

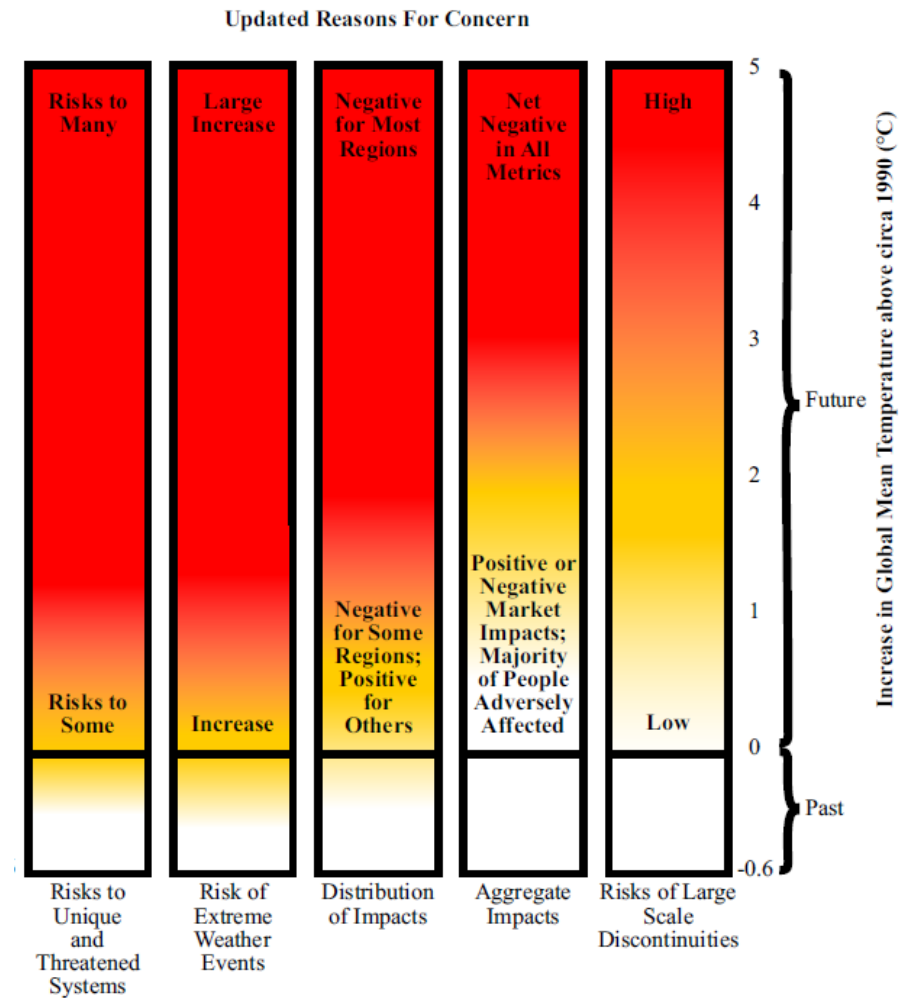
Greenhouse Gas Emission Reduction Targets for Australia and the Australian Capital Territory

**Presentation for the Legislative Assembly Inquiry
into ACT Greenhouse Gas Reduction Targets**

**Dr. Peter J. Wood
June 3, 2009**

Probabilities of exceeding 2°C

- More than 2°C of warming is widely considered to be dangerous climate change.



Smith, J. B. *et al.* Proc. Natl Acad. Sci. USA 106, 4133–4137 (2009).

Probabilities of exceeding 2°C

- The amount of cumulative global emissions up to 2050 is a good indicator of the likelihood that we will exceed 2°C of warming.

nature

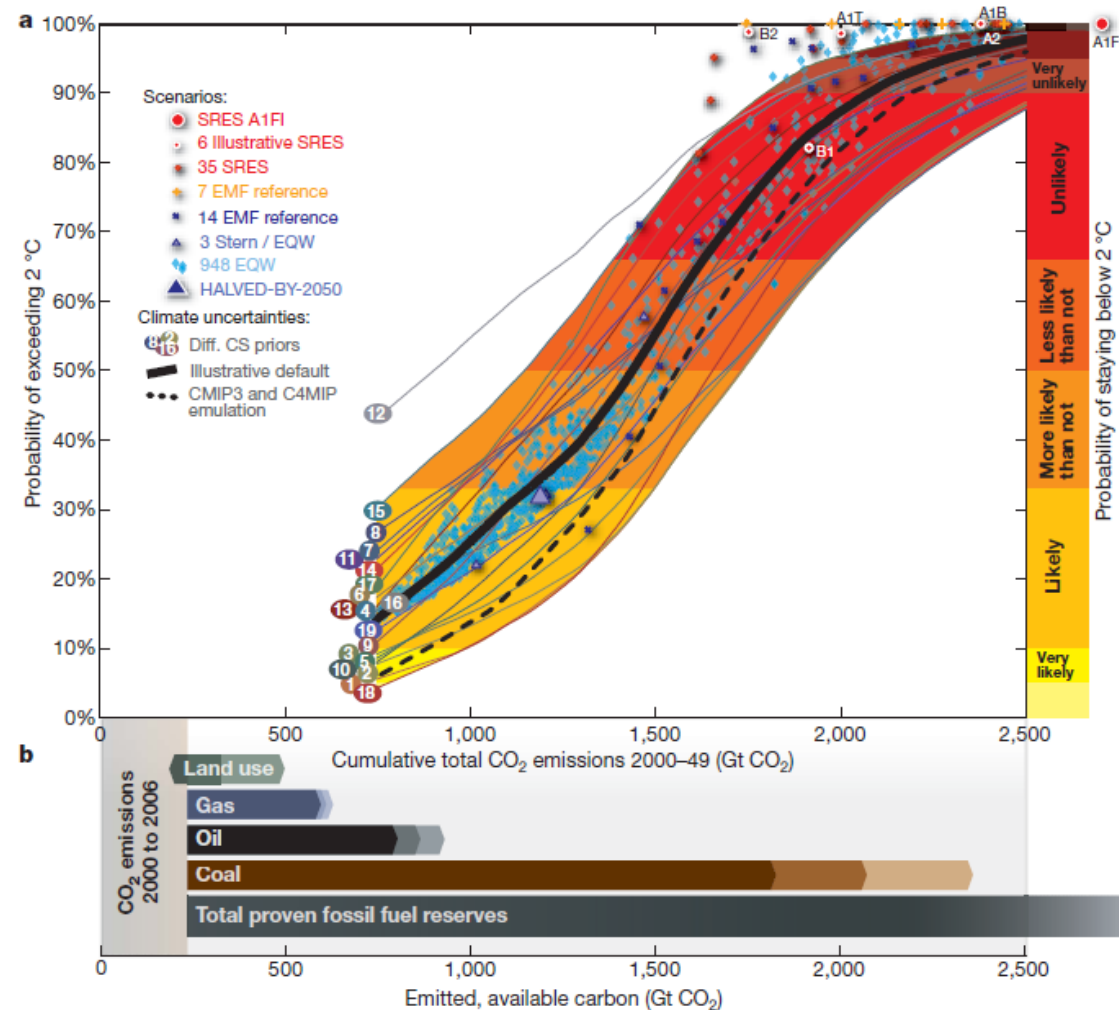
Vol 458 | 30 April 2009 | doi:10.1038/nature08017

LETTERS

Greenhouse-gas emission targets for limiting global warming to 2 °C

Malte Meinshausen¹, Nicolai Meinshausen², William Hare^{1,3}, Sarah C. B. Raper⁴, Katja Frieler¹, Reto Knutti⁵, David J. Frame^{6,7} & Myles R. Allen⁷

Probabilities of exceeding 2°C

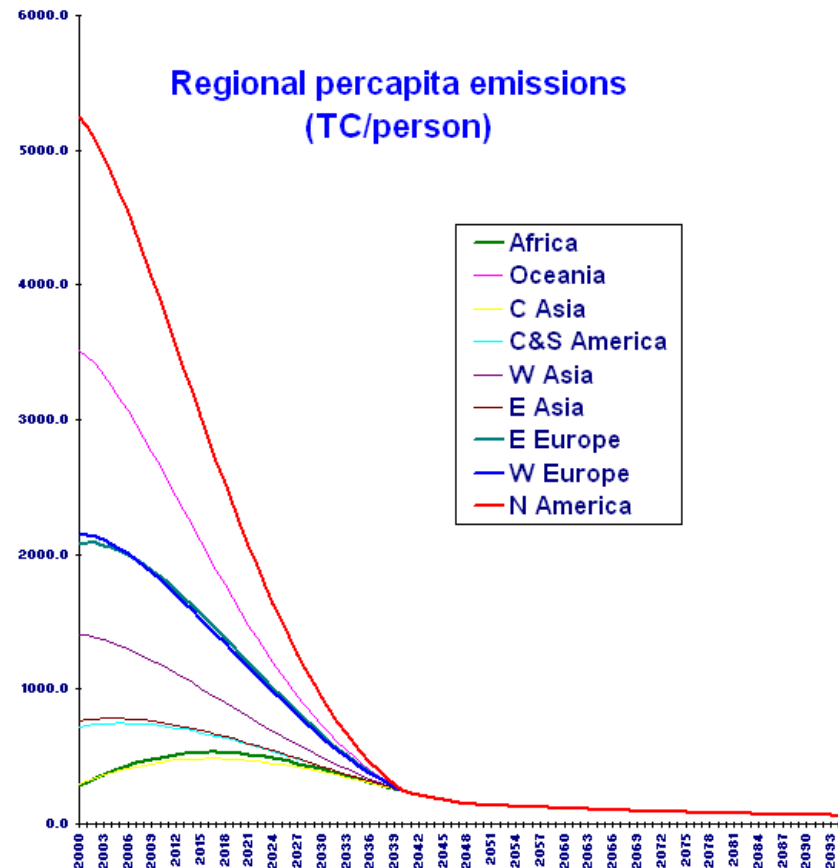


Meinshausen *et al.*, 2009

Emissions in Australia

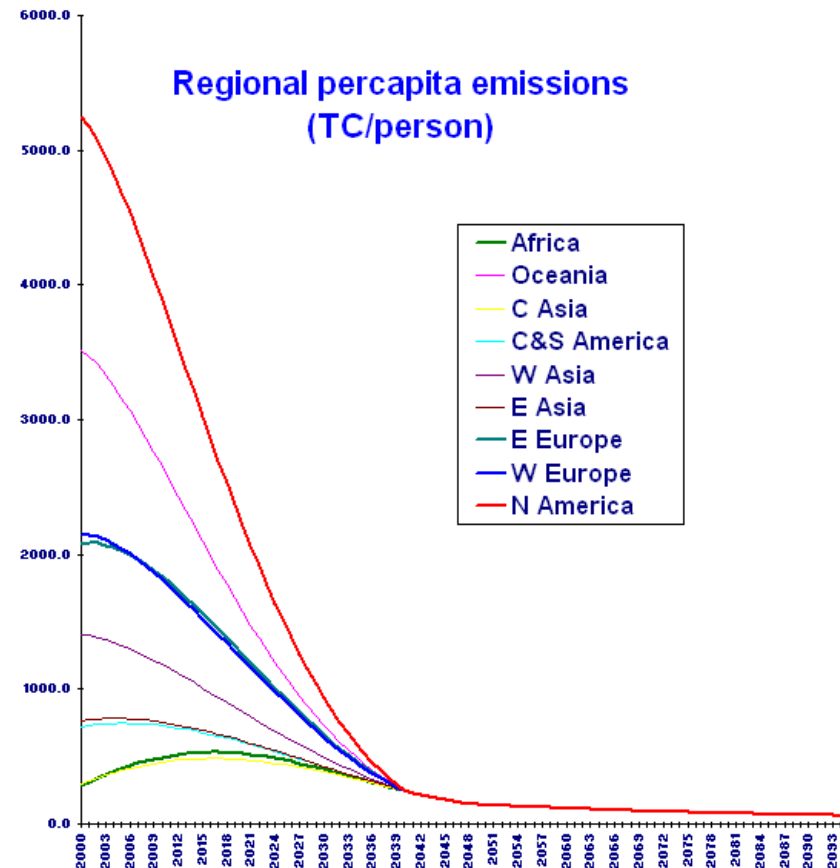
- An equitable approach to international emissions reductions suggests that all countries will eventually need to be allocated the same amount of per-capita emissions – this is known as *contraction and convergence*.

<http://www.gci.org.uk/contconv/cc.html>



Emissions in Australia

- Australian per-capita emissions in 2007 were 28.4 tonnes carbon dioxide equivalent per person – about 4 times the global average.
- Australia will have to reduce its emissions more quickly if there is an earlier *convergence date*.



2020 Emissions in Australia

- We can estimate equitable emissions allocations for Australia for two parameters:
 - the global emissions budget until 2050;
 - the convergence date.
- We assume constant percentage annual global emissions reductions from 2010, and a 3% growth in emissions before 2010, except for a one-off 3% drop in emissions due to the financial crisis.

2020 Emissions in Australia

					Australian emissions reduction in 2020 compared to 2000 levels			
		Probability of exceeding 2 degrees C		Annual global emissions growth	Convergence Year			
		range	default case		2020	2030	2040	2050
Kyoto-gas Budget 2000-2050 (Gt CO2-e)	1356	8-37%	20%	-5.30%	82%	60%	52%	48%
	1500	10-43%	26%	-4.20%	80%	55%	46%	42%
	1678	15-51%	33%	-3.13%	78%	49%	40%	35%
	2000	29-70%	50%	-1.70%	74%	41%	30%	25%

- Probabilities obtained from Meinshausen *et al.*, 2009.
- We could take on weaker global targets for 2020, but this will result in significantly greater annual emissions reductions being required after 2020.

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- A **60%** reduction by 2020 compared to 2000 levels could be expected of Australia by other countries, and we would still have a significant (20%) risk of exceeding 2°C of warming.

What about the ACT?

- ACT per-capita emissions (13.7 tonnes in 2004-05) are lower than for Australia, due to less heavy industry.
- ACT per-capita residential energy use is significantly higher than for the rest of Australia (8,000 KWh for the ACT compared to 5,600 KWh for NSW).

Source: ACT Government Submission to the Inquiry on ACT Greenhouse Gas Reduction Targets, May 2009

What about the ACT?

- The likelihood of carbon pricing suggests that the ACT will face a significant future liability if we do not quickly reduce emissions.
- If the ACT can demonstrate that significant emission reductions in Australia are achievable, this could help drive emission reductions in the rest of Australia and the world.