The Oil Drum
DISCUSSIONS ABOUT ENERGY AND OUR FUTURE

Not having worlds enough, and time.

Posted by Heading Out on June 15, 2005 - 12:53am

Let me begin by pointing out one of the nice things about writing for a site like this. When a topic comes up there are times when you can say "Ah hah! But we wrote about that already!" and go back to the particular entry and there are all the references, so you don't have to look them up again. And this lets me pick up the topic that Prof G just referred to.

So let me begin by explaining what the Saudi Minister is talking about, since it is not really evident from what he said. As Aramco first began developing the Saudi oilfields it found, back in around 1957, an oilfield at Manifa. In the map we posted on June 2nd it is the one marked in black. And the reason that it is marked in black is that, although the Oil Ministry list it as one of the sources of the oil that will allow them to reach 11 mbd (also in that entry), the very significant 1 mbd that could come from that field is not currently refinable. To requote from Prospect Magazine as we did on April 4th.

> Beneath the seabed off the coast of Saudi Arabia is an oil field called Manifa. It is giant, and its riches are almost untapped. There is, however, a snag. Its oil is heavy with vanadium and hydrogen sulphide, making it virtually unusable. One day the technology may be in place to remove these contaminants, but it will not be for a long time, and when, or if, it becomes possible, it will do no more than slightly reduce the rate at which the world's oil supplies slip away towards depletion. Even this field has one advantage over the massive reserves of oil which middle east suppliers are said to hold, ready to secure the future of industrial civilisation. Unlike those fantasy fields, Manifa does actually exist.

Were the world to develop a place to refine this oil (which would take several years), the Saudi Arabian Oil Ministry could almost immediately start pumping it, since the field is developed. But there isn't, and they can't. Which must be quite frustrating, since they keep commenting on it.

And this brings up the real issue that, too often, those who claim there is no problem are only too glibly willing to gloss over. To develop an oilfield takes time. In some of his articles (see blogroll & Oil Depletion Scotland for example) Matt Simmons gives the times it takes to carry out some of the activities involved in getting a field into production:
2.5 years for an onshore rework (Saudi AFK)
3-4 years for new onshore projects (Algeria)
5-7 years for a major offshore field development
5-6 years for a new refinery
Over 2 years for a new sulphur removal plan

He gets those numbers (and you can check them out) by looking at the contracts that companies enter into to do this sort of work. They appear regularly in Rigzone and the Oil and Gas Journal, to name but two sources.

For example just checking at the Oil and Gas Industry News on the blogroll (which leads you to Rigzone) brings up the news that Thai and Chinese companies will be developing the Saveh and Kouh-Dasht oilfields in Iran.

> Mohaddess said the exploration and development period for the contracts is 10 years on which another 15 years can be added for the return of the contract value and interest.

As a rough rule of thumb it appears from prices quoted recently that it is going to cost around $1.3 billion per 200,000 bd of new oil developed in the Middle East.

Which brings us around to Mr Berman's article at the Houston Geological Society site. And I suppose that the problem with geologists is that they have a different sense of time than the rest of us. Ten years to them is somewhat quicker than the flip of a hummingbird's wing, and so perhaps he does not understand that finding lots of oil really isn't the issue here.

Chris Skrebowski has carried out a study of projects that are coming up in the next five years, and made the following list:
2003 saw 7 new projects
2004 had 11 new ones
2005 expects 18 new ones
2006 plans 11 new projects
2007 has 3 projects planned
2008 has 3 projects planned
None planned thereafter
The study indicated that this would not cover the increase in world demand in that time frame. (The full report is available as a pdf through the article).

> "There are not enough large-scale projects in the development pipeline right now to offset declining production in mature areas and meet global demand growth beyond 2007," said Chris Skrebowski, author of the report, editor of Petroleum Review and a recently appointed Board member of the Oil Depletion Analysis Centre (ODAC) in London.
>
> "Since it takes, on average, six years from first discovery for a mega project to start producing oil, any new project approved today would be unlikely to come on stream until the end of the decade," Mr Skrebowski noted.
>
> The report, "Oil field mega projects 2004", analysed all known projects with estimated reserves of over 500 million barrels and the claimed potential to produce over 100,000 barrels of oil a day. Projects on that scale account for about 80 percent of the world's oil supplies.

It takes both money and drilling rigs to develop an oilfield. And in certain parts of the world there are not enough of either (see May 23rd entry). And after world production peaks new fields will continue to be found, and be developed. It is merely that there will be less produced each year.

In regard to Mr Berman's first point about peak oil where he says

> Peak oil production is like having a birthday. You know it's coming, it arrives, you are officially one year older, you have a party and you carry on.

Um! And on day two when those customers who were getting oil on day one cannot, I suppose that Mr Berman will offer them cake!

In regard to point two, if I follow the theme, it is that we just aren't looking hard enough. For example

> Perhaps the best example of ineffective exploration practice by a national oil company is Mexico. Figure 6 shows world reserves by region with Mexico shown separately. That country has effectively written down or depleted 75% of its reserves since 1999 when it had nearly 50 billion barrels, compared to only 15 billion barrels remaining in 2005 (Figure 7). Mexico has not had a giant discovery since 1977 when Cantarell and its satellites were found except Sihil which is a deeper pool within the Cantarell complex. Until this month, Mexico was claiming over 50 billion barrels of probable reserves in the as yet undrilled deepwater region of the Mexican portion of the Gulf of Mexico. A few weeks ago, that number was cut in half.

I don't suppose that this could conceivably be because people have gone out to some of the sites, drilled some holes, and found that the supposed oil wasn't actually there? Believe it or not, not every hole that is drilled into the ground finds oil. Even Saudi Aramco has not been successful in every hole that they drill. (They even dropped the overall recovery factor at Abqiaq from 72% to 60% this year according to Laherrere). And can you guess why drilling companies prefer that they drill with your money rather than theirs in the United States ?

Mr Berman goes on

> The probability of discovering significant new reserves in Russia using private capital and technology is very promising but is currently not possible.
>
> A similar situation exists in the Middle East where under-explored or under-developed countries like Iran and Saudi Arabia currently do not allow foreign investment.

Um! Well just look a little higher in the post (Rigzone quote). But also again the problem that the world has is with time, if they ain't found it yet it will not be here to help as demand grows in the next few years, and wishing for the tooth fairy doesn't make it happen. There have been a lot of aerial surveys in the Middle East and somehow I don't think that Aramco would be drilling 3,000 bd wells in a new field if they thought that drilling somewhere else would bring in 20,000 bd.

Moving on to China, I am not quite sure that I was surprised at the growth in Chinese demand for energy (after all the bulbs that I put in last night were made there). And I also continue to think that current projections of growth even this year are an underestimate (see May 18th). The surprise is not the problem, the size of their need is the problem, and the way in which they are moving to meet it is fully within their national interest. But it leaves less for the rest of us.

The comments on refineries relate to the discussion with which I began this post, and does not need further refinement.

The paragraph

> I do not think we are entering a permanent energy crisis nor do I accept the commonly held view that the United States is an extravagantly wasteful country when it comes to energy. We have great demand for petroleum and create substantial wealth for the world as a result. How, for instance, could China have developed economically without U.S. investment and trade? I agree with Michael Economides that the United States is perhaps the most efficient country on Earth in its use of energy: we just use a lot.

I am going to leave to Ianqui and ProfG to answer, since the evidence that we quote, and which is increasingly being recognized by the MSM is obviously not convincing to Mr Berman. Particularly since

> It seems for the present, at least, that the world economy can tolerate high oil prices.

I am sure the Japanese sitting without his suit in an office in Tokyo at 82 degrees would heartily agree.
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