



Peak Oil and Climate Change

Posted by [Chris Vernon](#) on January 21, 2007 - 7:35pm in [The Oil Drum: Europe](#)

Topic: [Environment/Sustainability](#)

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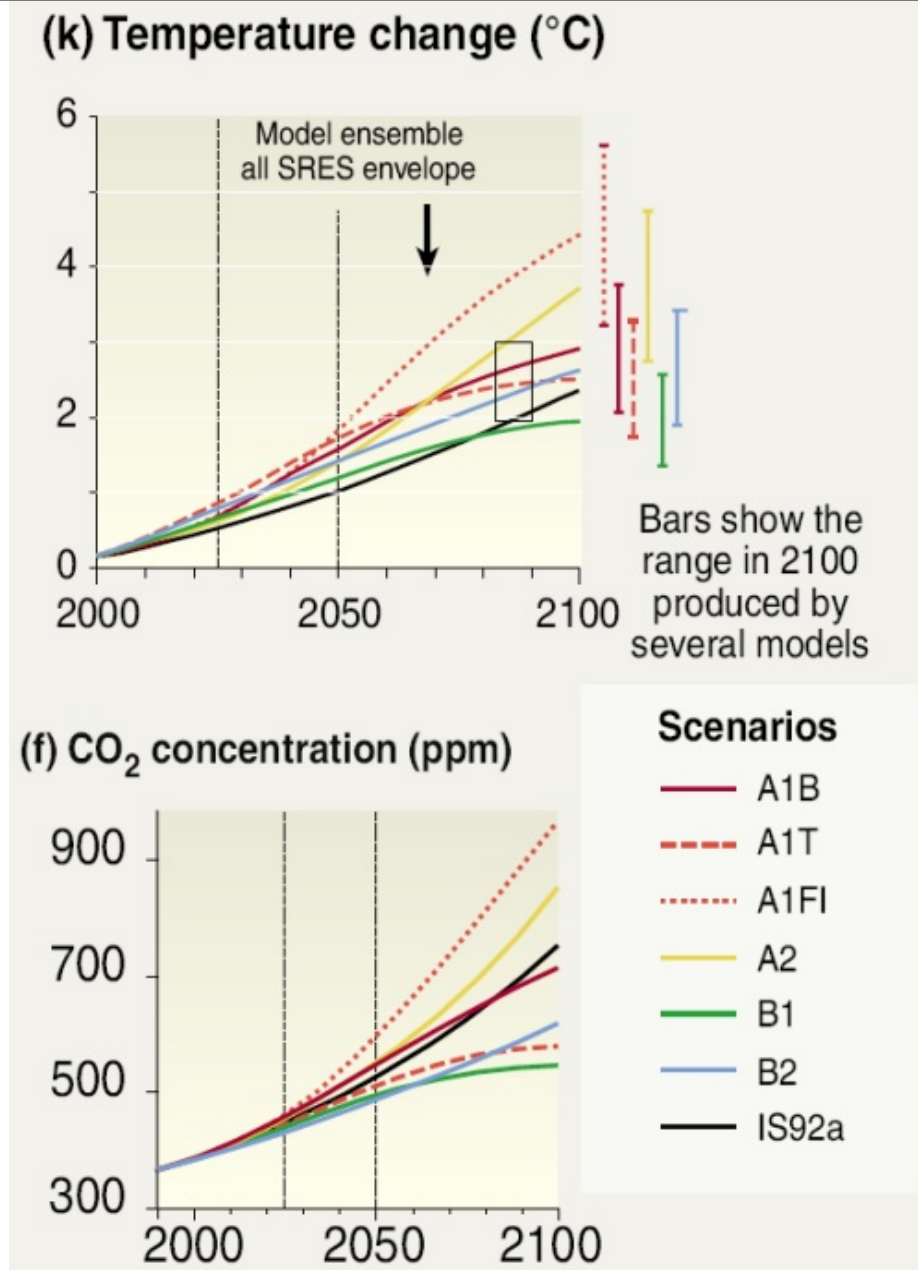
These “two riders of the apocalypse” as Jonathon Porritt, chair of the UK’s Sustainable Development Commission, described them [[The Oil Drum](#)] last year are heading our way. Porritt is one of a small group of people specifically talking and writing about the relationship between these two subjects, which at first glance can appear mutually exclusive.

Other key contributors to this discussion include Jeremy Leggett who brought the subjects together in his book: *Half Gone: Oil, Gas, Hot Air and the Global Energy Crisis* [[Amazon.co.uk](#)] and more recently Richard Heinberg who wrote an essay titled *Bridging Peak Oil and Climate Change Activism* [[EnergyBulletin.net](#)]. Below the fold, my thoughts:

Climate change scientists consider the effect of anthropogenic greenhouse gas emissions and forecast the climatic results. Based on officially stated fossil fuel resources and global economic growth forecasts from national and international organisations, the emissions paint a dire picture. Activists pick up the dire predictions and advocate proactive measures to curtail our emissions.

The “depletionists”, those subscribing to imminent peaks in the availability of oil and gas (some predisposed to environmental issues and some with little concern, even perhaps doubting the arguments for anthropogenic climate change mechanisms) instead point out that the officially stated fossil fuel resources are exaggerated and as a result the global economic growth forecasts and resulting emissions are also exaggerated. Activists focus on the ramifications of shortage and advocate proactive measures to curtail our reliance on a resource soon to be troublesomely scarce.

I’m squarely with the depletionists on this one. The IPCC business as usual projections are as preposterous as the CERA (Cambridge Energy Research Associates) oil forecasts [[The Oil Drum](#)]. The science is good but the assumed inputs are off. Garbage in, garbage out. The concept of global oil/gas peaks within a decade is incompatible with the anthropogenic emission driven ~900ppm CO₂, >+4°C from 1990 by 2100 IPCC forecast.



IPCC Scenarios

Source: [IPCC 2001: Summary for Policymakers \(.pdf\)](#)

For reference the A1F and A2 scenarios call for emissions from fossil fuels of 30.3 GtC/yr and 28.9 GtC/yr respectively compared with 1990 emissions of 6.0 GtC/yr. Even the lowest A1T and B1 scenarios double 1990 emissions by 2050 before returning to a little below 1990 by the century's end. Source: [IPCC: Emissions Scenarios \(.pdf\)](#)

I'm also deeply sceptical of any efforts to proactively reduce oil/gas consumption below that described by the depletion curve – it's just too useful. To suggest we can choose a level of oil/gas consumption below the depletion curve is to say that the reductions imposed by, and the impacts of peak oil, are so trivial we would actually choose greater reduction i.e. lesser consumption? No way. I am pessimistic about choosing a lower consumption and have no faith at all in choice/reform "beating" the depletion curve down.

The climate doesn't care how we emit what we emit but just what the emissions are. It is hard to believe the oil/gas originated emissions will be anything other than solely determined by the depletion curve.

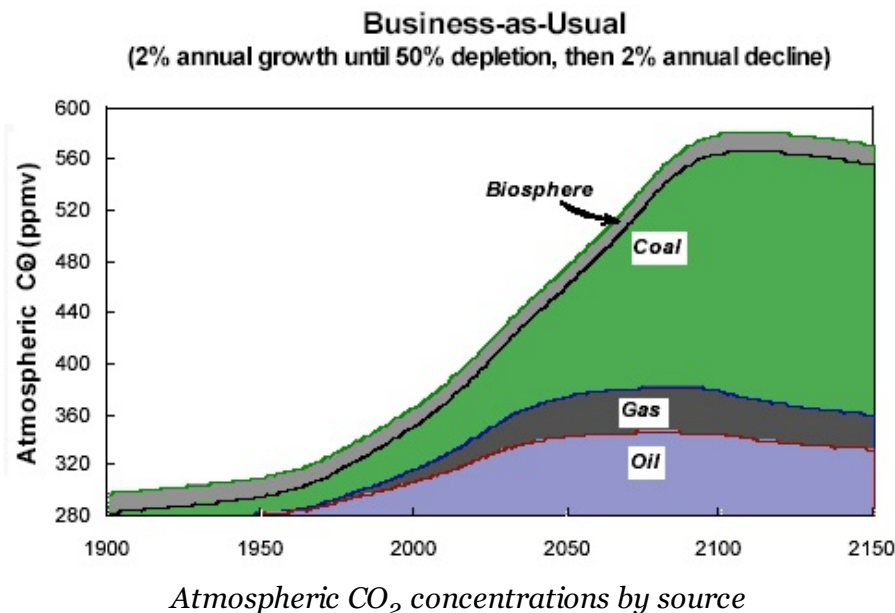
Absolutely it would be better if we chose to reduce consumption/emissions rather than be forced by shortage, the more action by choice/reform the better. But I see that as a peak oil issue, trying to maximise energy services as resources deplete, not a climate change issue.

Climate change activism should be about total CO₂ emissions (and sinks) – I just don't see how activism targeted at oil/gas can impact the CO₂ emissions.

Peak oil activism should be about minimising the hardship created by reduced oil/gas availability.

So I'm left in the position that all the oil and gas will be burnt as fast as possible. We can't do anything about that. However, luckily, that alone won't spell the climate disaster the activists warn us of.

That won't spell climate disaster? No, well not according to the acclaimed climate scientist James Hansen of NASA's Goddard Institute for Space Science. He presented [[The Oil Drum](#)] this chart at a recent lecture, it shows the cumulative atmospheric concentrations of CO₂ attributed to different sources:



What Hansen is saying is that the remaining oil and gas can be burnt whilst limiting atmospheric CO₂ to ~450ppm and incremental temperature increase to only 1°C, which really should be the limit unless we want to live on a very different planet. The challenge is that the oil and gas combustion use most of the 450ppm limit, the key therefore is CO₂ sequestration or abstinence from coal and unconventional fossil fuels.

Whilst Hansen doesn't think we are going to reach peak oil next week he does expect peak within 20 years in which case he said we can live with the oil/gas CO₂ contribution.

The only potential to cause climate disaster is from burning all the coal – this is very hypothetical though as whilst there is enough carbon contained in the coal reserves do we have the logistical ability and economic demand (given peak oil/gas) to exploit it? I'm doubtful.

My doubt isn't due to the magnitude of oil/gas physically used for coal mining – that's tiny. It's more to do with demand. I think peak oil/gas will destroy demand. Think about the Chinese example of building a new coal power station every 5 days – the only reason they are doing that is to run the factories manufacturing stuff for the West and to fuel the increasing Chinese "quality of life". Both these sources of demand are directly funded by Western economic growth. If you

subscribe to peak oil/gas resulting in economic depression then energy demand (including electricity and coal) will fall. Coal use is a function of global GDP, if peak oil/gas causes global GDP to fall then coal demand will fall too.

I don't think it's possible to maintain growth by replacing depleting oil/gas with coal to liquids and electrification. That's the only scenario that would see increased coal burn in the face of peak oil.

So, to be intellectually honest I would like to see climate change activists ignore the emissions from oil/gas – ignore cheap flights, airport expansion and SUVs and instead focus primarily on coal burn. That is electricity consumption and low/zero CO₂ generation of electricity. This is an easy battle to fight as there is massive scope for reducing electricity consumption and massive potential for low/zero CO₂ electricity generation. The climate change activist should also focus on land use (deforestation etc.) and be mindful of the depletionists' points and theoretical threat of non-conventional fossil fuels.

The depletionists on the other hand should primarily focus on energy security, that is, minimising the loss of energy services as oil and gas availability decreases. This involves reducing the oil/gas intensity of what we do and where the anti-SUV, pro-light rail, reduced “economic reliance” on flying etc arguments should be made. Whilst supply side solutions based on non-conventional fossil fuels are likely to be considered, the depletionist should remain mindful of the CO₂ intensity of such solutions – in any event non-conventional fossil fuels are unlikely to prove viable or amount to anything significant.

There is perhaps a difference between being an intellectually honest activist and being an effective activist though! As the general public and politicians now accept CO₂ as “bad” and as increasing aviation for example is recognised as being a significant source of increasing emissions, the depletionist campaigning for reduced economic reliance on flying could cite CO₂ emissions to add weight to their argument. Effective as this may be I don't see it as totally intellectually honest.

Conclusion

My thesis is that all the oil and gas will be burnt as fast as possible, however imminent peaks in production constrain emissions within a Hubbert-style envelope. Oil and gas consumption doesn't represent a degree of freedom for impacting emissions so time, energy and political capital should not be spent attempting to reduce oil and gas consumption in the name of reducing total CO₂ emissions. Efforts are likely to be futile.

Instead, the degree of freedom we do have available to address emissions is coal – through reducing electricity demand and increasing low/zero CO₂ electricity generation. This is where effort should be focused.

That isn't to say reduced oil/gas reliance shouldn't be pursued aggressively through efficiency and behavioural change, it should but not under the illusion that it will deliver reduced total CO₂ emissions. Pursue reduced oil/gas reliance in the name of imminent peaks, to mitigate some of the negative impacts of imminent shortage.

Unfortunately wide acceptance of imminently peaking oil and gas supplies is not yet with us, severely limiting the effectiveness of the peak oil arguments. Although not strictly intellectually honest, arguing for reduced oil and gas reliance in the name of reducing total CO₂ emissions is likely to be more effective.



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