



## What is happening with oil prices ?

Posted by [Big Gav](#) on July 7, 2008 - 8:00pm in [The Oil Drum: Australia/New Zealand](#)

Topic: [Economics/Finance](#)

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*This is a guest post from [anawhata](#).*

"Oil is an incredible, irreplaceable gift of nature which packs energy in a dense, easily transportable form." - Jérôme Guillet – Energy Industry Investment Banker

The hard facts

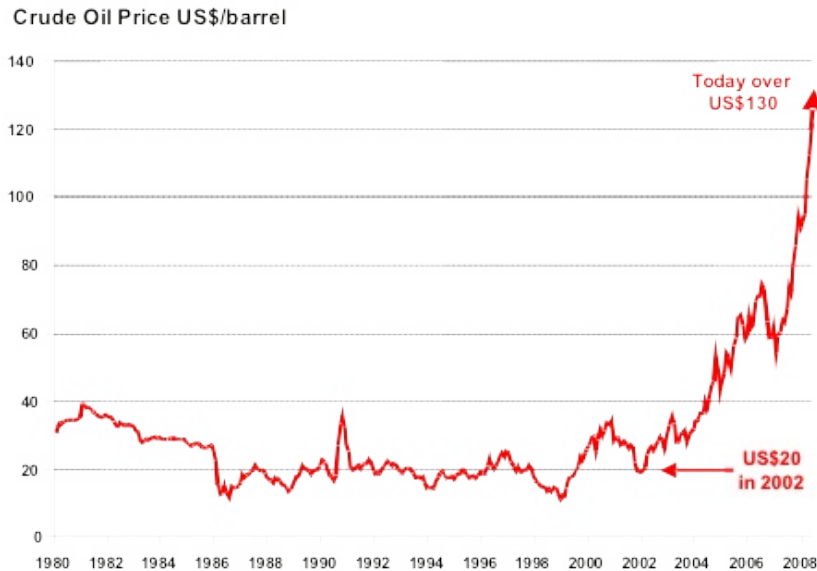
- The world price of oil in US dollars has doubled in the last year (June 2007 to June 2008) from US\$67/barrel to over US\$135/barrel
- The world price has gone up by 6 times in 6 years, from US\$20/barrel in 2002 to over US\$135/barrel by mid 2008
- With hindsight we can see that the great cheap oil era lasted 16 years from 1986 to 2002 when the price was mostly in the range \$15 – 25/barrel, coming off a \$39 peak during the "oil shock" of 1980 (equivalent to about US\$95/barrel in 2008 money). The short sharp spike seen at the end of 1990 was due to the first Gulf War.

Within Australia we have been somewhat insulated from the latest sequence of price rises by the falling value of the US\$, so our petrol and diesel prices have risen by comparatively less as the A\$ has climbed to around US95 cents, as shown in the chart below.

In Australian dollar terms we have seen the price of oil rise by "only" 3½ times in 6 years.

Obvious questions raised by the price rises are:

1. What has caused the startling rise over the last 12 months?
2. Why has the price risen steadily for the past 6 years?
3. Why shouldn't we get back to the \$20/barrel we enjoyed in the 1990's?
4. What caused the noticeable dip in price from mid 2006 to early 2007?
5. Why does the oil price seem to be going up at an accelerating rate since the dip in 2007?
6. Has the price stopped going up yet?
7. What prices might we expect over the next 1, 3 or even 5 years to come?



Source: 1986 onwards - EIA monthly WTI spot price in money-of-the-day  
[http://tonto.eia.doe.gov/dnav/pet/pet\\_pri\\_spt\\_s1\\_m.htm](http://tonto.eia.doe.gov/dnav/pet/pet_pri_spt_s1_m.htm)

Pre 1986 EIA Refiner Acquisition Cost of Imported Crude Oil in money-of-the-day  
<http://www.eia.doe.gov/emeu/cabs/AOMC/Overview.html>

Starting with **Questions 1 and 2**, the accelerating curve of recent price rises is due to the growth in oil supply not keeping up with steadily growing demand around the world.

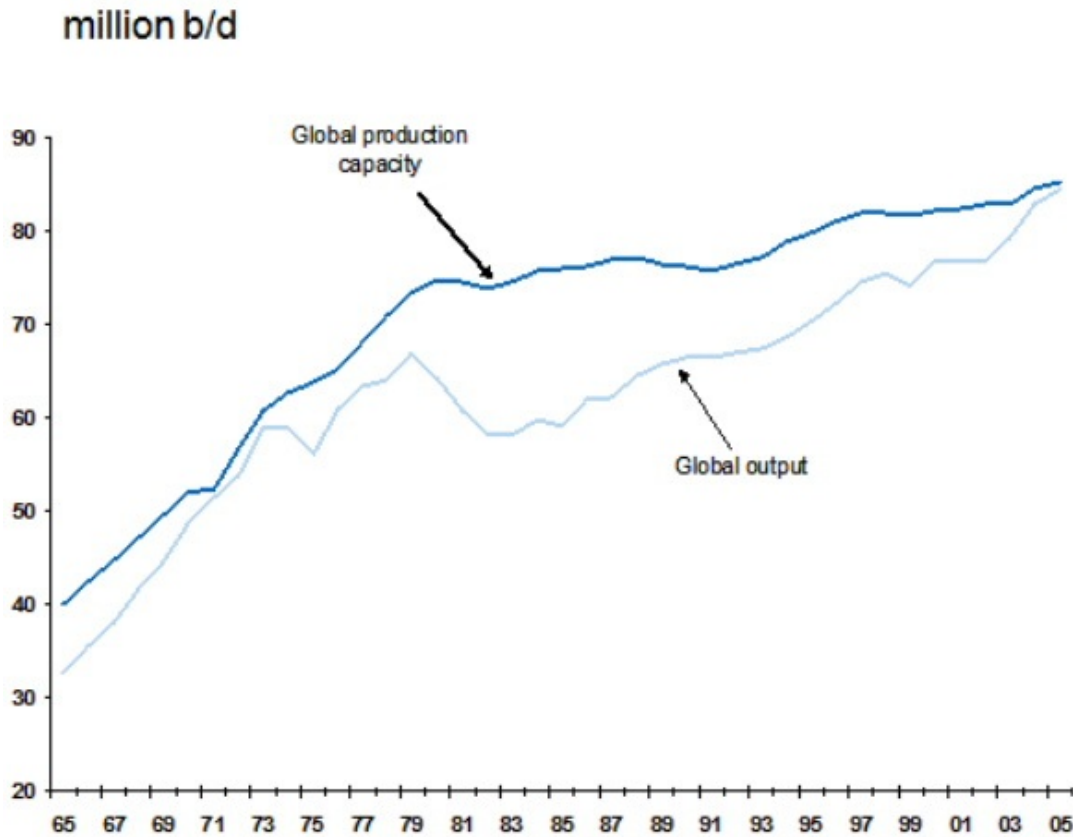
Oil is getting more expensive because surplus production capacity has diminished and continues to diminish, as shown in the chart on the next page. Oil industry volumes are of enormous scale (86 million barrels per day – a barrel is 159 litres), and the costs of supply infrastructure are in the billions and trillions of dollars.

Lead times for new industry infrastructure are typically 3 to 10 years. All new mega-projects on the production side are well known out as far as 2012, and few seem likely to boost global supply by enough to overcome declines in old oil fields. See the comprehensive listing of oil megaprojects at [http://en.wikipedia.org/wiki/Oil\\_Megaprojects/2008](http://en.wikipedia.org/wiki/Oil_Megaprojects/2008). Note that major oil projects are developing a history of running late, often years late, as they encounter challenging technical difficulties operating in extreme environments like deep ocean or freezing Arctic conditions.

Rapid demand growth is often blamed for rising prices – demand growth in developing countries, particularly China and India, and in key oil supplying nations such as Saudi Arabia and Russia. But the decline of mature oil fields throughout the world is an even greater source of demand for new oil supplies than the growth of end user demand. Declining fields are losing 5.2% of total oil production per year thus requiring about 3.5 million barrels/day of new oil each year for the global oil supply to stay the same. (Nobuo Tanaka, International Energy Agency) [http://www.iea.org/Textbase/press/pressdetail.asp?PRESS\\_REL\\_ID=267](http://www.iea.org/Textbase/press/pressdetail.asp?PRESS_REL_ID=267). Recent annual growth in end user demand, on the other hand has not exceeded 1.5 million barrels/day.

The balance between growing capacity from new infrastructure investments and declining output from old infrastructure has seen global production capacity climb at a slower rate than consumption for the past 25 years, as shown in the following chart.

## Global oil production and capacity



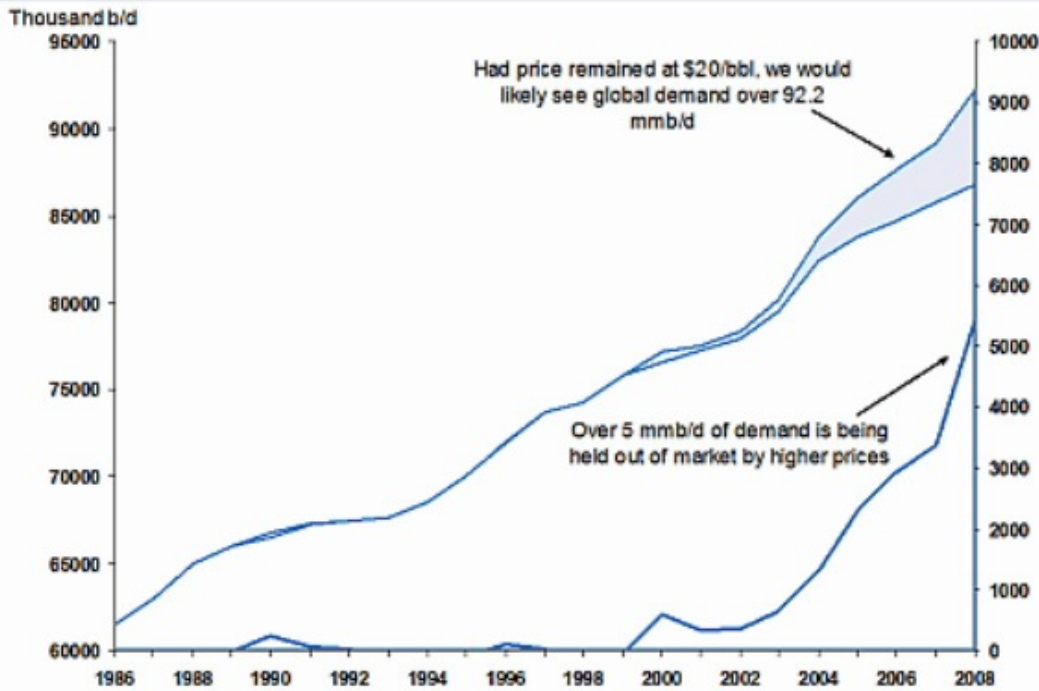
Source: Goldman Sachs based on EIA data

Convergence of the two curves shown above indicates serious supply tightness over the last 2 years which explains much of the recent price surge, with perhaps \$5 – 10 per barrel in volatility added by an influx of investment funds seeking a safe haven from the falling US\$.

The analysis by Goldman Sachs in the next chart below suggests that price rises to date have already destroyed demand amounting to about 5 million barrels/day or 6% of current world consumption. Any further price rises may be expected to cause further demand destruction and consequent hardship for those being priced out of the fuel market.

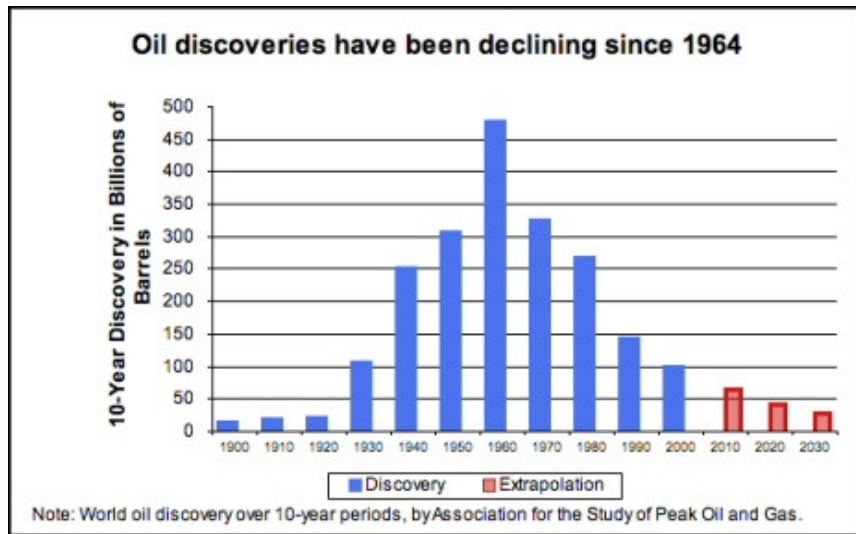


**Rising prices over the past 6 years have already reduced demand by over 5.0 million b/d**



This brings us to **Question 3** – Why shouldn't we get back to the \$20/barrel we enjoyed in the 1990's?

It's simple – the world has used up practically all the easy "light sweet" crude oil that used to pour out of desert sands for \$3 – 4/barrel and be easily refined into saleable products. Discovery of oil peaked more than 40 years ago – see the chart below.



Not only is it costing much, much more to find and extract each new barrel of oil (typically \$60/barrel for new deep offshore wells) but most of the oil we can now get is shifting towards "heavy" and/or "sour" grades that require billions of dollars of new investment in refineries to process them.

*"The oil is getting harder to extract. Most oil comes from ageing, waning giant fields discovered long ago. There are no more giant fields to find, only lots of small ones, difficult ones or fields deep under the ocean. The remaining crude oil is heavier, thicker, dirtier, quite simply cruder! It's difficult to get out, expensive to get out, slower to get out. So, the rate of oil extraction will decrease."* Michael Lardelli on Perspective, ABC Radio National, 26 June 2008

There is no going back to \$20/barrel short of a world recession that shuts down demand for oil, and for everything else.

Now let's look at recent price volatility. **Question 4** – What caused the noticeable dip in price from mid 2006 to early 2007?

Prices climbed during 2005 due to Hurricane Katrina and fears of war with Iran, then kept on climbing until August 2006.

"Oil was in a bit of a bubble in July 2006. The way you could tell it was in a bit of a bubble was that speculators were net long by a large number of contracts (115,000) and inventories were high. . . . The oil situation now is very different. Speculators are now net short. Inventories are very low of the products and types of oil in demand." <http://www.theoil Drum.com/node/4227#comment-370311> – 26<sup>th</sup> June 2008

When the 2006 hurricane season passed without incident and oil supplies remained marginally ahead of demand the market appeared to decide that risks had been over-priced, and prices fell by \$10 - \$15/barrel for the start of 2007. Then they began rising again.

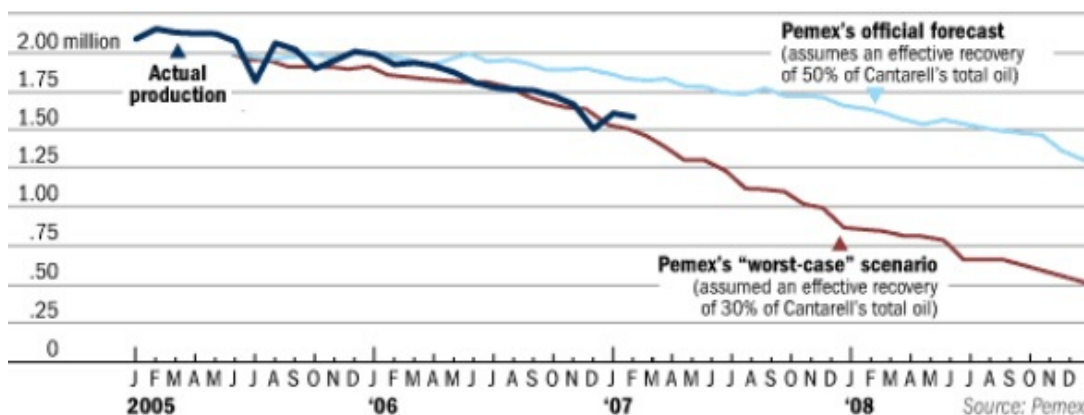
Is our situation getting worse? **Question 5** - Why does the oil price seem to be going up at an accelerating rate since mid 2007?

Actual oil prices are set by refiners bidding to buy tanker-loads. Recent media fuss about speculators refers largely to oil futures prices rather than actual spot prices for which a buyer and a seller have to actually exchange funds for a tanker-load of crude oil costing between US\$100 and US\$400 million. Not many speculators have this sort of cash or know what to do with a 250,000 tonne tanker.

This year many refineries have been finding it harder to buy oil of a grade they can economically refine, especially the 50% of US refineries located in the Gulf of Mexico who are suffering steep declines in overseas supply from their nearby sources in Mexico, Venezuela and Nigeria.

Mexico is in oil-induced political and financial turmoil because its one massive oilfield Cantarell has gone into rapid decline for geological reasons while Mexico's (subsidised) domestic oil consumption is growing. Mexico is seeing its largest single source of foreign income decline every month, while domestic demand for oil is growing at a pace that will see Mexico become an oil importer by 2014 according to some estimates. (<http://www.theoil Drum.com/node/4092>)

### Mexico's Oil Production is Collapsing



At the same time

- Venezuela's output is declining, partly due to Hugo Chavez's ejection of foreign oil companies.
- Nigeria's output has been reduced to its lowest level in 25 years by terrorist attacks from local guerrillas
- Russia's output (which is only exceeded by Saudi Arabia's) has unexpectedly declined by 0.9% this year
- Britain's North Sea oil peaked in 1999 and is declining at 5% - 8% per year.



The table on the following page shows, for oil exporting nations, net export declines accelerating from 2006 to 2007. Monthly data for 2008 shows that the overall downward trend is continuing. It is the declining volume of tradeable oil on global markets that is causing steep price rises this year when we are seeing only moderate abatement of growth in global demand.

More buyers are pursuing a tightening supply of exported oil, so small variations in availability are all that is needed to push deal prices upward. For example, on 28<sup>th</sup> June Bangladesh, hard-hit by energy shortages, was reported to have struck a deal with Kuwait for supply "at a premium price".

If declines in the supply of tradeable oil were not enough to create a tight market, buyers are reacting nervously to talk of attacks on Iran by Israel or the USA, and it only takes a rumour to send oil prices on another upward jump.

NET OIL EXPORTERS (EIA)					
Rank '07	Name	2005	2006	2007	+/-
1	Saudi Arabia	9095.6	8525.3	7923	-
2	Russia	6756.0	6865.8	7018	+
3	United Arab Emirates	2472.8	2564.1	2548	-
4	Norway	2756.5	2542.4	2321	-
5	Iran	2666.1	2462.4	2298	-
6	Kuwait	2335.9	2340.3	2268	-
7	Nigeria	2330.2	2130.6	2040	-
8	Venezuela	2265.3	2182.6	2024	-
9	Algeria	1840.1	1842.0	1862	+
10	Angola	1210.5	1379.3	1707	+
11	Libya	1455.0	1530.0	1552	+
12	Iraq	1341.8	1437.6	1484	+
13	Mexico	1738.9	1710.5	1456	-
14	Kazakhstan	1103.9	1144.9	1193	+
15	Qatar	1015.7	1032.0	1011	-
16	Canada	794.9	1024.0	1010	-
17	Azerbaijan	326.0	521.1	723	+
18	Oman	714.1	674.4	642	-
19	Equatorial Guinea	395.1	385.0	400	+
20	Sudan	280.3	300.7	386	+
21	Ecuador	377.7	376.0	345	-
22	Argentina	321.7	323.9	300	-
23	Columbia	275.0	278.7	276	-
24	Congo (Brazzaville)	228.9	239.6	241	+
25	Gabon	253.0	223.8	231	+
26	Yemen	274.0	241.3	217	-
27	Malaysia	250.8	228.3	202	-
28	Syria	219.0	187.9	184	-
29	Brunei	200.6	208.7	167	-
30	Chad	175.3	156.6	143	-
31	Trinidad and Tobago	152.9	161.5	136	-
32	Denmark	195.9	153.8	120	-
33	East Timor	94.4	100.9	78	-
34	Ivory Coast	30.7	64.5	77	+
35	Turkmenistan	98.7	69.9	63	-
36	Cameroon	58.5	62.3	58	-
37	Vietnam	137.0	88.5	57	-
38	Papua New Guinea	14.3	17.8	15	-
39	Bahrain	16.6	15.8	14	-
40	Congo (Kinshasa)	8.7	9.5	12	+
41	Egypt	53.1	14.5	11	-
42	Bolivia	10.7	8.1	8	-
43	Tunisia	-13.1	-12.8	6	+
44	Mauritania	-20.0	11.3	5	-
Total (exporters only)		46342.2	45838.2	44832.5	
Change (year over year)			-1.10%	-2.24%	

Units – thousands of barrels per day

Critically, Saudi Arabia appears now unable to perform the role of market stabiliser that it played from the 1980's until the 2000's on the basis of its known ability to pump up to 20% extra volume at short notice. Depletion of Saudi Arabia's giant oil fields appears to have taken away its ability to help the world in this way, though the Saudis will not directly admit they no longer have this power.

It seems likely that since 2007 OPEC has lost effective cartel power because few of its members have the ability to pump more oil. This means the cartel as a whole can do practically nothing to bring down prices even though key members like Saudi Arabia have much of their wealth tied up in Western economies and are clearly concerned about damage to their own interests if oil prices go any higher – thus the Saudi conference held on the 22<sup>nd</sup> of June 2008.

So what happens next? **Questions 6 and 7** – Has the price stopped rising and what prices might we expect over short-term and medium-term planning horizons?

Price rises did indeed pause in mid-June after an astonishing \$11 run-up on Friday 6<sup>th</sup> June. Traders may have been waiting for an outcome from the Saudi conference on 22<sup>nd</sup> June, which was soon seen to have provided little new knowledge or cause for optimism.

Game on. Futures topped \$140 for the first time on 26<sup>th</sup> June.

So what will next week, next month and next year bring?

*"Predictions are always difficult, especially about the future."* Niels Bohr

There are essentially two patterns of oil price prediction being made by informed pundits:

- A. Ongoing steady price rises driven by the continuing supply-demand squeeze
- B. A big discontinuity caused by demand destruction of a major sort, followed by a short period of lower prices then a resumption of ongoing steady price rises driven by the continuing supply-demand squeeze.

**Pattern A – Ongoing steady price rises**

Proponents of ongoing price rises are betting on geopolitical and economic stability and the ability of a resilient world to keep steadily adjusting to rising oil prices, as we have done for the past six years.

Typical projections of this type are from Jeff Rubin, Chief Economist at Canada's CIBC World Markets. The following table is from Jeff Rubin's April 2008 report [http://research.cibcwm.com/economic\\_public/download/sapr08.pdf](http://research.cibcwm.com/economic_public/download/sapr08.pdf)

Table 1  
Global Oil Supply Forecast

	2008	2009	2010	2011	2012
All Petroleum Liquids Production (Jan. Forecast)	86.1	87.0	87.9	88.4	88.4
Minus: Natural Gas Liquids Production	8.2	8.5	8.8	9.1	9.4
<b>Latest Global Supply Forecast (ex NGL)</b>	<b>77.9</b>	<b>78.5</b>	<b>79.1</b>	<b>79.3</b>	<b>79.0</b>
World Oil Demand	77.8	78.0	78.4	78.7	79.0
- % ch.	-0.3	0.3	0.5	0.4	0.4
OECD	43.8	42.7	41.6	40.3	39.0
- % ch.	-2.5	-2.6	-2.6	-3.0	-3.1
non-OECD	34.0	35.4	36.8	38.4	40.0
- % ch.	2.7	4.1	4.2	4.3	4.1
<b>Prices</b>					
West Texas Crude	115	130	150	190	225
Retail Gasoline (annual avg) (US\$)	3.90	4.50	5.00	5.75	6.50
(summer peak) (US\$)	4.25	4.80	5.50	6.00	7.00

Source: Oil Megaprojects Task Force/The Oil Drum, company, industry & govt. reports. Field start-up dates have been adjusted by CIBC World Markets where appropriate to reflect expected delays due to political, technological and other factors.

Two months later Rubin has revised his April price projections drastically upwards in CIBC WM's June 2008 report [http://research.cibcwm.com/economic\\_public/download/sjun08.pdf](http://research.cibcwm.com/economic_public/download/sjun08.pdf) .

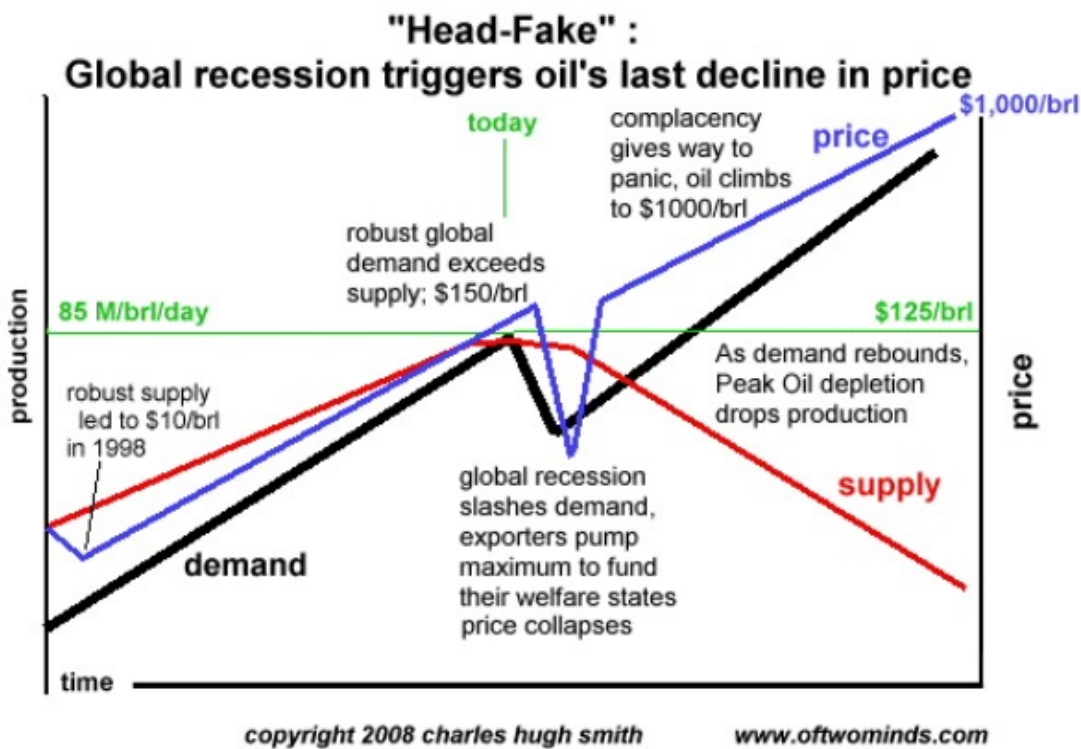
He explains "We are compelled to once again raise our target prices for oil. We are lifting our target for West Texas Intermediate by \$20 per barrel to an average price of \$150 next year and by \$50 per barrel to an average price of \$200 per barrel by 2010."

**Pattern B – Price moves down then up on a rising trend**

The other school of oil price projections makes the common-sense point that serious demand reduction and perhaps economic recession in some countries will be triggered when oil prices reach a critical level – when "demand destruction" becomes really destructive. Proponents suggest that such a free-fall in demand from one or more larger consuming countries such as the USA will be dramatic enough to drop price back to, say, US\$100/barrel for a period of time.

Some writers guess that the critical price point to cause such sudden and significant demand destruction may be US\$200 - 300/barrel, based on percentages of world GDP, but the accompanying analysis is weak and the arguments published to date do not convincingly pinpoint a critical price for oil above which it cannot go.

A graphic example of the "dramatic recession" school of price projections is shown below. Given the great variety of geopolitical events and economic factors that could influence actual supply, demand and price there is little hope for more precise forecasting of price and timing than the indicative story set out below.



**Conclusion:**

Stay awake, expect oil prices to be in dynamic movement.

Conservatively, plan for US\$200/barrel by 2010, but don't be surprised if a recession somewhere drops price back to US\$100, for a short while, or sudden war in the Middle East sends prices skyrocketing.

Expect the fundamentals of fading supply growth and growing demand to push prices ever higher in the 5 year horizon, perhaps well beyond US\$300/barrel.



The implications in terms of Australian pump prices in A\$/litre are shown in the table below. These pump price estimates are made on the basis of some reasonable assumptions:

- Current excise and GST rules stay the same, keeping Australia's fuel taxes significantly lower than any other OECD country except the USA, Canada and Mexico
- Australia's prices continue to be driven by average Singapore refined product prices. Singapore product prices are most influenced by the price of Malaysian Tapis crude which normally sells for a few dollars more than US West Texas Intermediate
- Freight, insurance, wharfage and wholesale and retail margins rise only moderately with world oil price
- A\$/US\$ exchange rate moves up from the current 95 cents to parity due to continued weakness in the US\$ compared with commodity-driven support for the A\$
- No net impacts from the Emissions Trading Scheme which starts in 2010 and might add another 10 cents/litre.

### Indicative Estimates of Pump Price

Tapis price US\$/barrel	Australian capital city pump price A\$/litre
\$140 (today)	\$1.68
\$200	\$2.07
\$250	\$2.45
\$300	\$2.80
\$500	\$4.30

*"When you think a litre of petrol costs too much, ask yourself how much you would have to pay someone to push your car 10 kilometres."*

Finally, let's look on the bright side. There is plenty to like about moderately higher oil prices, if communities, businesses and economies take heed and get time and help to adjust.

Less traffic, less congestion and less pollution would be a big plus for most of us.

New business opportunities should spring up in areas such as energy conservation, Natural Gas conversions, cleantech industries, electric vehicles and freight optimisation.

Having the world place a higher value on energy from oil will change a lot of business decisions, improving our resource efficiency and enhancing sustainability.

*Anawhata comments: The above is my effort to explain the recent history and possible outlook for oil prices to non-TOD audiences who lack awareness or understanding of peak oil. I think all of us know how tricky it is to explain these big issues to intelligent people who simply lack the basic knowledge we take for granted about peak oil. I have chosen to focus this piece specifically on prices, with the minimum possible mention of related causes like oil field reserves, depletion rates, the export land model and so on. Most of these topics underlie my argument, but are not highlighted because I will lose the audience if I stray too far away from the central topic of prices. I have anchored the whole argument around the undeniable facts of recent oil price history.*

*You will see TOD contributors' fingerprints and exact words throughout, and I hope I have credited key people correctly and sufficiently. In any case, TOD thought leaders, you know who you are. Thank you for educating and informing me and so many others. I welcome*

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*suggestions to clarify and improve the story, remembering that I have to keep it as simple as possible for a lay audience. In particular please help me correct any errors of fact or understanding on my part.*



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