Building a sustainable future

Putting a price on pollution: What it means for Australia's property and construction industry

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About the Green Building Council of Australia

The Green Building Council of Australia (GBCA) is Australia's leading authority on green buildings and communities. The GBCA was established in 2002 to develop a sustainable property industry in Australia and drive the adoption of green building practices. The GBCA has more than 930 member companies who work together to support the Council and its activities.

The GBCA promotes green building programs, technologies, design practices and processes, and operates Australia's only national voluntary comprehensive environmental rating system for buildings – Green Star. See: www.gbca.org.au

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Executive summary

Since its inception in 2002, the Green Building Council of Australia's (GBCA's) mission has been to develop a sustainable property industry and drive the adoption of green building practices, and we therefore welcome the introduction of mechanisms and initiatives that encourage these outcomes.

However, such mechanisms should not stand in isolation, but be supported by a range of complementary measures, be informed by national and international data, and be part of an integrated strategy for market transformation which includes close collaboration between industry, government and NGOs in order to overcome various market failures.

If these features are in place, the GBCA supports the introduction of a carbon pricing mechanism to help reduce the nation's greenhouse gas emissions, provide market certainty, and capitalise on the financial, environmental and social opportunities of a green economy.

An emissions trading scheme or other carbon pricing mechanism will encourage green buildings and communities as one of the most efficient and cost-effective ways for Australia to meet its international carbon reduction targets, while at the same time boosting investment in green technologies and stimulating new sectors of the economy, potentially leading to a global competitive advantage.

Failure to act now may see Australia continue on its current trajectory of greenhouse gas emissions growth at the fastest rate of any developed country – and it will be Australian consumers and producers that are penalised in the long term.

This paper sets out the rationale and mechanics for pricing carbon and how this will affect the property and construction industry. In particular, this paper outlines the expected impacts on:

- **Landlords and tenants:** rising costs of traditional energy sources, such as coal-fired power, will increase operational costs for lighting, heating, ventilation and cooling, appliances and information technology. Tenants will naturally look to mitigate rising energy costs by seeking buildings constructed and maintained to meet best practice environmental and energy -efficiency benchmarks.
- **Builders and developers:** rising costs of emissions-intensive building materials such as bricks, concrete, aluminium, glass and steel, as well as increased transport costs to move products, will drive builders and developers towards greener products and processes. However, emissions-intensive, trade-exposed organisations may not be able to pass on these costs.
- **Product manufacturers and suppliers:** new opportunities to innovate and provide greener products and processes will emerge. A price on carbon will encourage investment in clean energy solutions, such as solar, photovoltaic, wind, cogeneration, trigeneration and biogas, as well as greener materials.

Australia is already seeing buildings with Green Star and/or NABERS ratings deliver greater returns than those buildings without ratings. Once a carbon price is introduced, we can expect this trend to accelerate.

Increasing prices will drive the property and construction industry to demand higher standards of efficiency and greener materials in an effort to reduce costs. We can expect that buildings constructed and maintained to the highest standards will be more desirable for tenants. Similarly, older, less energy-efficient buildings with higher energy costs will face lower demand from tenants.

In addition, the property and construction industry can expect that rents in energy-efficient buildings will increase in response to higher demand from tenants. This higher demand is likely to be propelled by the willingness of tenants to pay higher rents in order to secure buildings with lower operating costs. The opposite should apply to buildings that are less energy-efficient, as running costs will increase and bring down rental returns. This will drive investment in greener building materials, greener operating standards and equipment and, naturally, greener buildings.

To capitalise fully on the potential of the built environment, a carbon price must be complemented with a range of integrated measures that support the property and construction industry. These would include energy efficiency incentives, investment in research, development and commercialisation of low-emissions technologies, and mandatory disclosure. Strong collaboration between government, industry and non-government organisations is also required to overcome the current market failures and skills gaps.

As always, early adopters will be able to leverage their competitive advantages over the laggards. Now is the time for organisations within the property and construction industry to consider how a price on carbon will affect their operations and how they can take advantage of the new green economy.

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1. Carbon in context

1.1 What role do greenhouse gas emissions play in climate change?

'Greenhouse gas' is a term used to describe gases such as carbon dioxide and methane that are responsible for trapping heat in the lower atmosphere.[1] According to mainstream climate experts, the increasing concentration of greenhouse gases is having a warming effect on the world's climate.[2] In order to slow the level of warming, there is a global focus on reducing greenhouse gas emissions.[3]

For Australia, the annual average temperature has increased 0.9 degrees Celsius since 1910 and substantial warming has occurred in Australia's surrounding oceans.[4] This warming effect is caused by both the increasing rate of greenhouse gas emissions and the decreasing rate of natural removal of these gases from the atmosphere.[5] Further scientific evidence of climate change shows sea levels rising and changes to marine and terrestrial life consistent with a warming planet.[6]

The heaviest greenhouse gas emitters in the world are China, United States and India, with Australia being at the lower end of the world's top 20 polluters. However, on a per-person basis Australia has the highest rate of pollution of any developed country due to our high energy consumption and reliance on burning coal for electricity generation.[7] Australia's energy sector accounts for 72 per cent of net emissions while the other substantial greenhouse gas emitters include agriculture and heavy industry such as metal production.[8]

1.2 For what level of greenhouse gases is the property industry responsible?

In Australia, the residential and commercial building sectors produce 23 per cent of the national greenhouse emissions and therefore have a major part to play in meeting national and international greenhouse obligations.[9] The property and construction industry is responsible for the indirect emission of greenhouse gases as a result of material production used in construction and on an ongoing basis due to energy consumption and waste disposal. Importantly, the vast majority of emissions from the property sector come from gas and electricity consumption for lighting, heating, ventilation and air conditioning systems, appliances and information technology, and operation of lifts and machinery.[10]

1.3 Why do we need to do anything?

For some, the fact that Australia barely scrapes into the world's top 20 emitters is seen as a reason to reject the need to take domestic action to combat climate change. This argument assumes that any action by Australia will have a negligible impact on global emissions levels and is often coupled with a view that Australians and the Australian economy will be punished for being the 'first cab off the rank'.

1 Parliament of Australia, Greenhouse gases (2008) www.aph.gov.au/library/pubs/climatechange/theBasic/greenhouse.htm at 20 May 2011.
2 Ross Garnaut, The Garnaut Climate Change Review: Final Report (2008) 23; Climate Commission Secretariat, The Critical Decade (2011) 3.
3 Ross Garnaut, The Garnaut Climate Change Review: Final Report (2008) 174.
4 Ibid 106-107.
5 Ibid 32.
6 Climate Commission Secretariat, The Critical Decade: Climate science, risks and responses (2011) 6; Department of Climate Change and Energy Efficiency, Climate Change Risks to Coastal Buildings and Infrastructure (2011), 4.
7 Parliament of Australia, The distribution of emissions between countries (November 2010) www.aph.gov.au/library/pubs/climatechange/whyClimate/human/theDistribution.htm at 20 May 2011; Ross Garnaut, The Garnaut Climate Change Review: Final Report (2008) 153-155.
8 Parliament of Australia, How much Australia emits (November 2010) www.aph.gov.au/library/pubs/climatechange/whyClimate/human/howMuch/howMuch.htm#IND at 20 May 2011.
9 Centre for International Economics, The Building Sector and Greenhouse: Key Facts (2007) 3.
10 Centre for International Economics, The Building Sector and Greenhouse: Key Facts (2007) 4.

In contrast to this view, there exists the real risk that failure to take action may leave Australia behind, and that many countries have long identified the importance of implementing measures to address climate change. In particular, California is planning, and New Zealand and the European Union have already implemented emissions trading schemes and China has pledged to reduce its carbon intensity by 40 to 45 per cent between 2005 and 2020.[11] The danger of inaction is that Australia will continue on its current trajectory of greenhouse gas emissions growth at the fastest rate of any developed country[12] and Australian consumers and producers may be penalised in global markets. On the other hand, it is claimed that taking decisive action will boost investment in green technologies and stimulate new sectors of the economy, potentially leading to a global competitive advantage.

Some leading Australian energy companies[13] and economists[14] have recently expressed their support for a carbon pricing scheme. These energy companies and economists sent open letters to the Australian Parliament appealing for the urgent introduction of a price on carbon. Their rationale was that a pricing system is essential to cut pollution and provide certainty for investment in clean energy projects and jobs.

[11] Ross Garnaut, Australia in the Global Response to Climate Change Summary (May 2011) 3.
[12] Ibid 2.
[13] Clean Energy Australia, 'Major Energy Players Join Carbon Price Fight' (Press Release, 29 May 2011) 1.
[14] Greg Combet, 'Barnaby blunders as Economists back Carbon price' (Press Release, 2 June 2011) 1.

2. A price on carbon

2.1 What does 'a price on carbon' really mean?

The rationale for the need to price carbon – or more precisely, carbon dioxide, being the most commonly-known and abundant greenhouse gas – is that the negative environmental impact of pollution should not remain free. Once we start to think of the environment and its ability to process greenhouse gas emissions as finite, as opposed to never-ending, it becomes clear that, as with all other things finite, the right to pollute must come at a price. When the emission of greenhouse gases is priced, decisions that result in higher pollution are more expensive. As a result, individuals and businesses will make more environmentally-sustainable decisions about consumption and production in order to avoid these increased costs.

In practice, 'pricing' carbon is not the only method of reducing greenhouse gas emissions and it is worth noting that the two commonly accepted approaches are:[15]

- **A market-based approach** – creating a framework or market that will price emissions to reflect the environmental and social cost of pollution, with incentives to lower particular levels of emissions;[16] or
- **Command and control regulation** – imposing restrictions by way of laws and regulations upon emissions-intensive activities.

Although both approaches require government intervention and regulation, a market-based approach will allow the market to set a price on the external costs of reducing or offsetting carbon emissions and force individuals to account for their carbon-intensive decisions to consume and produce. A market-based approach will also require less direct regulatory intrusion into private sector decisions and will be easier to integrate with both current and future international schemes. The market-based approach is commonly referred to as an 'emissions trading scheme' because it allows market participants to trade units or certificates which carry the right to emit a set amount of greenhouse gases.

2.2 How is a market-based approach (setting a price on carbon) different to a direct carbon tax?

The difference between a tax on emissions (a fixed price scheme with a direct tax) and an emissions trading scheme (a floating price scheme) is one of the most politicised areas of the carbon price debate.

In a nutshell, the methods look like this:

Direct carbon tax – a fixed price scheme where the price on the right to emit greenhouse gases is set by the government (in the form of a direct tax) and this price drives individuals and businesses to decide how much they will reduce their emissions.

Emissions trading scheme – the government determines an acceptable level of national greenhouse gas emissions in a given year (the cap) and allocates permits allowing businesses to emit up to this cap. The permits are initially auctioned by the government and subsequently traded by market participants allowing the cost of emissions to be determined by market forces.

[15] Ross Garnaut, Climate Change Review Update 2011: Carbon pricing and reducing Australia's emissions Update Paper 6 (2011) 6-7.

[16] Such as the Federal Government's Tax Breaks for Green Buildings program, delayed until 1 July 2012, which provides one billion dollars of incentives to help improve energy efficiency (and thus reduce emissions).

In practice it is likely that the end result of reducing greenhouse gas emissions can be achieved by either a tax on emissions or by implementing an emissions trading scheme. However, the following key differences between the two approaches lead to the conclusion that an emissions trading scheme is the more robust and efficient approach:[17]

- A tax is easier to introduce and is more predictable in terms of the price on emissions, whereas an emissions trading scheme is more complex to introduce and the price for each unit or permit will fluctuate in accordance with market forces.
- Both approaches include a price signal for emissions-intensive activities which will inevitably be passed through to consumers, although emissions-intensive, trade-exposed organisations will not be able to pass on costs if they wish to qualify for free units or permits. The difference is whether the price signal is fixed by the government or market driven.
- A tax involves more government intervention as the price for emissions-intensive activities will be directly regulated. This leads to concerns that the government may set this too high or too low since the desired level is unknown and is likely to remain unknown until well after either approach is implemented.
- An emissions trading scheme provides more certainty that greenhouse gas emissions will be reduced to a desired level, whereas a carbon tax is not as outcome-driven. This is because an emissions trading scheme involves an annual cap on emissions which will be regularly reduced to reach a desired target. Whereas under a tax, the government will need to estimate how emissions-intensive activities will respond to a given tax rate and regularly amend the rate to achieve the desired outcome.
- An emissions trading scheme can be more easily integrated with existing and future international efforts and overseas permits could eventually be used to offset domestic reductions and vice versa.

2.3 Demand and supply – the two approaches

Emissions trading, carbon taxes and direct government regulation are referred to as 'demand side' economic responses because they are focussed on reducing demand for emissions-intensive goods and services by making them more expensive. In determining the most effective policy mix to reduce greenhouse gas emissions, it is important to also include 'supply side' economic incentives to assist innovation and production of low emissions technologies. An example of a supply side incentive is the Australian Government's Solar Flagships Program which will provide approximately $1.5 billion in funding to develop two large-scale solar generation projects.

The counter argument to supply side programs is that there is a risk that the government will end up 'cherry picking' technologies which may not be the most effective or viable in the long term, but survive only in the short-to-medium-term with the aid of government money.[18]

[17] Garnaut Review, 'Final Report: Our Fair Share of Climate Action much more expensive without carbon pricing' (Press Release, 31 May 2011) 1.
[18] Parliament of Australia, Economic responses (Novemver 2010) www.aph.gov.au/library/pubs/climatechange/responses/economic/economic.htm at 29 May 2011.

2.4 How might it be implemented?

Until the Australian Government releases the recommendations of the Multi-Party Climate Change Committee, along with full details on the implementation of a price on carbon with relevant timelines, this paper can only reflect upon the background to a market-based approach within a global context and the information contained within the current proposal.

2.5 Background to an Australian market-based approach

The Final Report of the Garnaut Climate Change Review in 2008 ('the Report') advocated a market-based scheme to impose a limit on the right to emit greenhouse gases.[19] It was also foreshadowed that the limit set domestically would represent Australia's share of the global burden.[20] Under the scheme proposed by the Report, the government would create and auction units or 'permits' which would give the holder the right to emit, on a one-off basis per permit, a set quantity of greenhouse gas into the atmosphere.[21]

Heavy emitters of greenhouse gases, such as power stations and the industrial processes sector, would be liable to purchase and surrender permits for every tonne of greenhouse gas emissions generated during the course of a year, although emissions-intensive, trade-exposed organisations will not be able to pass on costs if they wish to qualify for free permits. The government would control the number of permits available in any given year and it would align this supply with the target or emissions cap for that year. So for example, if the goal was to cap emissions in 2015 to 100 million tonnes of greenhouse gases then the government would only create and supply to the market 100 million permits (each carrying the right to emit 1 tonne of greenhouse gases).

Accordingly, the underlying value of a permit would be derived from the:

- attached right to emit a set amount of greenhouse gas emissions;
- demand driven by liabilities imposed on heavy emitters to acquire and surrender permits; and
- limited supply of permits controlled by the government, although the import of international permits may affect this significantly.

2.6 Current proposal

On 24 February 2011, Prime Minister Julia Gillard announced the introduction of a 'climate change framework' which will involve putting a price on carbon through the introduction of a carbon trading scheme similar to that proposed by the Report. The scheme could commence as early as July 2012.

Although the details of the current proposal are still being developed and there is little information publicly available, the federal government has indicated that carbon price information will be tied in with:

- the outcomes of the National Strategy on Energy Efficiency;
- the Prime Minister's Task Group on Energy Efficiency outcomes (the 'Task Group');
- the Commercial Building Disclosure scheme (mandatory disclosure by any other name); and
- the Tax Breaks for Green Buildings program (delayed until 1 July 2012).

[19] Ross Garnaut, The Garnaut Climate Change Review: Final Report (2008) 322.
[20] Ibid 322.
[21] Ross Garnaut, The Garnaut Climate Change Review: Final Report (2008) 325.

By linking the carbon price with a range of other policies and programs, the federal government has acknowledged the importance of an integrated and strategic approach to reducing emissions in the built environment. Of particular importance to the property and construction industry is that the Task Group identified opportunities within the built environment, including the implementation of clean energy solutions such as energy generation through solar, photovoltaic, wind, cogeneration, trigeneration and biogas – all of which have been available for a number of years within Australia. This is a fundamental shift in policy and thinking which further supports the green building industry.

The initial period of the scheme will involve a fixed price for each permit, entitling the holder to emit a set amount of greenhouse gases. It is proposed that the fixed pricing will be converted to market-based pricing driven by regulated supply and demand for permits after three to five years, or once an international scheme is implemented. The end result of market-based pricing is commonly referred to as a 'cap-and-trade emissions trading scheme' which simply means that there is a cap on the amount of permits which can exist at any point in time and that the permits are tradeable instruments.

The benefit of the fixed price period is that it provides comfort and price certainty during the initial transition phase. It also allows price setters and price takers to adjust to the scheme and gives the Australian Government time to develop the systems and infrastructure necessary to eventually cope with a flexible market-based system which can be integrated into a more globalised solution.

The proposed climate change framework will make heavy emitters in the following sectors liable to surrender permits to offset their emission of greenhouse gases into the atmosphere:

- stationary energy;
- transport;
- industrial processes;
- fugitive emissions (such as leaks and releases from industrial activities); and
- emissions from non-legacy waste.

Although the property and construction industry does not fall within the above sectors (other than a limited number of buildings which currently generate a proportion of their own electricity, or where buildings are the source of refrigerant gas leakage), it will need to adapt to price increases passed through from other sectors, such as the industrial processes sector which makes building products and materials, and the stationary energy sector which generates the electricity it uses.

The producers of building products and materials have been identified as heavy emitters of carbon emissions by the federal government. These producers will most likely pass through any cost of carbon into the price of their materials, although emissions-intensive, trade-exposed organisations will not be able to pass on costs if they wish to qualify for free units or permits. As a result, the property industry will be affected by increased prices of some materials as well as increased transport costs to move these products. The stationary energy sector is also likely to increase its prices to reflect the new cost of greenhouse gas emissions. This will most likely lead to increases in the costs of electricity used by the property industry as long as generation continues to rely heavily on coal.[22]

[22] Ibid 386-387.

2.7 Further regulation – possible key features

Upon the conversion to market-based pricing, the government will need to consider the extent to which it will regulate the market. For example, the extent to which it will issue free permits to some emitters, whether it will set a 'floor' or minimum price for permits, integrating international permits into the Australian scheme to offset domestic emissions and the extent to which offsets from the agriculture and forestry can participate in the scheme.

The risk of accepting overseas permits is twofold. Firstly, testing their authenticity and quality; and secondly, where overseas permits are cheaper than domestic permits they may have the effect of devaluing domestic investment in renewable energy generation during the fixed price period. One suggestion to overcome the latter is to set a floor price for the Australian scheme (in the form of a reserve price when the government auctions the permits) and allow the use of good quality international permits after the fixed price phase.[23] Accordingly, a domestic floor would be set and international permits would be subject to a conversion fee before being registered in the Australian market. Subsequently, if the international permit costs more than the floor price then the conversion fee would be zero and if the international permit costs less than the floor then the price of the conversion would be equal to the difference between the floor and the price of the international permit. A similar reserve price mechanism features in the Californian emissions trading proposal.[24] Since lower-priced international permits will allow Australian companies to take advantage of least cost abatement opportunities, but purchase of international permits will in turn affect the revenue stream from Australian permits, such risks will need to be carefully considered.

2.8 Update from around the world

There is a common misconception that Australia is an 'early mover' in this space and that an Australian emissions trading scheme would place Australia at a significant disadvantage amongst its trading partners. However, many countries around the world have already recognised that the most efficient way to cut pollution is to put a price on carbon. For example, Australia's top five trading partners – China, Japan, the United States, the Republic of Korea and India – and another six of our top 20 trading partners have implemented or are piloting carbon trading or taxation schemes. In addition, 14 of our top 20 trading partners have set renewable energy targets and have implemented energy performance standards.[25] The European Union has had an emissions trading scheme since 2005, which covers half a billion people. China has announced it will introduce emissions trading progressively in a number of key cities and provinces, including Beijing and Shanghai, which cover more than 100 million people. Australia is far from being the only country to implement changes to fight climate change. In contrast, Australia is at risk of falling behind the global standards set by our trading partners.

[23] Frank Jotzo, 'The case for the carbon price floor', Climate Spectator (Sydney), 20 May 2011, 1

[24] California Environmental Protection Agency, 'Proposed Regulation to Implement the California Cap-and-Trade Program Staff Report: Initial Statement of Reasons' (October 2010) II-39-II -45 www.arb.ca.gov/cc/capandtrade/capandtrade.htm> at 20 May 2011.

[25] Department of Climate Change and Energy Efficiency, Climate Change: Countries Acting Now (2011) www.climatechange.gov.au/en/government/international/global-action-facts-and-fiction.aspx at 17 June 2011.

2.9 What complementary measures might be considered?

There is uncertainty as to what, if any, complementary measures the Australian Government might introduce as part of its climate change framework. The Rudd Government released the Carbon Pollution Reduction Scheme White Paper in 2008 (the 'White Paper') which contained the following broad complementary measures:[26]

- maintaining the Renewable Energy Target, as it provides stimulus for developing renewable power sources;
- supporting projects for capturing and storing carbon; and
- developing energy efficiency measures which will assist with energy-related emissions.

The rationale behind these complementary measures was to cover the gaps where a purely market-based instrument would not be as efficient, effective or quick. At the time, the National Strategy on Energy Efficiency was established to provide information and assistance to a transition to a low carbon economy. This was in recognition of the need to balance and support a carbon price with contemporary, informed and integrated complementary measures – which is only possible by bridging information gaps.[27]

Beyond information, complementary measures should be used as both a 'carrot and stick' to align interests (such of those not directly affected by a price on carbon), create both financial and structured incentives, and generally support the process of shifting to a low carbon economy.

As advocated by many of Australia's leading industry bodies and associations, these complementary measures should specifically include energy efficiency incentives, greater investment in research and renewable energy production, development and commercialisation of low-emissions technologies, and white certificate and mandatory disclosure schemes.

Complementary measures must also go hand-in-hand with closer collaboration between industry, government and NGOs / industry associations in order to help address other key problems such as information asymmetries (where a lack of knowledge increases the fear of making an adverse selection), split incentives (where the costs and benefits of energy efficiency investments go to different parties), unpriced externalities (where the costs or benefits of an economic activity are born by a third party), bounded rationality (where too much information can lead to decisions being based on 'micro' factors rather than 'macro' gains), regulatory problems and the time lag which can occur between substantial investment in energy efficiency gains and the corresponding financial returns.[28]

[26] Australia Government, Carbon Pollution Reduction Scheme: Australia's Low Pollution Future: White Paper (Vol 1, 2008).

[27] ASBEC identified that consumers and producers have generally low levels of awareness and understanding about energy efficiency as seen in Australian Sustainable Built Environment Council (ASBEC), The Second Plank - Building a Low Carbon Economy with Energy Efficient Buildings (2008) 16

[28] Ibid 16.

It is reasonable to assume that the measures discussed by the White Paper, at least in principle, will form part of the proposed climate change framework and that they could be funded by budget capacity already allocated for green initiatives and through funds raised by an emissions trading scheme. The latest report produced by Ross Garnaut recommends that:

- $400 million of the revenue generated by an emissions trading scheme should be spent on energy efficiency measures over the first four years of the scheme;[29]
- the federal government should aim to eventually spend $2-3 billion per annum on research, development and commercialisation of low emissions technologies;[30] and
- the fuel excise be reduced to counter the expected rise in petrol prices.[31]

In practice, the property and construction industry might get the benefit of government support for energy efficient measures which may lead to reduced energy consumption, such as heat pumps, solar heating and high-efficiency appliances and lighting.[32]

2.10 Existing measures and tools

It is worth noting that there are existing measures which are already designed to assist the property and construction industry in managing issues such as emissions, energy efficiency and use of materials, and which may form part of the broader policy response from the federal government and other organisations. These include measures such as the Tax Breaks for Green Buildings program (to be commenced 1 July 2012) and the Commercial Building Disclosure scheme which is a national mandatory disclosure scheme that requires disclosure of a building's environmental rating. Included in this scheme is the reference to NABERS Energy – the National Australian Built Environment Rating System Energy rating tool – which benchmarks a building's greenhouse impact on a scale of one to five, one star being the most polluting and five stars the least.[33]

In addition, the Green Building Council of Australia operates Australia's only national voluntary comprehensive environmental rating system for buildings and communities – Green Star. Green Star was launched in 2003 to assess the green attributes of building projects based on nine environmental impact criteria: Management, Indoor Environment Quality, Energy, Transport, Water, Materials, Land Use & Ecology, Emissions and Innovation.

Green Star's best practice benchmarks guide the design, construction and management of a wide range of building types and provide developers, investors, tenants and governments with a reliable, third-party assessment of their buildings' environmental credentials. Green Star-certified buildings are awarded one of three ratings recognising the level of environmental sustainability achieved: 4 Star Green Star – 'Best Practice', 5 Star Green Star – 'Australian Excellence' or 6 Star Green Star – 'World Leadership'.[34]

Whether mandatory or voluntary, these complementary measures and any other measures or incentives introduced or supported by the federal government will play a significant role in increasing energy efficiency and reducing greenhouse gas emissions through better design, construction, operation and refurbishment.

[29] Ross Garnaut, Australia in the Global Response to Climate Change Summary (May 2011) Appendix B.
[30] Ibid Appendix B.
[31] Ibid Appendix B.
[32] Australia Government, Carbon Pollution Reduction Scheme: Australia's Low Pollution Future: White Paper (Vol 1, 2008); International Energy Agency, Energy technology perspectives (2008) 4.
[33] Green Building Council of Australia, What is Green Star (2011) www.gbca.org.au/green-star/green-star-overview at 31 May 2011; NSW Office of Environment and Heritage, NABERS (2011) www.nabers.com.au at 31 May 2011.
[34] Green Building Council of Australia, What is Green Star (2011) www.gbca.org.au/green-star/green-star-overview at 31 May 2011.

2.11 Complementary measures in New Zealand

In New Zealand, an emissions trading scheme was introduced in 2002 as the NZ Government's "principal response to climate change."[35] As part of the broader response to climate change in New Zealand, the government has initiated a variety of complementary policies and measures aimed at reducing greenhouse gas emissions. Similar measures might form part of Australia's response to climate change as a component of the climate change framework.

The Energy Efficiency and Conservation Authority ('EECA') is responsible for coordinating and implementing most of New Zealand's complementary measures to promote energy efficiency and energy conservation.[36] The EECA runs several programs to achieve these aims, such as providing:

- project grants to businesses that spend more than NZ$250,000 per annum ('the Cap') on electricity to fund capital investments for energy-saving technology or renewable energy projects;[37]
- energy audit grants to companies who spend the Cap on electricity to fund an energy audit, provided certain conditions are met. Essentially, the government covers part of the cost of a business getting an audit on their energy usage if the business commits to creating an action plan from the energy audit;
- design audit grants to businesses with a floor area greater than 1,000m^2. This means the government will fund part of an audit conducted by a business to maximise the energy efficiency of their premises' design;[38] and
- specialist one-on-one account management support from EECA account managers. These managers assist businesses who spend over the Cap on electricity with general energy efficiency information, and funding advice.

Funding has also been made available for businesses of any size or type for auditing and works, continuous commissioning projects (reviewing business management systems) and monitoring energy costs.[39] Examples of projects which have benefited from this funding include electricity enhancements in hospitals, office buildings, a tertiary education institute and retail outlets. Other complementary measures have included a lighting efficiency program which ran between 2008 and 2010 providing a range of subsidised lighting products to minimise greenhouse gas emissions.[40] *The Waste Minimisation Act 2008* (NZ) introduced a waste disposal levy and also established a waste minimisation fund to provide funding for projects that will increase resource efficiency, increase reuse, recovery and recycling and decrease landfill.[41]

[35] Ministry for the Environment. 2009. New Zealand's Fifth National Communication under the United Nations Framework Convention on Climate Change, Wellington: Ministry for the Environment.

[36] The EECA was established under The Energy Efficiency and Conservation Act 2000 (NZ); EECA, Who we are (2011) www.eeca.govt.nz/about-eeca/eecas-role at 21 June 2011.

[37] Conditions include: that the project must be identified in an energy audit (or equivalent); be able to be replicated across other businesses; be cost-effective; be competitively priced; have a payback of 2-5 years; have guaranteed savings; promote combustion tuning or process heat efficiency; improve business productivity and profitability; reduce energy use and greenhouse gas emissions; and involve new or under-utilised technology; EECA, Project grants (2011) www.eecabusiness.govt.nz/services-and-funding/technology-grants> at 21 June 2011.

[38] EECA, Design audit grants (2011) www.eecabusiness.govt.nz/services-and-funding/audit-grants/design-audit at 21 June 2011.

[39] EECA, Reduce your energy costs- get funding for commercial sector electricity efficiency projects (March 2011) at www.eecabusiness.govt.nz/sites/all/files/commercial-sector-electricity-efficiency-funding-march-2011.pdf at 21 June 2011.

[40] EECA, Efficient lighting programmes (2011) www.eeca.govt.nz/eeca-programmes-and-funding/programmes/electricity-efficiency/efficient-lighting at 25 May 2011.

[41] Ministry for the Environment, Waste Minimisation Fund (April 2011) www.mfe.govt.nz/issues/waste/waste-disposal-levy/waste-minimisation-fund.html at 25 May 2011.

3. The effects of carbon pricing

3.1 How will a price on carbon effect the property and construction industry?

The property and construction industry is unlikely to have direct obligations under a carbon scheme. However, a price on carbon will have significant indirect consequences for the property and construction industry because it is a consumer of building materials/products and electricity, both of which will be directly affected by rising costs.

Some examples of costs which are likely to increase during the construction phase and also on an ongoing basis include:

- coal-fired power stations (which generate most of Australia's electricity) will be more expensive to operate as they will need to acquire permits to cover emissions which will cause electricity prices to rise as these increased costs are passed on to customers;
- the industrial processes sector will need to pass on price increases associated with creating emissions-intensive products such as bricks, cement, aluminium, glass and steel, although emissions-intensive, trade-exposed organisations will not be able to pass on costs in turn if they wish to qualify for free units or permits, and it will become more expensive to transport these building materials around the country;
- building owners and operators will also be affected by the increased costs of waste disposal as landfill operators will have to pass on the costs of acquiring and surrendering permits to cover their greenhouse gas emissions; and
- buildings that generate their own electricity may fall within the stationary energy area to the extent that this generation results in emissions of greenhouse gases, especially where co-generation and trigeneration systems or other generators have been installed.

These price signals will drive the property and construction industry, as consumers, to demand higher standards of efficiency and 'greener' materials, being those associated with less carbon emissions, in an effort to reduce costs. Therefore, buildings constructed and maintained to the highest standards will be more desirable for tenants. Similarly, older, less energy-efficient buildings with higher energy costs will face lower demand from tenants.

If the price signals from the emissions trading scheme are strong enough, the property and construction industry can expect that rents in energy-efficient buildings will increase in response to higher demand from tenants. This higher demand is likely to be propelled by the willingness of tenants to pay higher rents in order to secure buildings with lower operating costs. The opposite should apply to buildings that are less energy-efficient, as running costs will increase and bring down rental returns. This will drive investment in greener building materials, greener operating standards and equipment and, naturally, greener buildings.

This means that the property and construction industry needs to be of the mindset that energy efficient buildings are worth the money because the higher the efficiency the lower the eventual cost of abatement – once a carbon price is introduced.

Even without an emissions trading scheme, the impact of energy efficiency on valuations can be demonstrated by comparing office buildings with Green Star and NABERS ratings. Buildings with Green Star or NABERS ratings already deliver greater returns than those without ratings and those with high ratings are even more profitable.[42]

[42] Investment Property Databank Limited, Green Cities 2011: Introducing the PCA/IPD Green Investment Index: IPD Australia and New Zealand (February 2011) 13, 17.

3.2 What should landlords and tenants consider?

The primary concern for landlords and tenants of buildings will be the impact of rising running costs such as gas and electricity consumption for lighting, heating, ventilation and air conditioning systems, appliances and information technology, and operation of lifts and machinery waste disposal.

The extent to which a landlord or tenant will be liable for increased costs will be determined by the leasing arrangements. If the lease is a gross lease (which includes all outgoings and utilities) the tenant will be better protected and the landlord will be limited in its ability to pass through costs. Landlords with gross leases should consider whether there is enough margin to absorb rising costs and whether rent re-negotiations can be triggered by events such as changes in law. Alternatively, a net lease (which excludes utilities and outgoings) is much more flexible in terms of passing through rising costs to the tenant.

3.3 What should builders and developers consider?

Similar considerations are relevant at the building and construction phase. Both builders and developers should check contracts to ensure their rights and obligations are clear under the new laws, and that they are able to pass on rising costs. Without clauses which allow for pricing to be 're-opened' or renegotiated, certain types of contracts will fare better in the context of providing protection against rising costs.

For example, in a schedule of rates contract, where there are set rates for particular work, it could be difficult to adjust those rates for any increase in the costs of building materials. Similarly, in lump sum contracts, it would be difficult for builders to pass on any increase in costs to a developer unless there was an express carbon or 'change in law' pass-through clause. In contrast, a 'costs plus contract' might be more beneficial for a builder. With costs plus contracts, a principal pays the builder's costs plus a margin. In this way, builders should be able to pass on any cost increases. As a result, the natural risk for an increase in the cost of material lies with the principal.

3.4 What should companies on the supply side consider?

From the supply side, there will be new opportunities to innovate and provide products and services for the property and construction industry that will be greener, consume less energy, produce less waste and therefore be cheaper to run, saving both money and the environment.

Supply side participants should also consider their potential exposure and liability under a carbon trading scheme and the extent to which this liability will be affected by:

- current contractual arrangements and the ability to pass through costs;
- eligibility for discounted or free permits under an emissions trading scheme (once more detail is released) or whether there will be some other form of government protection; and
- new 'green' technologies to which you can switch or utilise that may save you money.

3.5 What might need to change?

The most important changes for the property and construction industry will stem from the need to adapt to rising costs associated with emissions-intensive products and services. The property and construction sector will need to focus and invest in more energy-efficient initiatives to combat rising costs from traditional energy sources such as coal. The property and construction industry could benefit from engaging with complementary measures introduced by the government such as the Tax Breaks for Green Buildings program. Continued engagement with voluntary rating tools and mandatory disclosure requirements is, amongst other benefits, an excellent way to advertise the value attributed to the energy efficiency of a building. Additionally, the property and construction industry will need to consider existing contracts and upcoming arrangements to appropriately share or pass through the risk of rising costs.

3.6 How might emissions change, particularly emissions from the property and construction industry, if there is a price on carbon?

It is still too early to model the impact of the currently proposed scheme since the details are still being developed and debated. Last year, a report commissioned by the Australian Sustainable Built Environment Council estimated that the 'carbon pollution reduction scheme' proposed by the Rudd Government (in addition to the existing Renewable Energy Target and appropriate complementary measures) would result in a 20 per cent reduction of greenhouse gas emissions from the property sector by 2029-30.[43]

More generally, if the emissions scheme is effective, with a sufficiently tight annual cap, then it will discourage consumption of emissions-intensive products and services.[44] Instead, the property and construction industry will be encouraged to direct its attention towards more renewable energy sources and more energy-efficient processes and equipment. It is not unrealistic to envisage a carbon neutral property and construction industry.

[43] The Allen Consulting Group commissioned by the Australian Sustainable Built Environment Council, The Second Plank Update: A review of the contribution that energy efficiency in the building sector can make to greenhouse gas emissions abatement (2010) 1.

[44] Ross Garnaut, Climate Change Review Update 2011: Carbon pricing and reducing Australia's emissions Update Paper 6 (2011) 7.