Peak Oil and Climate Change...a guest post...

Posted by Prof. Goose on July 14, 2005 - 10:31pm

(A guest post by frequent contributor Dave C....good stuff.)

Back in October of 2003, the current president of ASPO Kjell Aleklett told news sources that there was "Too little oil for global warming". Humankind faces two unprecedented crises, fossil fuels depletion in the near term and climate change on a longer timescale. What's the connection between them?

The Intergovernmental Panel on Climate Change (IPPC) is the source of the scientific consensus on global warming. Their third assessment report (TAR), published in 2001, strongly related warming in the recent past and current warming to anthropogenic (human-caused) emissions of greenhouse gases into Earth's atmosphere. Right now, there are 380 ppmv (part per million by volume) of CO2 in the atmosphere whereas the pre-industrial figure was about 100 ppmv less. Climate modeling attempts to estimate the amount of warming, called the "climate sensitivity", with a doubling of pre-industrial levels, to about 560 ppmv. Currently, the range of that sensitivity is 2.5 to 4.0 degrees centrigrade. Although the models measure how much warming there will be with a doubling, they don't say anything about *when* that doubling will occur. This depends on many factors that include climate feedbacks (e.g. decreasing albedo in the Arctic) and most importantly, the rate of CO2 emissions in the future. That's the connection with peak oil and, down the road, peak natural gas.

To calculate the rate of CO2 accumulation, the IPCC issued a Special Report on Emissions Scenarios (SRES) in 2000 to accompany their main report.

Check out Global Futures Scenarios or Emissions Scenarios - What are they and what do they tell us? for more information.

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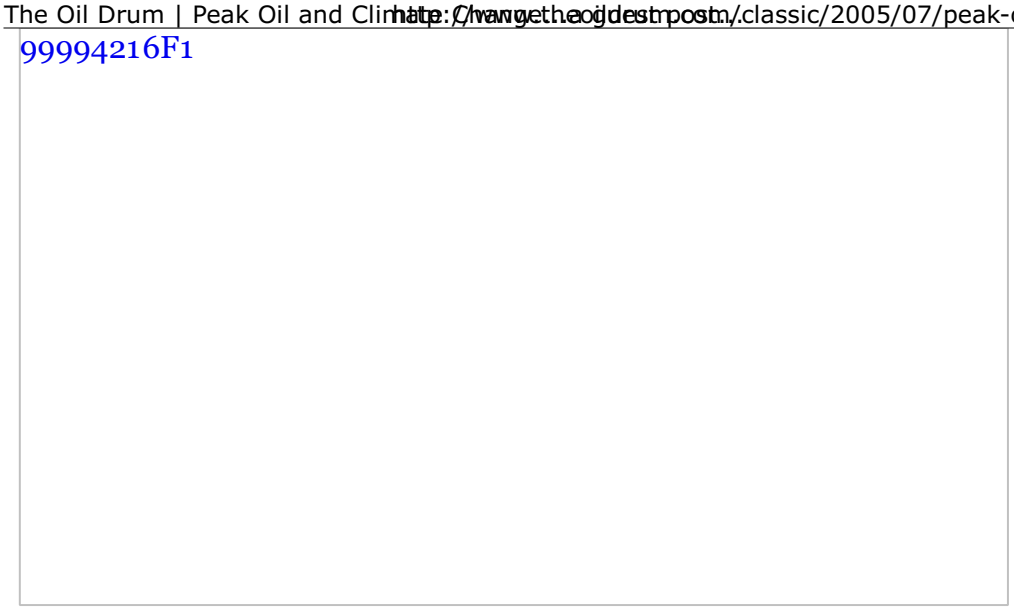

ASPO's claim, summarized in this New Scientist article, is simply this: future oil and gas usage will be so attenuated as the 21st century goes on that none of the IPCC scenarios, not even the B1 "optimistic" ones, will come to pass and so CO_2 emissions will remain below a doubling. See the accompanying graph. Certainly, in this view, all "Business As Usual" scenarios (e.g. SRES IS92a) are ruled out. Hence, global warming may not be nearly as bad as currently modelled by the scientific community.

Of course, Aleklett's claim is very controversial and there hasn't been much follow-up. On the IPCC reaction and continued growth in Coal usage, New Scientist reports:

> Nebojsa Nakicenovic [SRES Editor], an energy economist at the University of Vienna, Austria who headed the 80-strong IPCC team that produced the forecasts, says the panel's work still stands. He says they factored in a much broader and internationally accepted range of oil and gas estimates than the "conservative" Swedes.
>
> Even if oil and gas run out, "there's a huge amount of coal underground that could be exploited", he says. Aleklett agrees that burning coal could make the IPCC scenarios come true, but points out that such a switch would be disastrous.

Needless to say, calculating future energy use is really hard. So, there are questions. Who could have predicted accurately China's burgeoning energy budget back in 2001? How will technology, economics and geology constrain future fossil fuels usage? Is the radical decline envisioned by Aleklett really in the cards? Will the next IPCC report, due out in 2007, reflect the reality of peak oil and natural gas depletion? Stay tuned, the future of the planet depends on it.

Technorati Tags: peak oil, climate change

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