Response to Interim Report – Jon Stanger

Dear Professor Garnaut

I a write to commend you and your courageous stand in proposing an Emissions Trading Scheme, which does not include free credits for major polluters, and on your innovative and far-reaching proposals for supporting international action to address climate change.

However, I am concerned that the strength of your recommendations for action are not matched by equivalent clarity and force in your summary of the climate change science. I realise that as an economist, you may feel constrained in addressing this topic, and that the well-resourced efforts of the climate sceptics can make it difficult to discern the emerging consensus amongst scientists. Nonetheless, I believe that it is vital that this section of your report is strengthened by reference to the most recent science. The concerns I have about this section of the Interim Report as it stands are:

(1) Limited summary of the science of climate change. In later parts of the Report, the dangers of climate change are correctly referred to as potentially catastrophic. However, the relative weakness of the section on the science of climate change does not convey the basis for this evaluation not does it provide a solid foundation on which to mount a case for the sweeping changes required. I note that consideration of the science of climate change in the Interim Report is acknowledged as "brief", and as "meant only to provide an indication of the directions of work in progress and an outline of emerging policy ideas (p7)". Also, I note the difficulty posed by "the Review [having] neither the time nor the resources" to "adjudicate on the relative merits of various expert scientific opinions" (p9). However, provision of relevant and up to date information on the science of climate change to the government and the public is essential for consensus building regarding the need for urgent and decisive action on the scale that is required. I therefore believe it is essential to provide a summary of the most recent developments in the science in the Final Report.

(2) Reliance on IPCC data dangerously misleading. IPCC data is referred to as the consensus view, which is understandable given the constraints noted in (1). However, IPCC predictions are dangerously out of date by the time they are released because of the time delays involved in the lengthy review process. They are thus not a responsible base from which to determine climate change policies. Other criticisms of the IPCC are mentioned (p9) but not this important limitation. The acceleration in climate change that is being observed (see below) makes reliance on data from several years ago dangerously misleading.

(3) Omission of recent Arctic ice melting data which has important implications for targets. The report mentions that global emissions, temperatures, and sea levels have all increased above IPCC estimates. However, the exponential decline in the Arctic summer ice in recent years, one of the most compelling indicators that we have already entered the realm of dangerous climate change, is not reported. Some data summarised by David Spratt, Carbon Equity, of the type that I believe must be included in the Final Report:

- **a.** EXTENT LOSS: On 16 September 2007, the Arctic sea-ice minimum fell to a record low of 4.13 million square kilometres, compared to the

previous record low of 5.32 million square kilometres in 2005, representing a precipitous decline of 22 per cent in two years. The loss was '1.19 million square kilometres, roughly the size of Texas and California combined, or nearly five United Kingdoms,' according to the National Snow and Ice Data Centre at the University of Colorado. The 2007 summer extent was only half the pre-1980 average. Source: www.nsidc.org/news/press/2007_seaiceminimum/20070810_index.html

b. ICE THICKNESS: In the early 1960s the ice was 3.5 metres thick; by the late 1980s it was down to 2.5 metres, and now in 2008 large areas are only one metre thick. This thinning is accelerating, half of it occurring in the last seven years. Source: Maslowski, W. 'Causes of changes in Arctic sea ice', AMS ESSS Seminar, 3 May 2006; Bjornes, C. 'International polar day, 21 September 2007: sea ice', www.cicero.uio.no/webnews/index_e.aspx?id=10868

c. ICE VOLUME: Taken together, the shrinking ice area and the declining ice thickness mean that the total mass of summer sea-ice has dropped to less than twenty per cent of the volume thirty years ago. As the summer extent shrinks, more of the reset winter ice is new.

d. NEW WINTER ICE WILL NOT SURVIVE FOLLOWING SUMMER: In the northern winter of 2007-08, perennial ice covers less than 30 percent of the Arctic, the balance is new (first-year) ice. Only three per cent of the first year ice typically survives the following melt season. The first-year ice is in a highly vulnerable state, so the northern summer of 2008 will see even more open water. Source: 'Researchers say Arctic sea ice still at risk despite cold winter', 18 March 2008, www.nasa.gov/topics/earth/features/seaice_conditions_feature.html

(4) Inappropriate emphasis on targets of 450ppm and 550ppm to avoid dangerous climate change, rather than 300-350ppm. One of the important implications of the data on the melting of the Arctic ice is that that dangerous climate change appears to have commenced some years ago at around 300-350ppm of atmospheric greenhouse gases at which point rapidly accelerating melting of the Arctic ice commenced with likely flow-on effects for the Greenland ice sheet. However, higher targets are repeatedly referred to in the Interim Report as appropriate targets, for example:

The European Union has adopted an objective of limiting the global mean temperature increase to 2°C above pre-industrial levels (European Council, 2005), which is seen as a threshold above which the risk of extreme climate change impacts becomes high. A stabilisation target of 450 ppm CO2-e gives about a 50 per cent chance of meeting this objective , (Meinshausen, 2006). (p24). It is now clear that a target of 450ppm has zero chance of avoiding critical tipping points, since the melting of the Arctic ice shows these have already been passed. James Hansen, in his letter to Kevin Rudd states:

Based on current information, we now realize that we have passed or are on the verge of passing several tipping points that pose grave risks for humanity and especially for a large fraction of our fellow species on the planet … Potential consequences of passing these tipping points include (1) loss of warm season sea ice in the Arctic and thus increased stress on many polar species, possibly leading to extinctions, (2) increasing rates of disintegration of the West Antarctic and Greenland ice sheets, and thus more rapidly rising sea levels in coming decades, (3) expansion of sub-tropical climates adversely affecting water availability and human livability in regions such as the American West, the Mediterranean, and large areas in Africa and Australia, (4) reduction of alpine snowpack and water run-off that provides fresh

water supplies for hundreds of millions of people in many regions around the world, and (5) increased intensity of the extremes of the hydrologic cycle, including more intense droughts and forest fires, on the one hand, but also heavier rains and greater floods, as well as stronger storms driven by latent heat, including tropical storms, tornados and thunderstorms.

The science is pointing to a target of around 300-350ppm and, although we have already overshot this level, it should not be dismissed as a long term objective. Emission reduction pathways to stabilise CO2 concentrations at 350 ppm and below must be modelled. Preliminary indications are that Australia's greenhouse emissions must peak no later than 2010 and then rapidly decline in line in order to achieve this target.

(5) Tacit acceptance of unacceptably high risks. The Report mentions that when a potential danger is catastrophic, then the acceptable risk must be close to zero. However, in paragraphs such as that quoted in (4) above, a fifty percent risk of exceeding 450ppm is quoted without any comment to raise questions as to whether this risk should be seen as acceptable. Similarly on page 24

Stabilisation at 500ppm or 550 ppm of CO2-e would be less politically demanding, with less costly mitigation. It would be more likely to be achieved, but be associated with much higher risks of dangerous climate change. 550 ppm is the level to which implies a 50 per cent chance that temperatures will increase 3°C above pre-industrial levels. It is misleading, and inconsistent with the main thrust of the Report, to represent stabilisation at 550 ppm as holding out any acceptable probability of avoiding dangerous climate change.

***(6)* Use of out of date estimates of climate sensitivity.** Hansen et al state that *Paleoclimate data show that climate sensitivity is ~3°C for doubled CO2, including only fast feedback processes. Equilibrium sensitivity, including slower surface albedo feedbacks, is ~6°C for doubled CO2 for the range of climate states between glacial conditions and icefree Antarctica.* See attached paper by Hansen et.al. (in press) *Target Atmospheric CO2: Where Should Humanity Aim?*

(7) Self fulfilling pessimism about the likelihood of decisive action. The Interim Report notes that:

The Australian Conservation Foundation and other non-government organisations have asked the Review to focus as well on a 400ppm objective … We appreciate their concern, and note only that the prospects of achieving the global mitigation effort that would be necessary to achieve this outcome appear to be remote in early 2008 ... To keep the possibility of eventual attainment of a 400ppm objective (with overshooting) alive, the 450ppm objective could be pursued with a view to tightening emissions targets if at some future time the political and technological conditions for far reaching mitigation had improved. (p25)

In failing to consider the possibility that, with effective leadership, fast and deep cuts in emissions are possible, the Review runs the risk of participating in a self-fulfilling prophecy. One of the most important influences shaping the possibility of decisive action in Australia is the Garnaut Review. The less ambitious the targets set in the Report, and the less clear the warnings about the implications of the science, the less likely is courageous action by the Rudd government – and consequently other governments. Alternatively the greater the courage shown in this review, the greater the chance of decisive action and of meeting more ambitious targets.

(8) Assumptions about 'business as usual'. The Interim Report makes reference to the capacity of societies to take decisive action in the context of a state of emergency such as that of World War Two. We must look to science to set our targets, not our evaluations of what is possible under 'business as usual'. It may well be necessary to move beyond 'business as usual' to address the catastrophic risks we face.

I will do all I can to support the changes that are required. I commend you for the courage you have already shown in taking a strong stand on the actions that are required to save our planet and trust that you will find a way to state more clearly the science which can provide the basis for decisive action.

"The ultimate measure of people is not where they stand in moments of comfort and convenience, but where they stand at times of challenge and controversy." - Dr Martin Luther King Junior

Yours sincerely

Jon Stanger