

Comments on the Note to Ed Miliband

2nd February 2009

From: "Doly García"

Sent: Thursday, January 29, 2009 2:29 PM

All I can say on the issue of Hansen is, I have just been at an international sustainability conference in Zurich, and the evidence that climate change is man-made is overwhelming. You can see the model's predictions with the attributions to the different relevant factors, and make up your mind yourself here:

http://en.wikipedia.org/wiki/File:Climate_Change_Attribution.png

The fundamental problem I have with any claims that there is no man-made global warming is:

- 1) Nobody is disputing that carbon dioxide levels have risen, and that the cause for this has been the burning of fossil fuels
- 2) A very simple physics reasoning indicates that higher carbon dioxide levels should warm the atmosphere
- 3) If you claim that the atmosphere isn't warming when it should under the current understanding of physics, you need to have some mechanism explaining this. I have never seen such a mechanism explained. As usual, extraordinary claims require extraordinary evidence.
- 4) Climate models may well be flawed, though the fact that they seem to make accurate backcasting suggests they have good chances of being correct. However, any flaws they might have do not invalidate at all the basic physics principles that explain global warming.

Cheers,

Doly

From: "Doly García"

Sent: Saturday, January 31, 2009

It looks quite good to me, my only comments are:

- 1) I'm not certain that reforestation makes a big enough difference and the trees could be cut down and burned at some point in the future. I personally would prefer a program to grow algae in a big scale, they grow faster than trees and they can't be cut down. You could suggest it as an alternative to the reforestation program.
- 2) The world peak of conventional oil happened in 2005, the peak for all types of oil is predicted for 2010. This is not quite what you say.
- 3) I'm worried about how often politicians talk about carbon capture and storage. In Zurich I had a chance to meet the guy that has done the first demonstration plant of carbon capture and storage. He says that if all goes well, the first commercial plant

will be done in 2020. That's too late! Also, I asked him about the possibility of leaks and he admitted that we don't actually know enough to be certain there won't be leaks, and a leak of one percent a year would be disastrous, the carbon dioxide needs to remain underground for the next five thousand years at least. He's quite optimistic that the geological formations used so far won't leak, but if this is to be implemented in a large scale, who knows what would be used to contain the carbon dioxide? Finally, when I asked him about the EROEI of CCS plants he couldn't answer because he wasn't familiar with the concept. I will put him in touch with Charles Hall because I think it's fundamental to estimate the EROEI for this type of power plant.

4) It's true that projections for world growth aren't compatible with peak oil and the peak of other fossil fuels, but the arguments that explain this aren't generally known, and I don't expect Miliband will be familiar with them. Stating this alone sounds like jumping to conclusions. I'd say that there are experts that have said this, and mention Goldman Sachs analysts as an example.

Finally, this submission has a lot of things in it, I think some of them fall within Ed Miliband's remit and some don't. If there was a separation between the things he could take action himself and the things he needs to talk with his colleagues, it would prove that you have "done your homework" and aren't just firing all your bullets at every government official you can get hold of. Because I worked in a callcentre, I know what it's like to be on the receiving end of all sorts of demands, some of which you can help with and some of them you can only forward to somebody else, and I always found it much easier to talk with the people who understood this difference.

Cheers,

Doly

From: "Fergus Brown"

Sent: Saturday, January 31, 2009 12:13 PM

Dear Jim,

Though I am not a part of the group, what you are doing is of interest to me personally, beyond my professional status as a wind turbine salesman, so I hope you don't object to me making a few observations about your proposed document.

I have been a student of climate science for a couple of years now and a postgrad part-timer on environmental ethics, so have done a substantial amount of research on climate change, energy, peak oil and politics. These are my thoughts, please don't mind my presumption; I hope you find them useful, or at least thought-provoking...

- I think contrary to the IPCC Fourth Assessment Report, by 2100 it is very feasible that surface oceanic temperatures will have increased by 6°C – and equatorial parts of continents by 10°C. These feelings, whilst understandable, are not supported by the current science, as you will know. My take on this is that a 3c rise is very likely, a 4c rise likely, a 5c rise plausible. With unconstrained global development, there is a small chance of a 6c rise. But the amount of increase beyond 3c is less pertinent, since the consequences of a change at this level are a) not well understood, but a

source of deep concern to many scientists, and b) likely to be sufficient in and of themselves to radically transform our world. This second point is not well appreciated outside science circles, because it doesn't sound like a big change, but it really is a massive alteration in relation to the stability we have previously experienced in the post-industrial era. Simply put, our existing infrastructure is likely to collapse under the pressure of such a change.

A scenario without Gulf Stream reversal is (the most likely scenario is neither reversal nor shutdown of the THC, but fluctuation at previously unknown levels, the consequences of which will mainly be felt in Europe and North Africa). But the science is so uncertain that discussion of these possibilities is invariably speculative. However, there is a demonstrable and measurable risk of this, and this must be factored in to any consideration of the future shape of the world and the UK.

- World population displacements. This does not require THC changes or a 6c rise; this, I am certain, is already inevitable; indeed, in some places it has already begun. My estimate is that within 40 years there will be 150-1000 million people displaced due to climate change, poor international policy and the ancillary effects of these.
- A world food crisis. This has already begun and will worsen dramatically in the near future.
- Over the next 150 years mankind will see very large increases in sea levels. This is not very likely. An increase of 1-1.5 metres globally is feasible, and is supported by recent science. Again, this is much worse than it sounds; Portsmouth, for example, will cease to exist. It is hard to find a scientifically rational scenario where sea level will rise more than this. They don't need to, in order to change our world substantially. Say goodbye to Bangladesh...
- Markedly after 2080, emissions of methyl clathrates from shallow oceans and methane from permafrost areas, will lead to final temperature rises of ~35°C. This is absolutely unknowable and highly speculative. Though the conditions under which massive clathrate releases are still not well understood, the thinking is that whilst this is not impossible, it is too uncertain to include in a realistic future analysis. Methane release is a more real and serious issue, but is already factored in to the numbers cited above. Over the next 100 years, uncertainty over methane might plausibly result in an increase of global temperature to 4.5c-5c. The amount of methane required to raise temperatures by 30c is unimaginably vast and almost certainly more than exists on the planet.

To quote a phrase from Lenin: 'What is to be Done?'

- We see an 'energy gap', globally and in the UK. Peak oil production may have happened in 2007 or 2008, peak capacity may occur up to 2010. Peak gas is expected five years after peak oil, i.e. around 2013. Nuclear will not fill this gap. In the short term, the ONLY realistic energy option for the UK is wind power; at least until better technology has been developed and is shown to be economically viable.
- If the US develops Thorium reactors, we should collaborate on this and with the EU on Carlo Rubbia style 'energy amplifiers'. This implies a reliance on future

technologies which is characteristic of an American way of thinking (don't change anything now, wait till we have found the answers...). These may or may not happen. We cannot wait; by the time it is a reality, we will have condemned ourselves to disaster.

- Coal is a disaster (Climate Change), and terrible example to other nations. No coal without secure 100% carbon capture and disposal. There is more than one technology for this. They should be developed with vigour. The government and big business must get over the obsession with cheaply available energy; the price of energy is not just its cost, but also its consequences. The real future price of cheap energy now is measurable in human lives lost, nations damaged beyond survival. Fossil fuels must be wound down at the fastest rate possible. A Carbon tax is a good start; it should be draconian.

- Coal efficient energy burn, if this is possible, needs to be retrofitted to Chinese coal fired stations. All nations need to work together on this, because the Chinese will not dismantle their coal fired stations, though it is imperative that they must. But who will pay for this? That is the real question, to which there is no simple answer.

- The wind farm electricity generation 'ramp up' must be massive, and provides opportunities for British Industry. This is already the government's intention, but in spite of best efforts, it is still held up by ambiguity in the planning process which allows local authorities to delay projects by years, thus making them uneconomic. For a wind ramp up to happen, the global supply chain must be stiffened, the UK must commit publicly and vocally to the proposal, so manufacturers and developers can plan properly, and the planning process must be made absolutely clear, and supportive of wind projects, except in very specific and significant circumstances. There should be a UK 'NASA' style programme.

- Energy storage for wind generation is important – see suggestions in our report. This simply does not exist yet; anyway, for the next 12 years it is not an issue; we will use or export all the wind energy that can be created easily.

- The government must enforce Grid efficiency and construction. This may require caps on dividend and shareholding profits for utility companies which would make them uncompetitive. It is necessary, but will almost certainly require some kind of subsidy or support.

- Projections for world growth, particularly for China and India, are not compatible with fossil fuel availability.

- We were discussing two impending world financial crises 30 months ago with the Arlington Institute in the US. We suggest the government initiate conversations with it. The toxic assets crisis has already hit us, and has interacted with the unacknowledged other half of the crisis – peak oil price gyrations. The government needs to reinject most of the amount of liquidity in the economy that has been lost. I am a very firm supporter of the way and the speed with which the government has responded. The other crisis may be US Treasury bills. Look critically at the derivatives market which needs 'back stop' support – climate change will affect the insurance industry.

I would also recommend discussions with Amory Lovins, Roger Pielke Sr. (not Jr), the British Antarctic Survey, Robert M Grumbine and Paul Baer, amongst others. George Marshall and William Connolley also have useful contributions to make.

I hope you find these comments useful; I am keen that Ed Miliband gets the best possible message based on the best available information. Whilst our perception of the problems is different, our intention is the same, therefore I urge you to trust my figures and analysis given above, and consider the content of your open letter in the light of this.

Sincere Regards,
Fergus Brown

From: "Jim Adams"
Sent: Saturday, January 31, 2009 9:54 PM

Thank you Fergus!

I receive your wisdom with humility, and, since time is short, I shall reply this instant without reference to other material.

The Hadley Centre model A1FI – a pictographic representation of the software is available, I think, in the January 2007 edition of The Ecologist (before it became a women's magazine) – shows in this Business As Usual model oceanic temperature increases of 6 degrees Celsius – there might be a calibration error here, since the software graphics came in colours for the temperatures, so this could be 5.5 degrees Celsius, but I thought 6 was nearer – and parts of equatorial Africa and Brazil with 10 degree Celsius temperature increases.

Look at the updated David Wasdell paper at the Tällberg conference on my website: <http://www.jimhadams.com>, for information on feedback models of climate change. Well, I think this says 11 degrees, but have a look, it may say 10. Or chase up the work of Schelnhuber on similar modelling.

There is the question of whether water vapour should be included in this model. Wasdell, who was a reviewer of the IPCC process at the time of the AR4 report, claims this material was removed at the behest of government representatives (as you know - there were two stages in the drawing up of the IPCC WG reports), and was included in prior versions compiled by scientists. The reason why this is important, is the effect that water vapour has on radiative forcing.

Wasdell claims that most of the feedbacks in the Climate Change models he is developing are positive.

If you look at the break up of Greenland ice measured in the GRACE satellite data – this is given in the journal Science – you will see that one graph for the years 2000 - 2005 shows the rate of ice melt increasing linearly – so that the mass of ice melt is accelerating. However, if you look at projections in a prior page, you will see the curve is approximated, inconsistently, with a straight line. OK, we cannot extrapolate the 2188 zero ice in Greenland that one would expect from the parabola that one would have expected to be used. My feeling indicates that subsequent data is consistent with a parabola, and not a straight line. Well, you say, that is curve fitting, which indicates nothing. OK, we know that radiative forcing is caused by CO₂e, and that the rate of increase of this is currently greater than predicted in A1FI. It is clear that right now the absolute value of CO₂ is relevant, and we are dealing with a system which, because of CO₂ increases in the past, is out of equilibrium. So we have a CO₂

causation of a non-equilibrium state. The question is, is it reasonable to slide to a new equilibrium in a straight line? Even Galileo knew that if the rate of a value increases linearly, then its value cannot be increasing linearly. So the question is: what is reasonable to choose for a straight line: the rate or its value?

In terms of your comments on the MOC, I used the word 'reversal'. Well, that is shorthand for a complicated process – retreat is perhaps better. I am trying to encapsulate things briefly in two pages containing many other things.

Wasdell tells me that emissions of clathrates from oceans have already been measured. Look up the data on this.

I have been pointing out that Thorium reactors provide a feasible solution to energy production since my November 2007 Minority Report on Climate Change to the Labour Party Forum, but a long time after Carlo Rubbia! See the website above for mention of this, or better, google 'energy amplifier'. It is interesting that Hansen has taken this up, but he seems to be indicating a different type of reactor.

Yes, I keep reiterating that offshore wind turbines are the answer. I even think the message has got through! I would like to thank Tim Small for indicating to me that wind turbine power depends on the cube of the wind velocity, and I have been promoting that idea with vigour ever since.

You will see Dr Paul Baer's (with Mastrandrea's) report on my website. Thanks for the longer list.

Regards

Jim Adams

From "Fergus Brown"
Sent: Sunday, February 01, 2009 2:08 PM

Jim,

Thank you for responding.

The Hadley A1F1 BAU projection is arguably based on unrealistic levels of atmospheric CO₂. It should be read as a model-based projection of what could, under certain circumstances, happen. The science tends towards the view that this is an unlikely scenario, however. Typically, following its own agenda, the Ecologist has used this out of context to make its own point. The question is whether this is an accurate representation of what is at risk and, more importantly, whether such a dramatic increase is necessary to stimulate radical action now.

I don't know Wasdell's work, but I do know about feedback models. The fundamental difficulty here is that they are, in science terms, just too uncertain. What I have gleaned from corresponding, reading and polling climate scientists is that their concern is as much that we don't really have a clear grasp on what we are getting into, as an awareness that whatever it is, isn't going to be good. An 11c projection exists in the literature, but it is an outlier, scientifically. The generally accepted view seems to be that a doubling of CO₂ will lead to a temperature increase of 2.8-3.3c, this century,

with knock-on/feedback increases in the century beyond. I am satisfied that, though this could well be an underestimate, it is the figure which Ed Miliband is most likely to be familiar with, and is, of itself, potentially dramatic enough not to need 'enhancing'.

The GrIS is one of my personal areas of special study. For the most up to date info on this, the magazine 'The Cryosphere', an open access journal on the Copernicus net, is extremely useful. There is a new paper which I discuss and link to in my blog which discusses this subject; I think it is a good piece of science:

<http://fergusbrown.wordpress.com/2009/01/17/greenland-ice-sheet-how-much-of-a-problem/>

I'll leave Thorium reactors; it's not my specialist field. I would reiterate my point, though, about expecting technology to save us.

The MOC/THC, whatever you want to call it. I'm reasonably well-informed on this, twenty-thirty papers down the line (ones I have read, not written!); the conditions under which a 'slowdown' or 'retreat' (I think they are more or less the same), are partially understood, but this is also speculative science. The Woods Hole Institute has lots of interesting links, amongst others. Hence my inclination to go for the 'flux' solution; I feel that it reflects the most likely affects in the most realistic shorthand way. Feel free to disagree.

Three years ago, offshore wind was the answer to the UK's energy problem. In the past six months, British Gas, Shell and E.on have all expressed concern about their investments in this area, or have already pulled out. As things stand, the economic justification for offshore has become much weaker recently, mainly because maintenance and construction costs have rocketed, and the losses of output due to the distance away from onshore substations are very large; in some cases, up to 70% of the energy generated is 'lost' before it reaches the grid.

So, as things stand, the best (only?) short term solution is onshore wind in England, preferably distributed, ideally, linked to a community; hence my interest in Transition; there is a merge here between my interests and my job.

From "Jim Adams"

Sent: Sunday, February 01, 2009

Hi!

It was actually the Omega Institute that induced the Ecologist, when it was a real magazine, to publish the Hadley Centre AIFI model, so Graham Ennis was responsible for that. I was working there at the time. We were looking for a model which went as far into the future as possible. My understanding is that the CO2 levels used are of linear increase, and this has been exceeded up till now. The start parameters are consistent with the data, and I think I am correct that 100 iterations to the year 2100 were used. Yes, there are many models of the climate (see IPCC AR4 for a list, there are now more) and this is only one of them.

On feedback, you seem to be saying that these models spread the results, so we should not use them. Well they exist, they are complicated, there should be more of them,

and I do not think you would deny that the climate *is* a system with feedback. My point of view is, if you model this without these feedbacks, then definitely you cannot say you have the right model, so scientists should not have been surprised (as some of them were) when the climate behaves as if following a scenario worse than that which was predicted.

Some points I make about the philosophy of science in other contexts is: there is only one real world. Even if our models are correct, there is no way of verifying them in all situations. Two particular issues are relevant to our climatological subject: complexity is an issue, and when and if we decide what is likely as the outcomes, we may have some options which change those outcomes – this hasn't happened yet!

Kind regards

Jim Adams

From "Fergus Brown"

Sent: Sunday, February 01, 2009

Regardless of the state of the climate change debate, there is a reality which Miliband has to face: there is a real danger that we will not have enough energy to meet demand in the next seven years; some kind of joined-up strategy is essential, and if that strategy involves distributed energy and small, community-centred wind farms close to the point of demand, we can solve the looming energy crisis, reduce fossil-fuel dependency, stabilise energy costs, protect the environment from pollution and catch up with the rest of Europe in this key area of infrastructure development. We can now do this with a technology sophisticated and efficient enough to be viable economically and to stimulate inward investment (ROIs in excess of 12% per annum). Change is coming; the question is, what kind of changes are we willing to accept and what not, and do we intend to manage the change, or let it lead us?

Please don't conclude that I am trying to sell my own product here; I came into the wind business (from education), because I wanted to help find the solution to the impending crises of our children's generation, and concluded that wind power offers a win-win solution; but be assured I am passionate about its merits and will happily explain to anyone who wants to know why it is the best thing to do, now, to make a real change.

I think this will have to be all for now. I hope you find my thoughts useful, and take them in the spirit in which they have been expressed; as an attempt to share in the process of developing understanding, and therefore finding the best answers to our known problems,

Best wishes.

Fergus Brown

[Fergus's views are his own, and does not necessarily represent the views of Industrial Maintenance Services, Portsmouth].

From "Graham Ennis"
Sent: Monday, February 02

Hi All,

Quite simply, whatever the precise scientific issues, causes, etc, the reality is that a vast and terrifying transformation of our planet is taking place in front of us, right now.

It is clearly a massive, accelerational climate change, which, whatever its causes, is real, is going to kill, in the next 50 years, between 40 and 80% of the current human population, and wreck our civilization.....that is the truth.

Bluntly: when Constantinople was besieged in 1457, and the Greek civilization was on the verge of being overrun and crushed, the holy theologians were arguing, in the churches, the finest and most abstruse points of theology, such as "How many angels can dance on the head of a pin" ...while the barbarians were literally at the gates of the city.

We are now in a situation very similar.....the luxury of having time for scientists to apportion exact reasons, causes, etc., is pointless, now.

In 2012, Autumn, the sea ice will vanish, permanently, from the Arctic. In the next two years afterwards, there will be huge climate changes, and then the entire Northern Hemisphere weather system will enter into huge convulsions.....the ice cores, from Greenland, show what will happen next, from the last time: Over the subsequent 50 years, the temperature will climb about 32C.....

Can we start concentrating on reality, and events, and what needs to be done?

We are past the point where arguing the science will have any useful or practical effect.

Regards

Graham Ennis