Economics & Markets Research

ANZ industry update: emissions trading scheme

Garnaut Review recommends CO2-e emissions cuts of 10% of 2000 levels by 2020 and 80% by 2050

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Author:

Julie Toth
Senior Economist,
Industry and Strategic Research
+61 3 9273 6252
Julie.Toth@anz.com

For information about ANZ's emissions markets products and services, please call:

Astarini Suyono,
Electricity and Emissions Sales,
+61 3 9095 0014

Lloyd Fleming,
Corporate Sustainability,
+61 3 9273 3217

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Key points

- Today the Garnaut Climate Change Review released a Supplementary Draft Report on CO_2-e emissions trading, *Targets and Trajectories.*
- The Garnaut Review recommends larger emissions cuts than the long-range target already set by Government (60% of 2000 emissions levels by 2050), so its target is unlikely to be implemented at this stage.
- The Garnaut Review recommends working toward a global CO_2-e level of 550ppm by 2050, compared with the current level of 455 ppm. This would mean Australia needs to reduce total national CO_2-e emissions by 10% of 2000 levels by 2020 and 80% of 2000 levels by 2050. It would mean Australia needs to reduce per capita CO_2-e emissions by 30% of 2000 levels by 2020 and 90% of 2000 levels by 2050.
- This target would cost 1.1% of GDP and 1.8% of consumption by 2020. But if we do nothing, climate change will cost 0.9% of GDP and 1.2% of consumption by 2020. So the marginal cost of acting is not huge.
- This target would lead to an average temperature increase of 2.0-2.6˚ by 2100, as opposed to 5.6-7.1˚ with no mitigating action.
- The Garnaut Review recommends starting emissions trading by selling permits at a fixed price of $20 per tonne in 2010, rising by 4% plus CPI per year until 2012. The price is then likely to settle at $23/t by 2013.
- The final report of the Garnaut Review will be released at the end of September. The Garnaut Review has advisory status only.
- The Government's White Paper and draft legislation for the Carbon Pollution Reduction Scheme will be released at the end of 2008.

ETS development timetable

When ?	What ?	Who ?
30 Sept 2008	Garnaut Climate Change Review Final Report released to public	Garnaut Review
Oct 2008	Economic modelling results released	Treasury
Dec 2008	White Paper and draft legislation	Fed Government
Early 2009	Consultations on the White Paper	Fed Government
Mid 2009	Bill debated & passed by Parliament	Fed Government
1 July 2009	Second stage of GHG mandatory reporting commences	Approx. 500 large GHG emitters
Mid 2009	Consultation and drafting of ETS technical regulations to support Act	Dept of Climate Change
Late 2009	ETS Act, regulations and statutory regulatory body commence	Fed Government
March 2010	First auction of emissions permits. Market commences trading.	Approx. 1,000 large GHG emitters
1 July 2010	Third stage of GHG mandatory reporting commences	Approx. 700 large GHG emitters

Sources: Dept of Climate Change; Garnaut Review; Office of Senator Penny Wong.

What does Prof Garnaut say?

The Garnaut Climate Change Review released a draft report on 4 July. The draft report included recommended options for emissions trading in Australia and some preliminary economic modelling results by Treasury. Today the Garnaut review released its Supplementary Report, detailing its recommendations on national emissions targets and trajectories.

The Garnaut Review has advisory status only. The Government will announce its policy on emissions targets and trajectories in its White Paper, due late 2008.

The long-range emissions target

The government is already committed to a target of reducing emissions by 60% of 2000 levels by 2050.

The Garnaut Review recommends the target should be to reduce emissions by 80% of 2000 levels by 2050.

In the Green Paper and elsewhere, the Government has announced Australia's long-range CO_2-e emissions target should be to cut total national emissions by 60% from 2000 emissions levels by 2050. The Government has not yet announced its preferred 'trajectory' for achieving this long-range target.

The Garnaut Review recommends larger emissions cuts than this long-range target already set by Government. The Garnaut Review recommends working toward a global CO_2-e level of 550 ppm in the earth's atmosphere by 2050 (compared with the current level of 455 ppm). Garnaut suggests that 450ppm would be preferable (i.e., an absolute cut from current atmospheric levels) but acknowledges this would be very difficult to achieve. The Review also recommends aiming for equal CO_2-e emissions per capita globally (see graph below). These recommendations mean Australia needs to reduce national CO_2-e emissions by 80% of 2000 levels by 2050 or, in per capita terms (because population keeps rising) by 90% of 2000 levels by 2050. That is, emissions per capita would need to be reduced to *one tenth of their 2000 levels* by 2050.

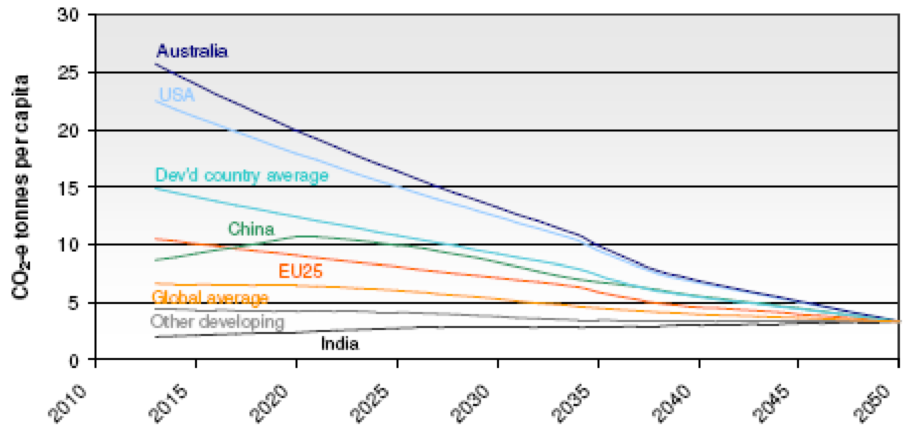
Given the significant gap between the Government's stated policy position and Garnaut's recommendation however, Garnaut's preferred target is unlikely to be implemented at this stage.

The emissions 'trajectory'

The Garnaut Review recommends reducing emissions by 10% of 2000 levels by 2020.

Of equal importance to the long-range emissions target is how we get there, that is, the 'trajectory' of annual emissions targets along the way. The Garnaut Review recommends achieving a global target of 550ppm via a cut to emissions of 10% of 2000 levels by 2020, or a 30% cut per capita from 2000 levels.

Garnaut's international per capita emissions trajectories, aiming for 550ppm



Note: The graph starts in 2012. Australia's 2012 starting value assumes Kyoto compliance, as do those for the EU25. Other countries start at their emissions level given by the no mitigation scenario in 2012.

Source: Garnaut Climate Change Review, September 2008.

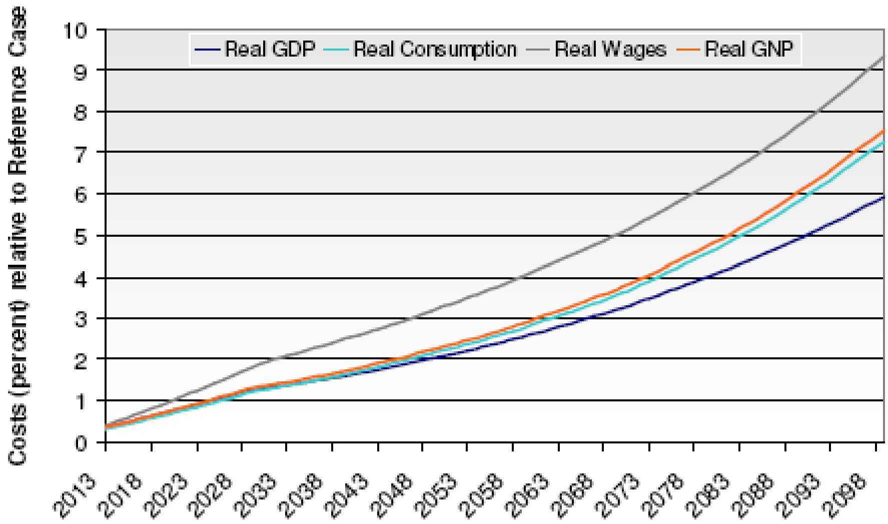
The Garnaut Review's preferred trajectory of cuts per capita is illustrated in the graph above. The ultimate aim of this proposal is to achieve equal emissions per capita worldwide, at a sustainably low level, and assuming globally tradeable emissions entitlements. Since Australia currently has the highest emissions per capita worldwide (mainly due to our emissions-intensive energy sector and our large agriculture sector relative to a small population base), we would need to make the biggest cuts per capita in order to achieve this.

Estimates of costs

Doing nothing about climate change will cost Australia 0.9% of GDP by 2020.

As in their draft report, the Garnaut Review has again emphasised the costs to Australia's economy and environment of doing nothing about climate change. This report estimates the cost to the economy would be a 0.9% cut to GDP per year and a 1.2% cut to consumption by 2020, and rising each year over time.

Expected market costs of unmitigated climate change (type 1 costs only)



Source: Garnaut Climate Change Review, September 2008.

Garnaut's preferred policy response will cost 1.1% of GDP and 1.8% of consumption p.a. by 2020.

The temperature increases expected by the Garnaut Review in the event of unmitigated climate change are large, at 5.6-7.1˚ by 2100. If CO_2-e can be kept to 550ppm or below, then temperatures would rise by only 2.5 to 3.2˚, which is still a large increase in temperatures, but perhaps less catastrophic. If CO_2-e could be lowered even further, to 450ppm, then temperature increases might be limited to 2.0-2.6˚.

The Garnaut Review estimates that the total cost to the Australian economy of attempting to mitigate climate change would be 1.1% of GDP p.a. by 2020 if we aimed for 550ppm by 2050, or 1.6% of GDP p.a. if we aimed for 450ppm by 2050 (see table below). Interestingly, the cost of doing nothing is not much lower, at 0.9% of GDP and 1.2% of consumption. The marginal cost of acting is therefore not so large, in aggregate, as the initial numbers would imply.

Garnaut policy scenario modelling results: annual costs in 2020

% change in:	450ppm	550ppm	Copenhagen	'waiting game'
GDP	- 1.6	**- 1.1**	- 1.3	- 0.9
GNP	- 2.0	**- 1.5**	- 1.4	- 0.9
Consumption	- 2.4	**- 1.8**	- 1.6	- 1.2
Domestic price of CO_2-e /t (A$)	$60.0	**$34.50**	$52.60	$29.60

Source: Garnaut Climate Change Review, Sept 2008

In this report, the Garnaut Review also recommends starting emissions trading by selling permits at a fixed price for at least the first two years instead of auctioning them, so as to provide market stability through the initial transition phase. It recommends a starting price of $20 per tonne in 2010, rising by 4% plus CPI per year until 2012. The Review expects the price is then likely to settle at $23/t by 2013 and $34.50/t by 2020 (in 2005 Australian dollars).

All of these costs and prices assume global agreement and cooperation on international emissions trading beyond the Kyoto Agreement period that will end in 2012. In the absence of such global agreement (that is, if all countries acted alone) the costs of mitigating climate change in Australia will be higher.

Putting a price on CO2-e emissions will (deliberately) change the relative prices of energy sources, in Australia and world-wide.

These aggregates do not of course indicate *who* would bear which costs, and this report provides no indications on this score (the final report will include more detail). The report does however imply that some emissions-intensive industries might, in the longer term, prefer to relocate offshore to places with lower emissions costs. It gives the 'hypothetical' example of an aluminium smelter relocating to countries with lower energy prices, given the new carbon-based pricing of energy. In the new era, relative prices of energy sources will change, and coal-based energy will not always necessarily remain the cheapest source. This change in energy price relativities is an intended consequence of introducing carbon emissions trading, but the move of high-emissions facilities (such as aluminium smelting) to countries with little or no emissions regulations will not be intended. Indeed, such a move would be regarded as 'carbon leakage' and an undesirable (but possibly unpreventable) side-effect. This is why Prof. Garnaut calls the reduction of CO_2-e emissions such a 'diabolical problem'.

As in all reforms, the costs and benefits will not be borne equally. It will be up to Government to distribute compensation and adjustment assistance as appropriate. The Government has already indicated it will be allocating at least 20% of emissions permits at no charge, against the recommendations of the Garnaut Review's draft report. Compensation to industry and low-to-medium-income households will also be paid, with the details yet to be determined.

Next moves

The full recommendations of the Garnaut Review will be released in a Final Report at the end of September.

Treasury will release its final modelling results in October.

Both of these reports will be advisory only.

Government plans to release a White Paper and draft legislation by the end of 2008. These will set out the detail of the proposed emissions trading scheme.

For further information on this topic, see our other publications on our website:

ANZ Industry Update: Emissions Trading, August 2008.

Business and the Carbon Pollution Reduction Scheme: 10 things you need to know, July 2008.

ANZ Industry Update: Emissions Trading, July 2008.

ANZ Industry Update: Emissions Trading, April 2008.

"Update on Australian Climate Change Policy", *ANZ Economic Outlook,* March 2008, pp. 21-24.

"The Road to an Emissions Trading System", *ANZ Australian Economics Weekly*, 8 June 2007.

ANZ Industry Report: Emissions Trading, June 2007.

"Sources of Carbon" *ANZ Australian Economics Weekly*, 23 March 2007.

"Carbon Trading", *ANZ Economic Outlook*, March 2007, pp. 21-24.

Contacts

ANZ Economics & Markets Research

Saul Eslake
Chief Economist
+61 3 9273 6251
Saul.Eslake@anz.com

Fiona Allen
Business Manager
+61 3 9273 6224
Fiona.Allen@anz.com

Tony Pearson
Deputy Chief Economist, Industry and Strategic Research
+61 3 9273 5083
Tony.Pearson@anz.com

Mark Rodrigues
Senior Economist, Industry and Strategic Research
+61 3 9273 6286
Mark.Rodrigues@anz.com

Julie Toth
Senior Economist, Industry and Strategic Research
+61 3 9273 6252
Julie.Toth@anz.com

Warren Hogan
Head of Australian Economics and Interest Rates Research
+61 2 9227 1562
Warren.Hogan@anz.com

Katie Dean
Senior Economist, Australian Economics and Interest Rates Research
+61 3 9273 1381
Katie.Dean@anz.com

Riki Polygenis
Economist, Australian Economics and Interest Rates Research
+61 3 9273 4060
Riki.Polygenis@anz.com

Dr. Alex Joiner
Economist, Australian Economics and Interest Rates Research
+61 3 9273 6123
Alex.Joiner@anz.com

Patricia Gacis
Strategist, Australian Economics and Interest Rates Research
+61 2 9227 1272
Patricia.Gacis@anz.com

Jason Hill
Credit Analyst
Jason.Hill@anz.com

Amy Auster
Head of Foreign Exchange and International Economics Research
+61 3 9273 5417
Amy.Auster@anz.com

Tony Morriss
Senior Currency Strategist, Foreign Exchange and International Economics Research
+61 2 9226 6757
Tony.Morriss@anz.com

Jasmine Robinson
Senior Economist, Foreign Exchange and International Economics Research
+61 3 9273 6289
Jasmine.Robinson@anz.com

Amber Rabinov
Economist, Foreign Exchange and International Economics Research
+61 3 9273 4853
Amber.Rabinov@anz.com

Mark Pervan
Head of Commodities Research
+61 3 9273 3716
Mark.Pervan@anz.com

Amber Rabinov
Economist, Commodities Research
+61 3 9273 4853
Amber.Rabinov@anz.com

Paul Braddick
Head of Property and Financial System Research
+61 3 9273 5987
Paul.Braddick@anz.com

Ange Montalti
Senior Economist, Property and Financial System Research
+61 3 9273 6288
Ange.Montalti@anz.com

Dr. Alex Joiner
Economist, Property and Financial System Research
+61 3 9273 6123
Alex.Joiner@anz.com

Stephanie Wayne
Research Analyst, Property and Financial System Research
+61 3 9273 4075
Stephanie.Wayne@anz.com

Paul Gruenwald
Head of Economics, Asia
+65 6419 7902
Paul.Gruenwald@anz.com

Ivy Tan
Associate Director, Credit Research, Markets Asia
+65 419 7914
Ivy.Tan@anz.com

Research & Information Services

Mary Yaxley
Head of Research & Information Services
+61 3 9273 6265
Mary.Yaxley@anz.com

Marilla Rough
Senior Information Officer, R&IS
+61 3 9273 6263
Marilla.Rough@anz.com

Manesha Jayasuriya
Information Officer, R&IS
+61 3 9273 4121
Manesha.Jayasuriya@anz.com

ANZ New Zealand Research

Cameron Bagrie
Chief Economist
+64 4 802 2212
Cameron.Bagrie@anz.com

Khoon Goh
Senior Economist
+64 4 802 2357
Khoon.Goh@anznational.co.nz

Philip Borkin
Economist
+64 4 802 2199
Philip.Borkin@anznational.co.nz

Steve Edwards
Economist
+64 4 802 2217
steve.edwards@anznational.co.nz

Kevin Wilson
Rural Economist
+64 4 802 2361
TKevin.Wilson@nbnz.co.nz

Important Notice

Australia and New Zealand Banking Group Limited is represented in:

AUSTRALIA by:

Australia and New Zealand Banking Group Limited ABN 11 005 357 522

14th Floor 100 Queen Street, Melbourne, Victoria, 3000, Australia

Telephone +61 3 9273 6224 Fax +61 3 9273 5711

UNITED KINGDOM by:

Australia and New Zealand Banking Group Limited

ABN 11 005 357 522

40 Bank Street, Canary Wharf, London, E14 5EJ, United Kingdom

Telephone +44 20 3229 2121 Fax +44 20 7378 2378

UNITED STATES OF AMERICA by:

ANZ Securities, Inc. (Member of NASD and SIPC)

6th Floor 1177 Avenue of the Americas

New York, NY 10036, United States of America

Tel: +1 212 801 9160 Fax: +1 212 801 9163

NEW ZEALAND by:

ANZ National Bank Limited

Level 7, 1-9 Victoria Street, Wellington, New Zealand

Telephone +64 4 802 2000