

CSIRO Submission 08/279

Garnaut Climate Change Review Forum 3: Climate
Change and Emissions Stabilisation

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CSIRO Response

CSIRO welcomes the opportunity to provide input on this issues paper. Overall the paper is consistent with CSIRO's research and with findings from recent studies. However, there are two specific points on which CSIRO would like to comment:

1. Temperature reference level

Consistency in the temperature reference level, 1990 or pre-industrial, is required, as these differ by order 0.5 °C, which is a significant fraction of a total 2°C change. In section 2.2, a mean global temperature increase of 2°C is mentioned as the widely considered maximum level of warming that may avert 'dangerous climate change', with reference to Fig. 1 which gives temperature change relative to *pre-industrial*. In contrast, Section 3.3 mentions 2°C relative to *1990 levels* as being the challenge in this context. The 2°C of warming widely cited in this context is actually relative to the *pre-industrial* level, and so the last sentence in Section 3.3 should read "...is to be held to less than 2°C relative to pre-industrial levels."

2. Uncertainty in temperature response

Fig. 1 in the document gives a range of temperature for each range of stabilisation concentration which is small. The original figure in the IPCC Synthesis Report clearly states that this range of temperature assumes a mid range global climate sensitivity of 3°C for CO₂ doubling, whereas this important qualification is not mentioned in the document's Fig. 1. This could give an incorrect impression of the range of uncertainty of the temperature response. To make consistent with the IPCC Synthesis Report, this qualification needs to be added.

CSIRO's relevant capability

CSIRO conducts an extensive program of climate research. These activities include climate baseline monitoring and process experiments, a modelling program featuring both regional and global climate modelling, and a program in climate projection and adaptation research. CSIRO's climate research addresses a national priority of global significance by leveraging multi-disciplinary strengths and forming stakeholder partnerships, with a clear path to impact.

CSIRO has a track-record in successful development of an internationally-reputable coupled climate model, and in providing the climate change projections from the model to the IPCC. This has been achieved through its strong competitive advantage in spanning the range of relevant disciplines and research applications, from understanding of ocean and atmospheric processes, to delivery of policy/industry information for decision making.

Establishment in 2007 of the Centre for Australian Weather and Climate Research and the Climate Adaptation National Research Flagship build on these strong foundations. Contributing to the IPCC process has been a major undertaking by CSIRO with a considerable commitment of resources during the past 20 years as lead and contributing authors of the IPCC's 2007 4th Assessment report and earlier reports.

CSIRO is also a significant contributor to international climate change efforts through the World Climate Research Programme, the International Geosphere-Biosphere Programme, and the Global Ocean Observing System.

CSIRO would be pleased to provide additional information from this research to support the conduct of the review on request.