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Letter to Senator Nick Minchin in response to [his reply of March 16th](#).

Dear Senator Minchin,

Thankyou for your reply of 16<sup>th</sup> March. Let me take your responses in turn:

***The reality is that the proponents of AGW have been embarrassed by the reality of the failure of the atmosphere to warm in accordance with the computer models over the past decade. This is abundantly clear from the "climategate" emails.***

We would all love the models to be perfect, but they never will be. They get better as more data is acquired and gaps in our knowledge are filled in. This is in the nature of all science and engineering. Every time you drive over a modern bridge or fly in a plane you trust engineering models, and they're not perfect either.

The embarrassment arose because, on the one hand, it is easy to measure the extra heat that the earth is accumulating (from satellite incoming/outgoing data), but much harder to say where it is all being stored. Yes, the surface temperatures have climbed more slowly than the early models calculated. If there had been no reasonable hypotheses to explain this it would indeed have been damaging to the proponents' case, but, as I explained in some length in my first letter, there is an abundance of possible explanations, and it may take years of extra data to choose between them. Meanwhile, we can consider the consequences for policy of each.

For example, if the major cause is more vertical ocean mixing than expected then surface temperatures may continue to rise at half the calculated rate for millennia. But that doesn't mean the problem goes away or that AGW is false.

If it is faster ice melt, that's worse, as it means the reprieve on rate of warming will be shorter lived. And with either of those two explanations, sea level rise becomes more rapid than anticipated. None of the most likely half dozen explanations are grounds for complacency.

As it happens, ice melt *does* appear to be faster than expected. Two news items from March 2011:

*Warmer air is only part of the story when it comes to Greenland's rapidly melting ice sheet. New research by scientists at Woods Hole Oceanographic Institution highlights the role ocean circulation plays in transporting heat to glaciers.*

<http://www.whoi.edu/page.do?pid=7545&tid=282&cid=95209&ct=162>

*The pace at which the Greenland and Antarctic ice sheets are melting is "accelerating rapidly" and raising the global sea level, according to findings of a study financed by NASA.*

<http://www.smh.com.au/environment/climate-change/polar-ice-melt-raising-sea-levels-rapidly-study-20110309-1bnp9.html>

To summarise, the embarrassment, such as it is, is no basis for disbelieving AGW as a phenomenon nor for trivialising its significance.

***If, as the AGW theory holds, anthropogenic CO2 emissions are the main driver of global warming , how come the global average temperature has stabilised but CO2 emissions have continued?***

I am surprised and dismayed that you persist in claiming temperatures have stabilised. I provided you with ample evidence to the contrary in my first letter. Merely repeating the claim does not progress the debate. Please provide me with *your* evidence.

You are probably aware of and derive comfort from leading US sceptical blogger Anthony Watts. When noted sceptic and astrophysicist Dr Richard Muller set up the Berkeley Earth Surface Temperature project, Watts was sufficiently impressed by Muller and the project's design to declare *"I'm prepared to accept whatever result they produce"*. The project has yet to go through the final stages of getting a peer-reviewed report published, but on 31<sup>st</sup> March Muller gave evidence to the energy and commerce committee of America's House of Representatives. While remaining critical of some of their methods, he confirmed the findings of the three main earlier reports by the National Oceanic and Atmospheric Administration (NOAA), NASA, and the University of East Anglia's Climatic Research Unit. See e.g. [http://www.economist.com/blogs/babbage/2011/03/climate\\_change](http://www.economist.com/blogs/babbage/2011/03/climate_change)

Watts is now scrambling for excuses to back away from his promise.

***Clearly we are dealing with an as-yet unproven theory, which seems a strange basis for turning our economy on its head.***

In the scientist's sense, no theory is ever proven; it merely reaches a point where the consensus accepts it as the most likely at hand. This is as true for quantum theory and general relativity as it is for evolution and AGW. And the standard that science traditionally sets for this is very high, like 90% confidence.

For policymakers, though, the question is whether the evidence is strong enough to justify action. For that decision, you need to consider the risks and costs in each direction. If equally bad, you'd only need better than 50% confidence to proceed.

Few politicians are scientists, so the most responsible course is to accept what the scientific consensus says regarding risks. Right now, that risk for business-as-usual could be characterised, on the 100 year scale, as ranging from the quite nasty to the downright awful. Professor Garnaut would be considered sanguine by many climate experts, yet even he sees the economic cost as disturbing, and very much more than that of reducing emissions substantially.

To make the point dazzlingly clear, try framing the argument in reverse. You have a theory that there is no AGW, or not enough to matter. If you think proving AGW is difficult, proving non-AGW is nigh impossible. Can you prove temperatures have stabilised? Can you prove the cause of the rise over the last century was not greenhouse gases? At the least, you would have to offer a credible alternative explanation (and solar variation doesn't come close). Yet on the basis of your theory, you propose to risk economic mayhem by inaction.

You will also need to prove the theory that oil prices will not skyrocket in the next few centuries. As BZE's Zero Carbon Australia 2020 plan explains, producing electricity from renewables can save Australia billions of dollars a year in oil imports. How's that for the economy?