

For further detail on these opportunities, please refer to pages 108-115 of the Low Carbon

Growth Plan.

### **Barriers**

- **Price of GHG emissions** – Energy efficiency opportunities in the Power sector are already profitable for investors, but a price on carbon will have particularly high traction in the power sector, where non-price barriers are less prevalent..
- **Market structure and supply** - Coal-fired power plants in Australia have benefited from cheap, domestic coal prices due to long term contracts negotiated at favourable prices, often with state government involvement. Consequently, there has been little incentive to implement the energy efficiency measures listed above to date.

### **Tools to overcome these barriers**

- **Develop alternative sources of financing** - An opportunity exists for both the public and private sector to support accessible, low-cost financing. The public sector can provide government guarantees or interest free loans, for example. On the other hand the banking industry could develop new financial products or markets that pool 'green funds' together and syndicate risks.
- **Fuel efficiency targets and energy management practices** - In the short term, fossil fuel power plants can reduce their carbon emissions by improving their thermal efficiencies. Setting a mandatory target or agreeing to an industry-wide voluntary target for fuel efficiency can drive improvements. Alternatively, extending mandatory energy audits to power generators could increase awareness and reveal low-cost opportunities to reduce fuel consumption or auxiliary electricity consumption.

## **Response to specific questions from the Prime Minister's Task Group on Energy Efficiency Issues Paper**

***Q. (Why is energy efficiency important) - How could the(se) key goals [of energy efficiency] be better communicated to all sectors of Australian society?***

Rather than focusing on emissions reduction potential or societal benefits, energy efficiency should be communicated in terms of potential financial savings and return on investment.

***Q. (Achieving a step change in energy efficiency) - What do you consider a step change in energy efficiency to be?***

A step change would represent an increase in the level of ambition focused on energy efficiency measures. It would also require the implementation of as broad a range of the measures needed, including the NSEE, as there is no one silver bullet to improving energy efficiency and addressing the challenge of climate change. Many of the suggestions in our report of how to overcome barriers are reflected to some extent in various policy initiatives at State and Federal level. However there needs to be a step change in the delivery of these policy measures. This requires a step change in the policies':

- Breadth (how many people/organisations are affected by each one)
- Depth (how thorough is the policy tool being applied to each issue)
- Height (how much of a stretch is the end-point)
- Strength (what accountability measures (enforcement or otherwise) apply to ensure the policies are actually implemented. Many governments are not meeting their own 4.5 Star tenancy targets or embedding NSEE achievement in departmental performance criteria)

***Q. (Energy Production Efficiency) - What activities (Commonwealth and State) are currently working to improve energy production efficiency in Australia?***

Both the Australian Government's Energy Efficiency Opportunities (EEO) and the Victorian Government's Environment and Resource Efficiency Plans (EREP) programs are effective at improving energy production efficiency, but both programs would benefit from an extension in their coverage, and in the reporting of the outcomes. They could be extended to a wider range of organisations, plus government departments, statutory authorities and other government agencies. They would also benefit from an increase in the prominence given to them by Governments – in promoting the successes and ensuring accountability regarding identification and implementation of the opportunities. Also, the information provided by participants should be in a format that is relevant to shareholders so that investors can take an interest in which companies are failing to pursue opportunities that result in net cash savings.

***Q. (Energy Efficiency in Energy Markets) – What activities (Commonwealth and State) are currently working to encourage energy efficient energy markets (including electricity and gas) and subsequent efficient end-use of energy?***

It is essential that a 'whole-of-house' or 'whole-of-building' approach is taken to encourage energy efficiency. A portfolio approach such as this ensures that the focus of energy efficiency initiatives is not limited to those that can be achieved at lowest cost, and that the more expensive or capital intensive items are captured at the same time.

***Q. (Embedding Behavioural Change) – What can be done in Australia to develop a culture around energy efficiency improvement?***

Government signalling is crucial to developing a culture focused on energy efficiency. Examples of appropriate government signalling include:

- Speeches to keep the message alive
- Leading by example – getting the government's own house in order will mobilise the supply chain
- Providing metrics to show whole of life and operational savings costs

***Q. (Building Capability) – What workforce shortages and skills gaps (current and emerging) do you see in Australia in relation to energy efficiency?***

Energy efficiency is a nascent but small market, and existing tradespeople are not yet fully informed in energy efficiency. A substantial investment in training places should accompany any policy attempts to boost energy efficiency activities.

***Q. (Building Capability) – What measures would most effectively address these shortages and gaps?***

Skills gaps can be addressed by programs such as Green Steps<sup>12</sup> (which focuses on providing students and people in the workplace with the practical skills to make their workplaces and work practices more sustainable) and other relevant training programs. These programs require additional funding support to extend their reach. Government could choose to fund such programs directly, or motivate industry to fund programs that address the specific needs of their sector, via programs similar to the pro bono requirement for legal firms – eg a requirement that to undertake any work for Government, the companies sub-contracting the tradesmen must provide a certain level of training funding or training places.

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<sup>12</sup> Green Steps and Green Steps @ Work are delivered by the Monash Sustainability Institute (<http://www.monash.edu/research/sustainability-institute/green-steps/>).