

Beyond the AR4.

The IPCC presents an optimistic picture.

The IPCC is the most authoritative source of information concerning Global Warming, however it may not be the most accurate. The IPCC has a tendency to be unduly optimistic. This is for 3 reasons:-

1. The consensus methodology is essentially a conservative mechanism. Tending towards the lowest common denominator of agreement.
2. Although the work is in the main undertaken by the scientists in the IPCC nevertheless they are subject to a degree of political interference. There are a number of governments which do not want to acknowledge the threat of global warming. These governments appoint scientists who are known to have a sceptical stance, and oppose scientists who are known to be greatly concerned. Government representatives also have to accept the reports and sometimes interfere to tone down the message of the scientists. (Note. During much of the AR4 work USA, Australia, and China were opposed to a strong statement of the threat.)
3. The IPCC reviews the science over about a 5 years period. Inevitably this means that it is averaging results which are in some ways about 2-3 years behind the latest research. The scientific research over the last 3 decades has progressively shown that the threat is greater than was previously thought.

IPCC Suggested Targets.

The IPCC do not give any scenarios or targets for keeping the average temperature rise below 2°C. They suggest that to stay within the range 2.0-2.4°C (average 2.2°C) GHG emissions must peak before 2015 and that world emissions must be reduced by 50 to 85% by 2050. They say that developed countries should cut by 25-40% by 2020 and by 80-95% by 2050.

Politicians tend to interpret these results using the lowest figures, but it would be much more sensible to use mid-points of the ranges and aiming for the maximum values would be wise. (IPCC Working Group 3 Report.)

Science beyond the IPCC.

Given the foregoing it is not surprising that the more recent research has indicated that the threat is even greater than that put forward by the IPCC.

Things that have been discovered in last few years:-

- 1) Summer Arctic sea ice is now thought likely to be gone before the summer of 2020. At the time of the AR4 this was estimated as not before 2100. Reduction of the area's albedo will cause the arctic to heat 3.5 times faster than current models predict, giving a 5°C rise over a 5-10 year period.
- 2) Partly as a consequence. Methane plumes have been discovered where methane held under the arctic ocean is being released. There are 1,400 billion tonnes of locked carbon under the sea of the Siberian continental shelf.
- 3) Similar to the methane plumes in the arctic rising temperatures in Siberia are causing methane to bubble up from newly thawed lakes with such force that the lakes do not freeze even in sub-zero temperatures. (Currently climate models do not take account of methane release.)
- 4) Recent research has shown that the permafrost contains twice as much carbon as previously thought c. 1,600 billion tonnes. Currently there are;- c. 750 billion tonnes in

the atmosphere; man made emissions since 1850 amount to c. 350tonnes and are currently c. 8 tonnes pa. So the threat of the release of this is enormous.

- 5) Similarly to the permafrost regions the northern peat lands have started to release carbon. (They contain some 180-460 billion tonnes of carbon.)
- 5) The Greenland ice-sheet is melting up to 10 times more rapidly than previous research had indicated as are other glaciers around the world. This is expected to add a further 25 cms to the sea level rise by 2100. This estimate does not take account of the more catastrophic melting that some research is indicating may occur.
- 6) A study of palaeoclimatic data has suggested that catastrophic melting might add 50 cms by 2050 and several metres by 2100.
- 7) Currently about half of man made emissions of carbon are absorbed by the natural world. However over the last 20 years the Southern Ocean - one of the absorbers has reduced its absorption to about half of previous values a decline of about 7.5% in the total absorption.
- 8) Rising temperatures also reduce the ability of forests to absorb carbon. Recent research has suggested that some forests are close to a temperature threshold above which absorption is sharply reduced.
- 9) The Amazon rain forest is warming at 0.25°C every 10 years. This causes increased forest fires. It has been predicted that the Amazon forest could die back in less than 50 years, releasing 120 billion tonnes of carbon.
- 10) The area with a tropical climate has expanded by 220 kms in 25 years greater than the IPCC's worst case scenario for the year 2100.
- 11) It is thought that higher temperatures will reduce low level cloud cover. This increases global warming by allowing more sunlight in.

The above projections come from "the Climate Safety Report".

Version 1.0 Nov 2009.