

The Secretary,  
Senate Standing Committee on Economics,  
PO Box 6100  
Parliament House  
CANBERRA ACT 2600

## **Inquiry into exposure draft of the legislation to implement the Carbon Pollution Reduction Scheme**

The sole purpose for legislation to implement the Carbon Pollution Reduction Scheme is to ensure that Australia conforms with its international obligations under the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol to that Convention, and future obligations that might be negotiated within the framework of the Convention.

It should be noted that the purpose of the UNFCCC and its Protocols is to ensure that human activities, especially the release of carbon dioxide to the atmosphere, do not result in dangerous climate change. Dangerous climate change has not been defined under the Convention but is widely accepted to be an increase in global average temperature greater than 2°C.

It should also be noted that, under the UNFCCC, climate change is defined as climate change solely caused by human activities. Climate change resulting from the natural variability of the climate system and varying extra-terrestrial forcing of the climate system is not covered by the Convention.

The only methodology available to differentiate between natural and human-caused climate change is through climate simulation using computer models. The limited understanding of the magnitude of extra-terrestrial forcing of climate and of the internal variability of the climate system means that these factors are not (or at best poorly) differentiated in computer model simulations. All change manifest in computer model simulations that are forced by estimated future carbon dioxide equivalence is attributed to human activities.

Any actions taken under national programmes and in international cooperation will only impact on the perceived human-caused component of climate change. These actions will not prevent dangerous but naturally occurring climate change, such as the Little Ice Age with its peak cold during the 17<sup>th</sup> century. Nor will such actions prevent naturally occurring climate extremes, such as tropical cyclone Tracy that devastated Darwin in 1974, the Federation Droughts that persisted from the middle 1890s through to 1905, nor the devastating floods that periodically afflict various regions of the country. Weather and climate extremes are responsible for approximately 70 percent of natural disasters and none of this loss will not be offset by programmes to reduce perceived human-caused climate change.

The economic benefits of the government's proposed carbon pollution reduction scheme result not from averting dangerous climate events because these events occur naturally. The benefits will arise from reduction of the perceived increase in the climate hazard resulting from human-caused global warming. However most of the climate hazards, including tropical cyclones, flood rain events, heat waves and ensuing firestorms, damaging gales, etc cannot be resolved by climate computer models.

The economic benefits from averting climate hazards that might be a result from human-caused climate change is at best speculation but at worst a wild guess. All that climate computer models can represent is the potential for global warming as a consequence of human emissions of carbon dioxide and other materials with equivalent radiation impacts. There is no accepted science that relates global temperature to variations in the frequency and intensity of weather and climate hazards.

The veracity of the economic benefits of the Carbon Pollution Reduction Scheme and implementation of the associated legislation rests solely on the essential assumptions of the United Nations'

Intergovernmental Panel on Climate Change (IPCC) and the computer model predictions that are the basis of estimates of global warming resulting from human activity. The assumptions and computer predictions are fatally flawed:

1. Climate was not stable prior to industrialisation. The warmth of the most recent interglacial peaked at the Holocene Optimum between 4,000 and 8,000 years ago. Since that time global temperatures have been declining irregularly, with the trend broken by the Greco-Roman Warm Period (600BC-200AD), the Medieval Warm Period (800AD-1200AD) and the more recent emergence from the Little Ice Age (from 1750AD). The Little Ice Age that extended from the early 14<sup>th</sup> century through the late 17<sup>th</sup> century is a manifestation of the long-term declining temperature trend.
2. The assumption that additional carbon dioxide concentration will reduce infrared radiation to space and cause global warming cannot be verified. Nowhere is there radiation balance at the top of the atmosphere. The assumption of global radiation balance at the top of the atmosphere (the essential criterion for radiation forcing by carbon dioxide) can only be achieved by perfect transport of excess energy from the tropics to polar regions by the atmospheric and ocean circulations. This is an implausible outcome given the thermodynamic properties and high variability of the atmospheric and ocean fluid flows. Indeed, the temporal and spatial patterns of radiation emission to space are largely governed by the ever-varying distribution of clouds and moisture in the atmosphere.
3. Increased carbon dioxide in the atmosphere does enhance the greenhouse effect but the global warming response is constrained by additional evaporation of water vapour (and the additional exchange of latent energy) from the surface to the atmosphere. The radiation forcing from additional carbon dioxide is an enhancement of the back radiation from the atmosphere to the surface; for a doubling of carbon dioxide concentration this radiation forcing can be calculated using radiation transfer models, such as those of the climate models, as an additional  $3.7 \text{ Wm}^{-2}$  of back radiation. The surface temperature rise from the radiation forcing is constrained by an additional emission of infrared radiation from the surface ( $5.4 \text{ Wm}^{-2}$  for each degree Celsius temperature rise – the Stefan Boltzmann Law) and additional latent energy exchange ( $5.6 \text{ Wm}^{-2}$  for each degree Celsius temperature rise – the Clausius-Clapeyron relationship regulating evaporation to surface temperature). That is, the  $3.7 \text{ Wm}^{-2}$  radiation forcing from a doubling of carbon dioxide concentration is opposed by additional surface energy loss of about  $11.0 \text{ Wm}^{-2}\text{C}^{-1}$ . A doubling of carbon dioxide concentration will only sustain a surface temperature rise of order  $3.7/11.0$  or  $0.35^\circ\text{C}$ . Taking account of water vapour feedback that amplifies the direct radiation forcing (according to the IPCC, an amplification of about two times the direct forcing) a doubling of carbon dioxide concentration cannot sustain a surface temperature rise of more than  $0.7^\circ\text{C}$ . Taking note of the widely accepted  $2^\circ\text{C}$  criterion, a  $0.7^\circ\text{C}$  surface temperature rise by the end of the 21<sup>st</sup> century that is attributed to human activities cannot be considered dangerous.
4. The computer models that IPCC has relied on for projections of global warming are fatally flawed. These models grossly (by a factor of three) underestimate the rate of increase of surface evaporation with temperature, as reported in the peer reviewed literature (Journal of Climate; Science). As a consequence they underestimate the constraining effect of additional latent energy exchange with temperature rise and grossly exaggerate the temperature response to radiation forcing. It is also reported (in Science), based on satellite estimates of precipitation over recent decades of natural warming, that evaporation increase with temperature actually corresponds to the theoretically expected Clausius-Clapeyron relationship. Until this fundamental deficiency of computer models of the climate system is rectified no credence can be placed on the predictions of global temperature response to increasing carbon dioxide and other radiation forcing agents. The models grossly exaggerate the rate of increase of global temperature with carbon dioxide equivalent forcing and it is only these erroneous and misleading projections that suggest human activities will lead to dangerous climate change of more than  $2^\circ\text{C}$  by the end of the 21<sup>st</sup> century.

The attached presentation (Kininmonth 2009 Evaporation constrains anthropogenic global warming) to the International Conference on Climate Change (New York, 8-10 March 2009 sponsored by the Heartland Institute) elaborates on the methodology of why evaporation of latent energy will constrain anthropogenic global warming to non-dangerous levels and details the deficiencies of the computer models used by the IPCC Fourth Assessment of 2007. The additional document (IS CARBON DIOXIDE DANGEROUS Kininmonth) gives further background on the natural variability of climate and why emissions of carbon dioxide are not to be feared.

I would urge the Senate Committee to take note that the science relating to the climate system and the factors that regulate its ongoing variability remain poorly understood. Importantly, the computer models used by the IPCC to predict future global temperatures are fundamentally flawed and grossly exaggerate the influence of increasing carbon dioxide equivalence. As a consequence, any economic assessments based on those predictions of anthropogenic climate change are equally misleading. There is no confidence that temperatures will continue to rise during the 21<sup>st</sup> century as they did during the 20<sup>th</sup> century. A return to the long-term cooling trend of the last 4,000 years is an equally plausible outcome during the coming century, if it has not already begun. The Committee should heed the periodic freezing of many rivers in Europe during the Little Ice Age and the description given by the London diarist, John Evelyn, when the Thames River froze over from late December 1683 to early February 1684:

*“Conditions were terrible with men and cattle perishing and the seas locked with ice such that no vessels could stir out or come in. The fowls fish and birds and exotic plants and greens were universally perishing. Food and fuel were exceptionally dear and coal smoke hung so thickly that one could scarcely see across the street and one could scarcely breathe.”*

Humankind has learned to control the emission of pollutants but regulation of climate remains beyond our ability. Science does not support the fanciful claims of climate regulation based on computer models, nor are the purported economic benefits that would ensue from regulating carbon dioxide emissions into the atmosphere soundly based.

The government is urged to suspend implementation of the Carbon Pollution Reduction Scheme until a new suite of computer models have been developed that redress the currently known deficiencies and their exaggerated projections. The government is also urged to take a stand against intergovernmental action within the framework of the UN that would lead to additional binding commitments by nations for reduction of carbon dioxide emissions.

William Robert Kininmonth