The Oil Drum: Europe
DISCUSSIONS ABOUT ENERGY AND OUR FUTURE

Sir David King's View on Peak Oil

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Professor Sir David King, Chief Scientific Advisor to the UK Government since 2000 and former head of Cambridge University chemistry department has submitted a paper to the recently formed All Party Parliamentary Group on Peak Oil (www.appgopo.org.uk).

I find this paper very disappointing, especially coming from someone of King's calibre and position. It shows no original thought, preferring to cite the IEA, the USGS and historically static reserves-to-production ratios. It also shows no appreciation for flow rates or declining production from fields already in production, explains lack of new discoveries by low levels of exploration in the Middle East and attempts to square the development of unconventional oil sources with "radical reductions" in greenhouse gas emissions. King ends by saying hydrogen and fuel cell technologies have the potential to replace oil for transport. I'm left feeling King has presented a politician's view rather than a that of a scientist.

The paper is probably the best indication we have to government's official position on the matter.

It is unclear how King's view as expressed in this paper relates to a conversation he had with David Strahan (author of The Last Oil Shock, link) in 2005 where King is reported to have said peak oil "in ten years or less".

Professor Sir David King, Chief Scientific Advisor to the UK Government

His full submission is reproduced below the fold.

The work of the IEA

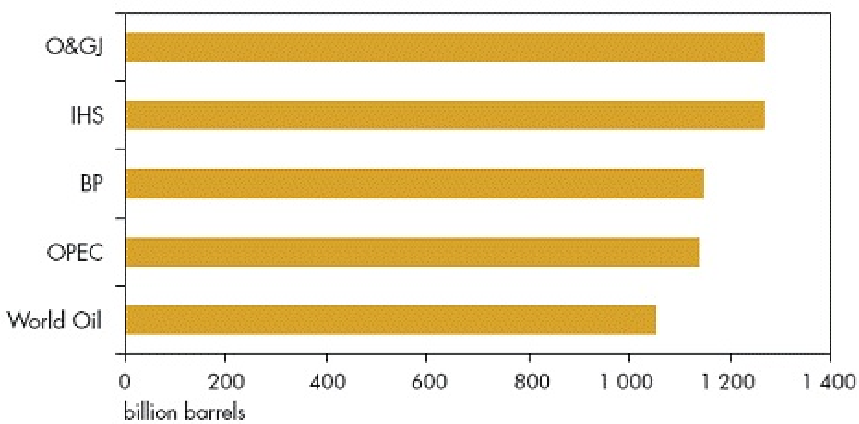
As the Group will be aware, the UK Government works closely with the International Energy Agency (IEA) on oil resource and market issues. The IEA itself draws from a wide range of data, research and analysis in forming its views. The quality of its work is high, and I would endorse this as the most thorough and authoritative source for information on global energy market issues. It is appropriate therefore that I have drawn heavily on the IEA's work in developing this note.

Assessment of reserves

The IEA's assessment is that oil (and gas) reserves are sufficient to sustain economic growth "for the foreseeable future", and "to meet anticipated increases in world energy demand through to 2030". This view is supported by its latest medium-term market outlook, which predicts that global oil production capacity in 2012 will be around 9 million barrels per day (10%) higher than in 2007. However, it should of course be prudent to note the choice of date, i.e.to 2030. Any sensible planning should include provisions going further forward in time.

There are several graphs that I have included below with which the Group will I am sure be familiar. The first, from the IEA's 2004 World Energy Outlook, reviews several estimates that have been made of reserves of crude oil and natural gas liquids. The estimates do not vary greatly, ranging between around 1100 to 1250 billion barrels.

Figure 1.7 • *Crude oil and NGL reserves at end-2003, according to various sources*

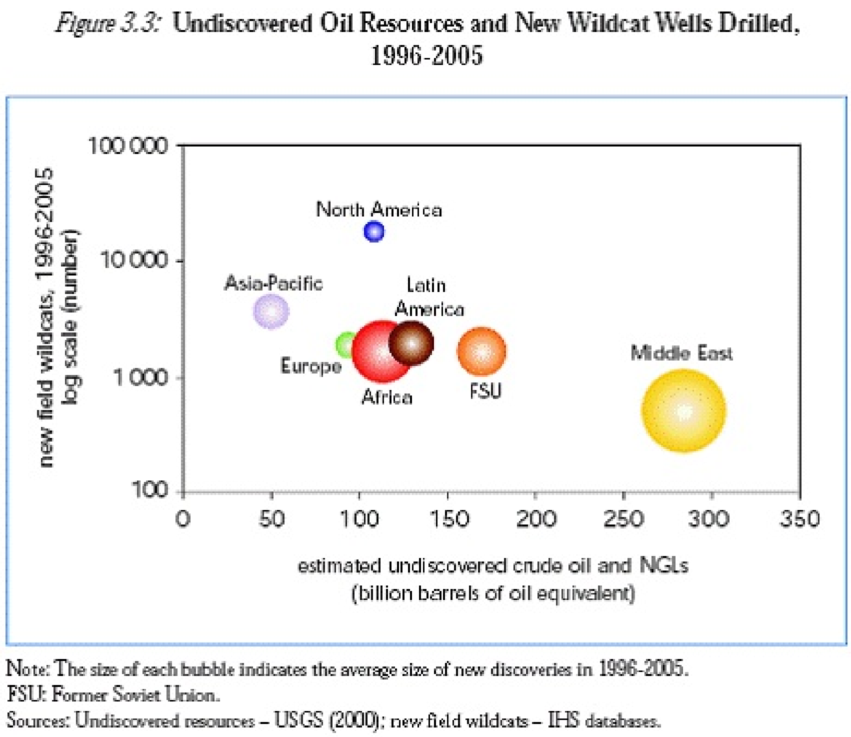


Source: WEO-2004, IEA.

"Proven" oil reserves are already larger than the cumulative production needed to meet rising demand until at least 2030. Although more oil will need to be added to the proven category to prevent production peaking before then, it has been a long term feature of the market that proven reserves have risen to equate to around 40 years supply on the measure of "reserves-to-production". The manner in which these additional reserves have been added has developed in recent years (eg resulting more from the impact of new technologies and improved reservoir management rather than from new discoveries).

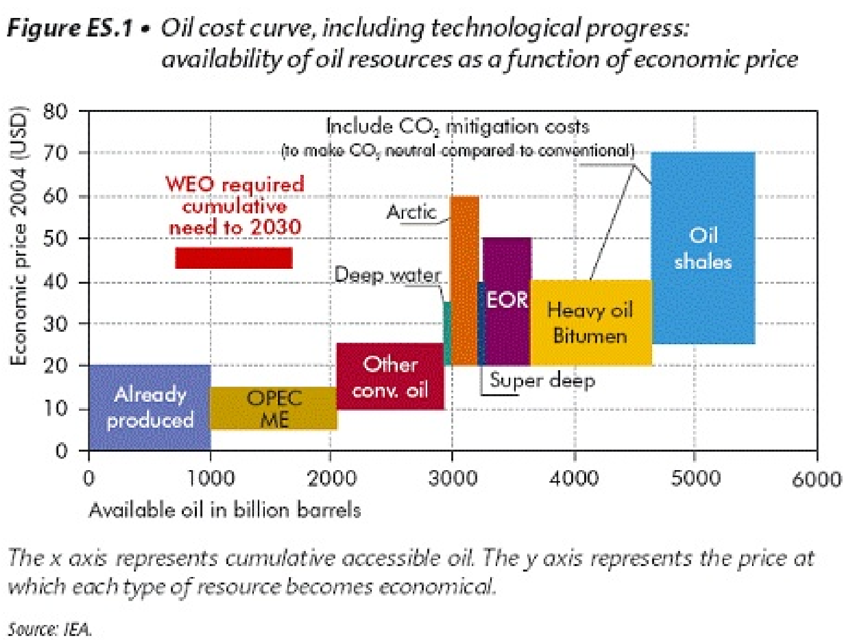
Moreover, the US Geological Survey has estimated conventional resources yet to be discovered, but expected to be economically recoverable, at 880 billion barrels, which together with proven reserves and reserve growth puts the figure for remaining ultimately recoverable resources at just under 2300 barrels – slightly more than twice the amount that has already been produced.

The size of new finds from wildcat drilling has reduced significantly over recent decades. However the concentration of drilling in regions with mature fields such as the US and the low level of exploration in the regions with the richest fields (in particular the Middle East) has been a major factor. The diagram below helps to illustrate this, and that where new finds have been made in the Middle East (and Africa) then the size of these has been significantly larger than elsewhere.



“Unconventional” resources

Further vast resources also exist from “unconventional” sources. The resources falling into this category have been estimated at a further 1 trillion barrels, including Canadian oil sands, extra-heavy oil from Venezuela and shale oil in the United States. The diagram below illustrates the quantities and economic recoverability of these unconventional sources (incorporating a cost for carbon to equalise with existing conventional oil sources).



It is worth noting that definitions of "unconventional" have developed over time. For example, in the 1970s much offshore production would have been regarded as falling into this category and to have been uneconomic, whilst today this accounts for around 30% of global production. This serves to illustrate the major impact of the development of new technologies and of the economics of recovery over time.

Conclusions and climate change

The conclusion that I would draw from this and other evidence, and that is the clear view of the IEA, is that absolute global geological resource is not in itself a constraint on production. Rather, production challenges arise from a wide range of market, investment, technology and geopolitical factors. This position is underlined in the IEA's most recent Medium Term Report, in which it predicts increasing tightness in the oil market beyond 2010 and reduced spare capacity by 2m b/d by 2009, due to investment barriers such as constraints on labour and equipment, geopolitical risks and resource nationalism.

Others are better placed than I to advise the Group on these wider investment and market aspects.

This is not to be complacent about addressing uncertainties in the information we have about resources where these exist, and the Government continues to support international efforts to improve reporting on global oil (and gas) reserves, as noted in the recent Energy White Paper.

More generally, I am personally not convinced that focusing on the "peak oil" concept is the most helpful approach.

The challenge I believe lies in framing policies and in advancing the technologies that will enable the fossil fuel resources that exist, whether conventional or those currently dubbed unconventional, to be utilised effectively, economically *and sustainably*.

I would place particular emphasis on the last of these. Climate change requires that as "non-conventional" oil sources are developed, which I believe inevitably they will be, it must be an imperative to do so in a manner consistent with achieving the radical reductions on greenhouse gas emissions that we need to achieve globally. Carbon capture and storage is a key technology in this respect. From an environmental perspective, water usage too will be an important consideration and constraint.

Alongside this, the radical transformation to a low carbon world that we must achieve to avert climate disaster requires step changes in the rate at which we develop and deploy new low carbon technologies. This includes second generation biofuels, hydrogen and fuel cell technologies that in the coming decades have the potential to replace oil as basis for our transport systems. In this regard the establishment of the UK's new Energy Technologies Institute, with funding up to £1.1bn over 10 years, is I believe a key development, with its goal to accelerate the most promising technologies from research through towards market application and deployment at scale.

Professor Sir David King - 20th July 2007

Originally published by John Hemming MP here.