The IHS Energy View of Peak Oil

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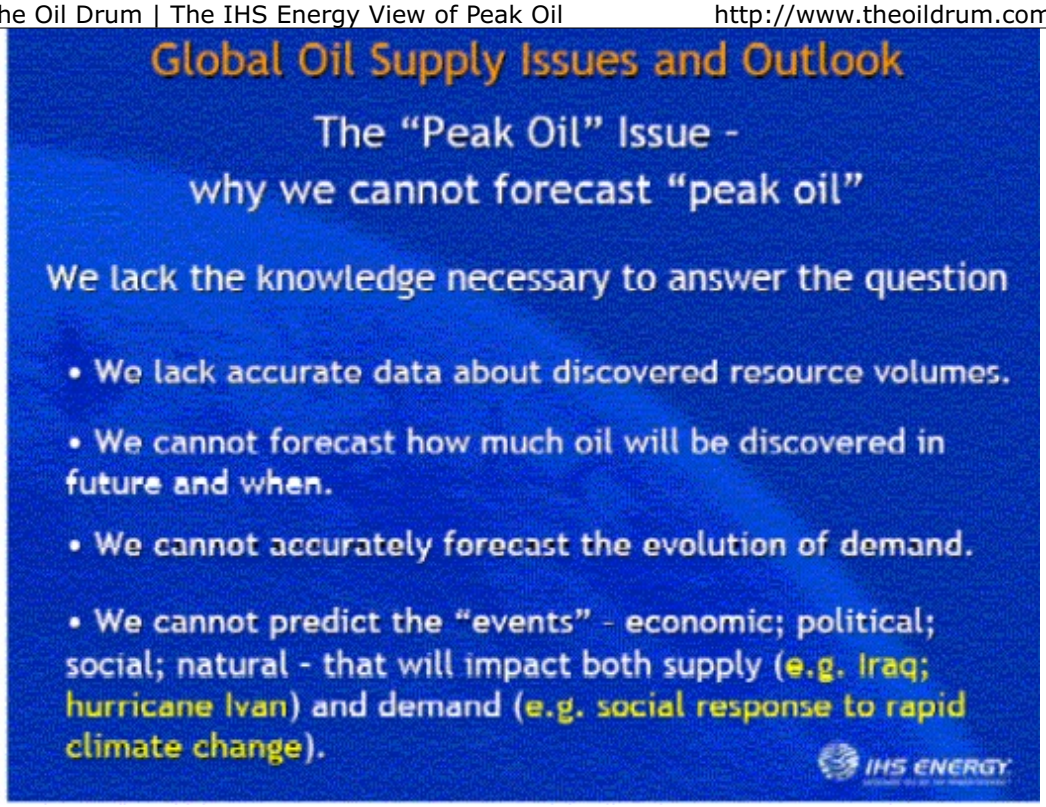
Recently, Robert Esser of CERA testified before congress World Oil Production capacity to increase up to 25% by 2015; No peak seen for decades, US Congressional Committee told.

> "A *detailed new audit* of our own analysis and the enormous scale of reserve upgrades in existing fields, confirmed by the most extensive and complete databases on field production - the proprietary databases of IHS, of which CERA is now part - contradicts those who believe that peak oil is imminent," Esser testified.

CERA was acquired by IHS Energy in September, 2004, so of course this amounts to CERA auditing itself. It seemed that the IHS Energy website might be a good source on the IHS/CERA point of view and this turns out to be a bit of a gold mine. Indeed, there are a number of presentations there that give us some insight into their thinking. There is a lot of material there to sort through. In order to narrow this story somewhat, a presentation entitled Global Oil Supply Issues: Recent Trends and Future Possibilities (pdf) seemed a good place to start--not least because it contains some slides on IHS Energy's position on peak oil. The presentation is by Ken Chew, IHS Energy VP for Industry Performance and Strategy. Let's see what Chew had to say about the peak oil issue.

The slides (44-46) deal with peak oil. Here, we'll present each slide followed by some comments pertaining to Chew's points.

Slide 44--Peak Oil Can Not Be Forecast



If you look at Chew's slides 26-28, the IHS Energy Methodology is described for estimated discovered recoverable resources.

> Slide 27 -- URR Estimates
>
> - Uses a "bottom-up"approach that reflects evolution of resource estimates for individual fields
> - Sum the ultimate "proven+probable"technically recoverable liquid and gas resources of each field and undeveloped discovery, by year
> - All resources attributed to the year of initial discovery
> - Aggregate the annual discovered resource values
>
> Slide 28 -- Total Recoverable Resources
>
> Subtract country cumulative production (slide 26) from country ultimate recoverable resources [URR] (slide 27) to derive remaining resources by country (slide 28).

So--you guessed it--Chew bases his entire analysis on *purported data about discovered resource volumes* but when considering the question of "peak oil", turns around and says that *we lack accurate data about such resources*. Of course, a Hubbert Linearization attempts to estimate *Qt* for a given field, oil province or country based on its production history (P/Q)/Q. IHS Energy uses no such analysis. Chew's slide 31 indicates that

1. Pre-1995 Resource Growth (upward revisions) = 457 billion bbl
2. 1995-2003 Production = 236 billion bbl
3. 1995-2003 Discoveries = 144 billion bbl (61% of #2)

leaving us 365 billion bbl in the black--all based on pre-1995 URR inflation. Where do these resource growth numbers come from? We must turn to the Role of Mature Fields in Meeting the

Global O&G Supply Problem by another IHS Energy VP, John Stark, to answer that question. Here's slide 9.

TOD readers are familiar with these kind of numbers and can decide on their own whether these estimates, some of which are clearly marked as questionable by IHS Energy itself, are credible. And, even if they were all true, would peak oil flows in the near-term foreseeable future be affected in any significant way?

Concerning our inability to forecast how much new oil will be discovered and when, Chew (slides 2 & 3) presents a discovery curve that looks pretty normal showing that liquid resources put on-stream have outstripped discoveries since the 1981 to 1985 period. The 20 year trend seems clear--how can there be any major uncertainty about the expected discovery volumes in the future? The Earth is well-explored by petroleum geologists. There is no new magic technology which will buck the trend and find lots more oil than we already know about. However, perhaps we have underestimated *knowledge growth*. As Lord Bacon once said, Knowledge Is Power. I just don't see how it translates into more consumable liquids (boe) in the future.

As to the evolution of demand, that will depend on price and the economic fortunes of various countries (eg. Russia in the early 90's) but see the discussion of slide 45 below for an in-depth discussion.

Regarding "above the ground" events that will impact supply, these can only certainly be negative unless *mirabile dictu*, there is a magical turnaround in Iraq, Osama and friends decide to take early retirement, Nigeria insurgents make peace with Chevron, Iran has a change of heart about its nuclear program, feuding ethnic groups in the Caspian Sea region sing "Give Peace A Chance", India & China decide that ramping up energy usage is less important than climate change impacts, the US adopts a national policy to go with biofuels, solar and wind to mitigate its foreign energy dependence--you get the idea.

Slide 45--Peak Oil Is The Wrong Question

T h e *seamless* transition to alternative transport fuels? Can someone out there, anyone, demonstrate *how* exactly this transition is going to work? As far as oil supply & demand issues go, given overall declines, this would seem to be the biggest problem that peak oil presents. Biofuels? What's the answer? If there is one, what's the timeframe?

Now, here's an interesting point of view. The "peak" *may occur a number of years after demand permanently exceeds global supply capacity*! In other words, there would be a period in which oil supply capacity continues (however marginally) to grow but can not keep up with demand. This amounts to a kind of "economic" peak, not an "absolute supply peak" in which incremental flows (mbd) reach their maximum value over some period and are never exceeded thereafter. Not being an economist, Chew's key question brings up many thoughts.

1. Liquids supply goes up but increasing demand is never met. Isn't this called resource *scarcity*?
2. Re: #1, doesn't that mean prices can only increase if there's little elasticity in the world markets? Even in the best case, where demand can be reined in, wouldn't such a structural adjustment take some years to achieve? With supply increases that are inadequate to meet demand, how could prices *ever* decrease even if demand is able to eventually adjust? Supply & demand would remain on the precarious razor-thin edge we find today in the best case. Does anyone believe worldwide demand will actually decrease (without sacrificing sacred "economic GDP growth") in any timeframe worth mentioning--because that would be the only thing that will lower prices. Otherwise, it's a recession or it's a depression (whatever your preferred term).
3. If there is so-called *demand destruction*, doesn't that mean zero or even negative GDP growth on a region to region basis? Certainly, there is a constraint on worldwide growth based on Chew's year-to-year ceiling on available supply vis-a-vis demand.

Of our inability to accurately assess the evolution of demand (slide 44)--normally, demand will only go up as it has year on year for a long time. The evolution of demand would seem to depend on available supply capacity which determines price. If that capacity goes up a little, as opposed to not at all, and is exceeded by demand, then prices rise no matter what. But Chew's question seems hopelessly obscure to me.

Slide 46--Peak Oil May Not Be The Real Problem

We are familiar with the usual arguments about insufficient refinery capacity and the inability of existing infrastructure to deal with "heavy, sour" crude. As far as transporting oil to market goes, that is yet another kind of "above the ground" consideration, in addition to delays, geopolitical events, hurricanes, and the rest, that have an impact on the timeframe in which peak oil occurs.

But here, Chew's remarks provide some insight. Investors will be reluctant to commit to an environment in which *peak production is forseen*. The crisis may be in producing the oil and getting it to markets. The *crisis*! Well, maybe IHS Energy and TOD are not so far apart afterall. It may be simply an argument about timeframes in which the peak oil community says the *crisis* will be sooner than later but the IHS Energy/CERA crowd--based on some *inaccurate data* and optimism about "above the ground" events (see slide 44)--pushes the date out into the 2010 to 2020 period.

An Alternate Universe...

No where in Chew's presentation are *decline rates* from existing (including mature megafields like Burgan) mentioned. Not at all. When referring to *depletion*, Chew is talking in the usual sense about historical cumulative numbers as a percentage of estimated URR backdated to the start of production. (eg. slides 26, 43). It is as though we are living in an alternate universe. In this universe, available capacity only goes up and never goes down. It seemed prudent to disregard silly references to what Chew calls *resource plays* (slides 8 to 16, including oil shales, tar sands

and Orinoco heavy crude). Or his references to USGS data (slides 33,34). Chew's presentation also clearly shows the continued failure of E&P Effort and Investment by the IOCs (slides 20 to 25).

But bringing all that up just seemed like piling on.