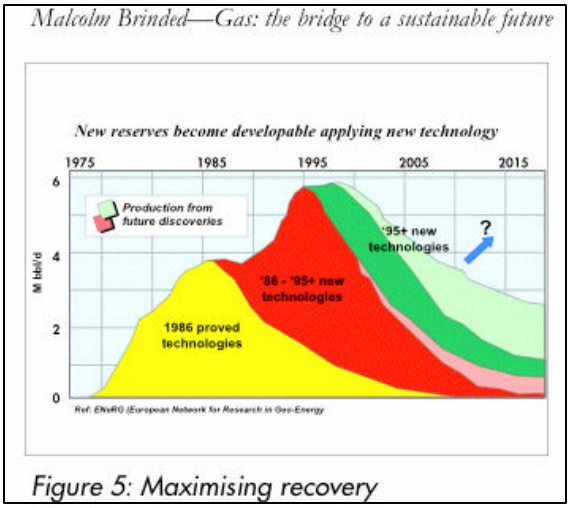
How the International Energy Agency Misrepresents a Shell Graph
By Jean Laherrère, ASPO FRANCE 15 November 2005

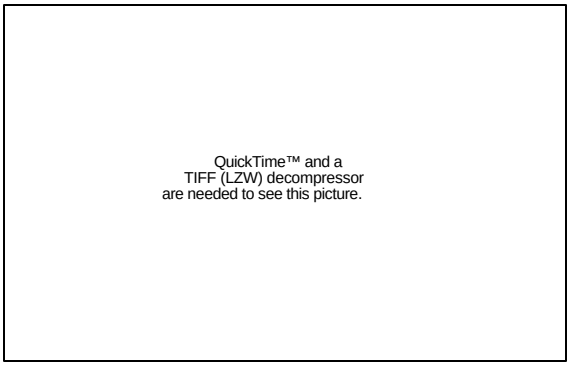
The story begins with a paper at the 12th European Gas Conference in Oslo 2003, by Malcolm Brinded, Shell's Vice-President of Exploration and Production. It was entitled *Gas: the Bridge to a Sustainable Future*. He reported that Shell's overall production forecast for 2020 was 2.6 Mb, although it did hint at some questionable additions by 2010, shown on the graph by an arrow.



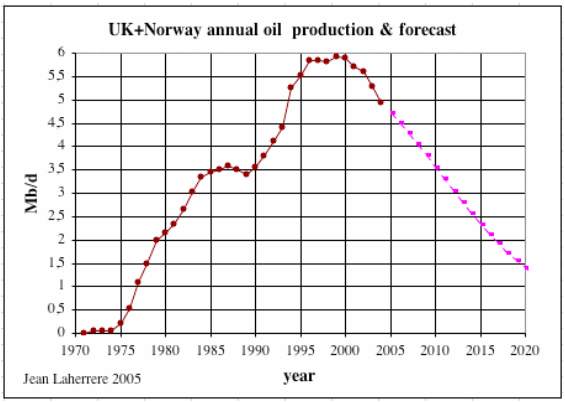
This 2003 graph was been reproduced by the IEA in its recent publication: *Resources to Reserves -- Oil and Gas Technologies for the Energy Markets of the Future*, ISBN 2 -64-10947-1 (2005). (See www.iea.org/bookshop/add.aspx?id=204 where five graphs can be freely downloaded.)

This graph acknowledges that the source is Shell, but the scale has been changed for some inexplicable reason by a factor of ten from 6 Mb/d to 600 kb/d. In addition a curve has been added with a question mark, suggesting that new technologies will hold production flat beyond 2000. Furthermore, it fails to update the plot of actual production data and omits the distinction between the discovered and the undiscovered, making it difficult to differentiate data from forecast.

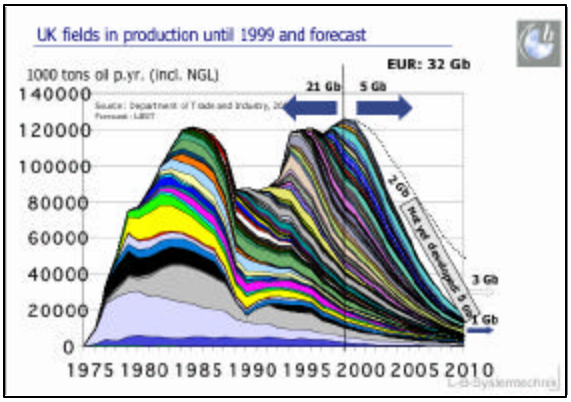
In the Oil & Gas Journal of 17th October, 2005, Doris Leblond reported on this book under the title *IEA underscores technology's contribution to future oil supply* showing a graph with an error of scale showing 600 kb/d instead of the 6 Mb/d.



The adjoining graph shows actual production for Norway and the United Kingdom with a realistic forecast extrapolating the decline from 2000 to 2004, which in fact closely matches the Shell graph, although indicating production in 2020 at 1.5 Mb/d compared with Shell's estimate of 2.6 Mb



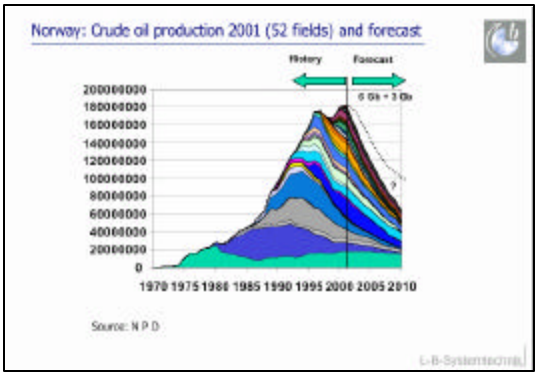
Shell contrasts the technology of 1986 with that of 1995, implying that technology alone was responsible for the new developments. In fact the trough in 1990 was due to an earlier decline in UK discovery as well illustrated byW. Zittel & J. Schlinder in *The imminent Peak of oil production* (Berlin, 7 Nov. 2003)



There was a minor trough in Norway in 1998 due to a fall in discovery, followed by the peak of 2000.

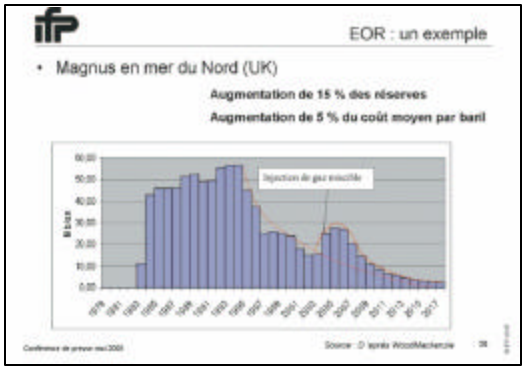
So Shell's claim that technology is the key of new development is misleading. Plotting annual production against cumulative production shows no evidence of where reserves growth is attributable to technology. Furthermore, the claim by the IFP (2005) that the EOR miscible gas project which was commenced on the

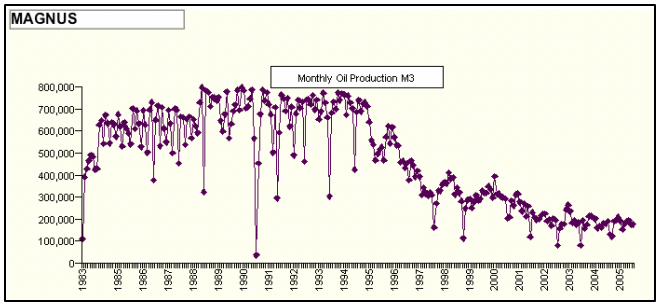
Magnus Field in 2002 will lead to a production increase in 2005 has failed to be confirmed by any actual increase up to July of this year.



The myth of technology was also presented in an IFP paper by M. Beller, A. Chauvel & P. Simandoux *The challenge of North Sea oil and Gas* (Revue de l'IFP vol 54 (1999) n°1 p105-123). It forecast that North Sea production from known fields would reach a peak around 2005 at close to 7 Mb/d, but hoped that new discoveries would hold production to as much as 6 Mb/d in 2020, far above the Shell forecast of 2.6 Mb/d.

Conclusion:
The claims that new technology will have a major impact on North Sea oil production are based on poor documentation and weak evidence.





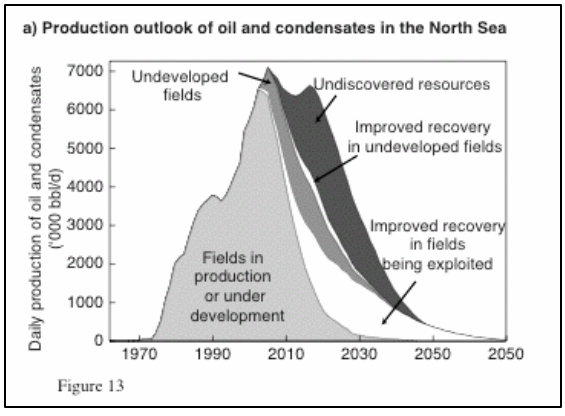


Figure 13