
Excerpt about non-linearity of annual CO2 percent

Posted by uarka - 2008/03/02 12:29

Looks like I am one of the first to post

There are various reports about what responding global climate change requires

George Monbiot says

"In my book Heat I estimate that to avoid two degrees of warming we require a global emissions cut of 60% per capita between now and 2030(15). This translates into an 87% cut in the United Kingdom. This is a much stiffer target than the British government's - which requires a 60% cut in the UK's emissions by 2050. But my figure now appears to have been an underestimate ..."
in:

Monbiot article

Using this I tried to get some figures, The maths is a bit awkward, but bear with me.

Redoing the calculations from 2008-2030 (22 years)
 $1 * r * r * r * \dots$ another 18 times ... $* r = (1 - 0.87) = 0.13$

To find r, I used a calculator (it is the 22nd root of 0.13)
 $r = \text{annual reduction multiplier} = 0.911$
Annual change needed = $100 * (1-r) = 8.9\%$ decrease (ok not quite 9% but near enough)

However just dividing the reduction (87%) by the number of years (22) gives 3.95%. - Nowhere near!

This shows up the fallacy between compound percentage decrements over simple linear decrements. I don't think this is that easy to explain to the average person on the street, especially in today's inattentive world. However, perhaps comparing it with compound interest in mortgage payments would help explain! (Although perhaps this would be off-topic and only seek to antagonise them - don't know)

There are other reports and studies on the science which call for 80% by 2050 but they seems to be a lot of argument about CO2e (equivalent CO2 from other chemicals i.e. methane etc.)

"How much?" Monbiot article
FoE report(note the footnote at the end before the references).

I am not exactly sure about the inputs (i.e. targets) - I guess you would need to find a climate scientist to explain all of that, but to me this bit of mathematics seems to make sense to me. Personally I don't know how I could make reductions of *at least* 9% a year, but as you have already explained

"At first sight asking for 3% across the board from everyone seems to make sense, however, energy use, much like wealth is very unequal."

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Re:Excerpt about non-linearity of annual CO2 perce

Posted by ticktock - 2008/04/07 13:27

I don't see many people actually doing much.

We still have a long way to go before getting near 9% yearly cuts.

Certainly where i live, people are still driving their cars everywhere, even if it is just a mile or less.

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