

THE ASSOCIATION FOR THE STUDY OF PEAK OIL AND GAS “ASPO”

NEWSLETTER No. 88 – APRIL 2008

ASPO started as a European network of scientists and others, having an interest in determining the date and impact of the peak and decline of the world’s production of oil and gas, due to resource constraints. Now, associates are active in Australia, Austria, Belgium, Canada, China, Croatia, Denmark, Egypt, Finland, France, Germany, Hong Kong, Ireland, Isle of Man, Israel, Italy, Luxembourg, Japan, Korea, Malaysia, Mexico, Netherlands, New Zealand, Norway, Portugal, Russia, Singapore, Slovenia, South Africa, Spain, Sweden, Switzerland, United Kingdom, USA, and Venezuela.

(Formally constituted entities are shown in bold face)

Missions:

- 1. To evaluate the world’s endowment and definition of oil and gas;**
- 2. To study depletion, taking due account of economics, demand, technology and politics;**
- 3. To raise awareness of the serious consequences of oil and gas decline for Mankind.**

Foreign language editions are available as follows:

Spanish: www.crisisenergetica.org

French: www.oleocene.org (press “Newsletter”)

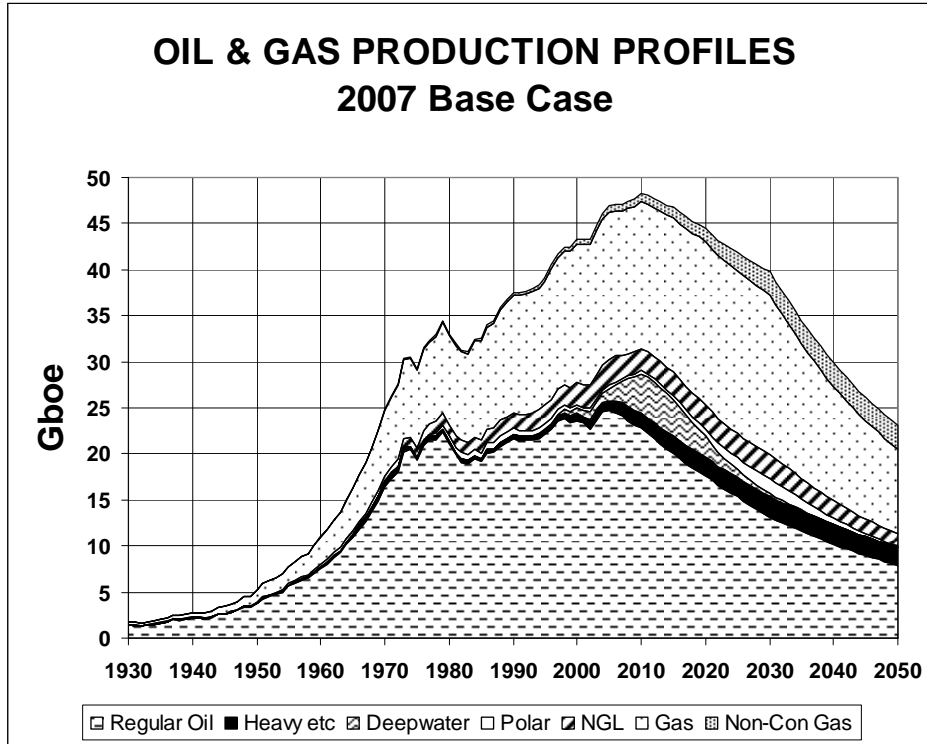
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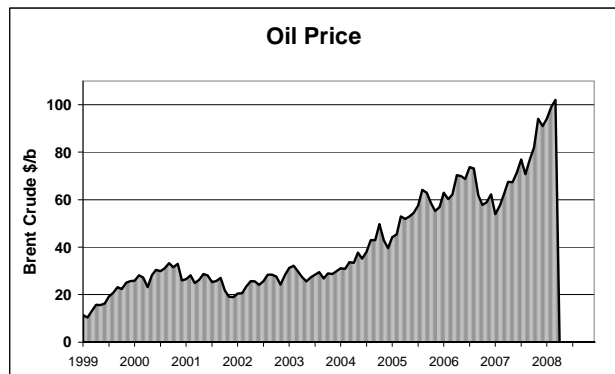
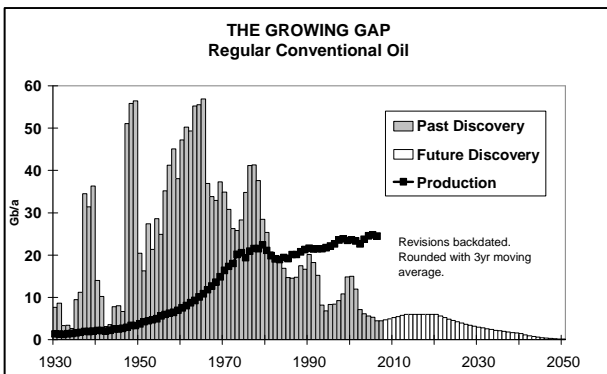
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The General Depletion Picture



ESTIMATED PRODUCTION TO 2100									End 2007		
Amount			Gb	Annual Rate - Regular Oil					Gb	Peak	
Regular Oil				Mb/d	2007	2010	2015	2020	2030	Total	Date
Past	Future	Total		US-48	3.7	3.1	2.4	1.8	1.0	200	1970
Known Fields	New			Europe	4.3	3.5	2.5	1.7	0.9	76	2000
1008	724	143	1875	Russia	9.7	9.7	7.8	6.2	3.9	230	1987
	867			ME Gulf	19	19	20	20	17	663	2015
All Liquids				Other	29	27	22	19	13	706	2005
1159	1341	2500	World		66	62	55	48	36	1875	2005
2007 Base Scenario				Annual Rate - Other							
M.East producing at capacity (anomalous reporting corrected)				Heavy etc.	3.9	5	5	5	6	184	2030
Regular Oil excludes Heavy Oils (inc. tarsands, oilshales); Polar & Deepwater Oil; & gasplant NGL				Deepwater	6.5	12	11	6	1	68	2011
				Polar	0.9	1	1	2	4	52	2030
				Gas Liquid	7.7	8	9	9	10	261	2035
				<i>Rounding</i>			-1	-1	-2	59	
Revised	07/02/2008		ALL		85	88	80	70	55	2500	2010



1021. Game, Set and Match

The International Energy Agency was fully aware of Peak Oil some ten years ago. Their World Energy Outlook of 1998 showed that demand would outpace supply by 2010 save for the entry of *unidentified unconventional* which was a coded message for shortage. But when a journalist decoded it, their masters in the OECD Governments suppressed it such that the *Unidentified Unconventional* became *Conventional Non-OPEC* in the next issue.

Now they change their tune as the following makes clear. Presumably the change of position reflects the need of the OECD Governments to have an IEA umbrella under which to face the uncomfortable reality, which they can no longer ignore with oil trading above \$100 a barrel and production in most countries running at capacity. The key IEA phrase is : *we should leave oil before it leaves us*

The Independent, Sunday, 2 March 2008

We are on the brink of a new energy order. Over the next few decades, our reserves of oil will start to run out and it is imperative that governments in both producing and consuming nations prepare now for that time. We should not cling to crude down to the last drop – we should leave oil before it leaves us. That means new approaches must be found soon.

Even now, we are seeing a shift in the balance of power away from publicly listed international oil companies. In areas such as the North Sea and the Gulf of Mexico, production is in decline. Mergers and acquisitions will allow "big oil" to replenish reserves for a while, and new technologies will let them stretch the lives of existing fields and dip into marginal and hard-to-reach pools. But this will not change the underlying problem. Oil production by public companies is reaching its peak. They will have to find new ways to conduct business.

Increasingly, output levels will be set by a very few countries in the Middle East. This does not necessarily mean an immediate return to the price shocks of the 1970s, because producing countries have learnt that stability is in their interests. Even so, it is not certain that they are ready to increase production to meet growing world demand. Building new capacity takes time.

On the demand side, we see two big transformations. Wherever possible, people have already switched from oil, particularly for industrial use, home heating and electricity generation. In future, oil will mainly be used in the transport sector, where we have no readily available alternatives.

The other transformation is that the bulk of demand growth is coming, and will come in the future, from China and India. Here again, car ownership is the main driver. By 2020, India will be the world's third-largest oil importer, and we expect China will be importing 13 million barrels in 2030, which means another US in the market. In terms of car sales, we estimate that by 2015 at the latest, more cars will be sold in China than in the US.

What will all this mean for the price of petrol? The indications are that if the producers don't bring a lot of oil to the markets, we may see very high prices – perhaps oil at \$150 a barrel by 2030. If the governments do not act quickly, the wheels may fall off even sooner.

The developed, oil-consuming countries can do several things to ease the transition to the new energy order. One would be to boost vehicle efficiency. Another would be to make better use of biofuels, although to be helpful, these need to be produced cheaply in developing countries like Brazil, not by heavily subsidised farmers in the developed world.

High prices also make it profitable to produce fuel from unconventional sources such as tar sands. But to do this requires plenty of energy, mostly from natural gas, and the process emits lots of CO₂. Tar sands are attractive, but like biofuels, they will never replace Middle East oil.

In the long term, we must come up with an alternative form of transport, possibly electric cars, with the electricity being provided by nuclear power stations. The really important thing is that even though we are not yet running out of oil, we are running out of time.

Dr Fatih Birol is chief economist at the International Energy Agency

<http://www.independent.co.uk/news/business/comment/outside-view-we-cant-cling-to-crude-we-should-leave-oil-before-it-leaves-us-790178.html> (Reference furnished by Rembrandt Koppelaar)

1022. One Presidential Candidate's Proposal

One of the Candidates for the US Presidency has published what sounds like a solid assessment, referring to the impact of high oil price and the cost of foreign military operations on the financial structure of the country. America's rich oil endowment certainly facilitated its economic development, but the rampant consumption made it a growing importer even before its own production peaked in 1970. Its imports now stand at almost 70%. Oil is currently trading at around \$100, although actual production costs in the main producing countries probably do not exceed, say, \$10-15. The balance is profiteering from shortage which releases a flood of false liquidity into the financial system, fuelling inflation. This underlines the importance of an Oil Depletion Protocol, whereby importers would cut their imports to match the decline imposed by Nature, which would return world prices to be in reasonable relationship with cost, removing this

inflationary pressure. Perhaps Mr Paul, if elected, would turn to this idea. He speaks of releasing innovative spirit suggesting that it can lead to *new heights of prosperity*. He may eventually have to qualify this term by the adjective *relative*, because the challenge will be to live better on less, but he probably has to get elected first.

America became the greatest, most prosperous nation in history through low taxes, constitutionally limited government, personal freedom and a belief in sound money. I decided to run for president because I am deeply concerned that the conservative movement has drifted away from these principles that we once so fiercely defended. Deficits have exploded, entitlements are out of control and our personal liberties are threatened like never before.

The current state of our economy drives home the hard truth that living beyond our means has caught up to us. Oil is over \$100 a barrel, the housing market is in sharp decline and the dollar is in a free fall.

The national debt now stands in excess of \$9 trillion, more than \$30,000 per person. The total future debt obligations of the United States, including entitlements, are estimated at around \$59 trillion, which equates to over \$500,000 per household. Social Security and Medicare will likely consume the entire federal budget by 2040, threatening the average American with an impossible tax burden.

As I said this past November to Federal Reserve Chairman Ben Bernanke, "We're indeed between a rock and a hard place, and we don't talk about how we got here; we talk about how we are going to patch it up." The "solutions" proposed so far--stimulus packages, bailouts and interest rate cuts--just amount to printing more money, which will lead to greater currency devaluation, contribute to the rising costs of living, and further squeeze the middle class and our senior citizens.

This is the first time in over 100 years that monetary policy is being discussed in earnest during a presidential campaign. Money is the lifeblood of any economy, and control over a nation's currency means control over its economic well-being. Fed bankers quite literally determine the value of our money by controlling the supply of dollars and establishing interest rates. Their actions can make you richer or poorer overnight, in terms of the value of your savings and the buying power of your pay check. For over 30 years, I have been urging all Americans to educate themselves about monetary policy in order to better understand how a small group of unelected individuals at the Fed and the Treasury Department wield tremendous power over our lives.

In order to immediately strengthen the economy and lay the groundwork for continued prosperity, I have proposed a four-part plan that involves lower taxes, less spending, a sound monetary policy and regulatory reform.

We can take several immediate steps to reform our archaic tax system and give Americans back the fruits of their labor. I will work to make the Bush tax cuts permanent, including a repeal of the estate tax, and I will fight to end taxes on Social Security benefits and income derived from tips. I also believe that if we are to truly address the housing crisis, we will end taxes on forgiven mortgage debt, which is considered "income."

The most permanent tax reform we can undertake, though, is to end the income tax and abolish the IRS. We could remove the entire personal income tax-funded portion of the budget and the federal government would still receive roughly the same revenues that it did during the Clinton years. And we could do this without even touching Social Security and Medicare.

The key to tax reform lies in spending reform. It's time to cut back on our trillion-dollar overseas budget and use that money to secure the programs Washington has forced so many citizens to depend on. By doing this, we can let younger generations opt out of these programs and save for their own retirements and health care needs. As president, I will also veto any unbalanced budget and demand that Congress address wasteful spending.

Lower taxes and less government spending will put more money in your pocket. A sound monetary policy will increase the value of that money and drive down the costs of living.

Immediate monetary reform can be achieved by requiring transparency at the Fed. All Federal Reserve meetings should be televised just like the proceedings of Congress, and they should once again make all information on the money supply available. I also favor legalizing competing currencies. History is replete with examples of the inevitable failure of paper money systems, from our own founding days, to inter-war Germany, to the monetary crisis of 1970s Latin America.

However, I believe that for our economy to be secure in the long term, Congress must reassert its authority and end the unconstitutional Federal Reserve.

Finally, we must be willing to undertake regulatory reform. It would serve us well to revisit the myriad federal regulations that have stymied the innovative spirit of the American people.

One of the most damaging regulations imposed on the American people is the Sarbanes-Oxley Act. A survey by Financial Executives International put the average cost of compliance with Sarbanes-Oxley at \$4.4 million, while the American Economics Association estimates the Act could cost American companies as much as \$35 billion. A study by the prestigious Wharton Business School found that the number of American companies delisting from public stock exchanges nearly tripled the year after

Sarbanes-Oxley became law. One of the best things Congress could do for the American economy is to repeal this damaging legislation.

According to David Walker, former head of the U.S. Government Accountability Office, "We are mortgaging the future of our children and grandchildren at record rates, and that is not only an issue of fiscal irresponsibility, it's an issue of immorality."

Unless we embrace fundamental reforms, we will be caught in a financial storm that will humble this great country as no foreign enemy ever could. However, we can find safe harbor in our ideals. Reclaiming our historic legacy of principled commitment to liberty will, once again, unleash the innovative spirit that propelled our nation to heights of prosperity never before achieved in human history.

Ron Paul in Forbes Magazine of March 4th

1023. New Books

A splendid new book by Rob Hopkins entitled *The Transition Handbook : From Oil Dependency to Local Resilience* has been published by Green Book (ISBN 978-1-900322-18-8). It is beautifully written and gives an outline as to the ideal response to Peak Oil in terms of living differently in a more benign way to be in better harmony with the Planet on which Nature has ordained us to live.

A review of another book entitled *The Final Empire* by William Kotke certainly stimulates interest. The review contains the following observation:

The spectacle has begun with the convergence of what I have been naming for years as the "Terminal Triangle": Peak Oil, climate change, and global economic meltdown. A number of related issues such as population overshoot, species extinction, and global pandemics, abide in the mix, but the "Big Three" are now juxtaposed in what appears to be the beginning of the end of life as we have known it on planet earth.

Richard Heinberg's new book *Peak Everything – Waking Up to the Century of Declines* (Publ. New Society 2008) sounds like fascinating and perceptive reading, as exemplified by the following quotation:

In the best instance, the next generations will find themselves in a low energy regime in which moral lessons from the fossil-fuel era and its demise have been seared into cultural memory. Like the Native Americans, who learned from the Pleistocene extinctions that over-hunting results in famine, they will have discovered that growth is not always good, that modest material goals are usually better for everyone in the long run than extravagant ones, and that every technology has a hidden cost. There is no free lunch.

A remarkable collection of essays has been published in India under the title *Peak Oil : Issues and Strategies*, edited by Pramod Rao and Anil Varma (www.books.iupindia.org ISBN 81-314-0877-90). It certainly gives one of the most forthright assessments of the unfolding situation.

Historical novels sometimes capture the essence of history better than formal textbooks. An interesting new book in this vein is *After the Crash : An Essay-Novel of the Post-Hydrocarbon Age* by Caryl Johnston (ID 2033772 www.Lulu.com)

1024. Defining Peak Oil

The term *Peak Oil* has virtually entered the dictionary but it lacks a succinct definition. It is sometimes dismissively referred to as a *Theory*, when in reality it is based on the simple observation that the consumption of any finite resource must start and end, passing a peak in between, as every beer-drinker observes as he drains his glass.

Oil is certainly a finite resource, formed in the geological past, and the growth of production must be followed by decline, which is the essential meaning of the term *Peak Oil*. It can apply equally to an individual well, an oilfield, a region, a country, or the world as a whole.

The precise shape of the depletion profile may vary but it inevitably has a maximum, the essence of the concept of the term *Peak Oil*. A debate rages as to the precise date of peak, but this is a minor issue in relation to recognition that Peak is followed by Decline. It can be compared with crossing a mountain range, whatever the detailed topography.

It could perhaps be succinctly stated as *the situation that unfolds when production from new fields fails to offset the natural decline of old fields*. In human terms, it could be compared with Middle Age, when Youth gives way to Old Age : a change that many people notice, but few welcome.

1025. Doomsday Prognosis

The European Commission has released remarkably forthright new guidelines for NATO. This organisation was originally formed as a defensive pact such that the signatory countries undertook to go to the defence of any member under attack. The rules were later made more proactive to broaden the scope for intervention: first, if any member were deemed under threat ; and later, if its *vital interests* were perceived to

be at risk. In other words, it was transformed from a defensive into an offensive organisation. It is at the present time killing Afghans and planning to place troops on pipelines.

The EU report now makes the opening moves in a new conflict for control of the Arctic Ocean, mistakenly assuming that it has *enormous hydrocarbon resources*. In fact, its oil potential is severely limited for two principal reasons. First, it lies a long way from the prime source-rock developments which were in tropical regions, even if plate-tectonic movement have locally transported such rocks northward. Second, it has been subject to substantial vertical movements of the crust due to the weight of fluctuating ice-caps in the geological past, which have depressed such source-rocks as are present into the gas-generating window, and also adversely affected seal integrity, leading to remigration and dissipation.

Poor Norway, which is a NATO member, having a common boundary with Russia on the Arctic Ocean, is likely to find itself embroiled.

The report also calls for the deployment of pipeline troops around the world. NATO is in addition endeavouring to bring the Ukraine into its orbit, although this is seen with reason as a threatening gesture by Russia which may remember the eastward thrust of Nazi Germany in its quest for *lebensraum* (living space), eyeing the rich agricultural lands of the Ukraine.

The report furthermore draws attention to new immigrant pressures on Europe as famines strike other regions due to dwindling crops, falling water supply and exploding populations. It points out that the population of Europe (including Russia) makes up 11% of the world's 6.7 billion, having an average age of 39, but on current trends expects its number to fall by 2050 to 7% with average age increasing to 47.

The report speaks of *a vicious circle of degradation, migration and conflicts over territories and borders that threaten the political stability of countries and regions... .. where frustration and disenchantment breed ethnic and religious strife and political radicalisation*. It admits that *competition for energy resources is already a cause of conflict*, diplomatically avoiding mention of the invasion of Iraq.

Britain's new Chief Scientist has also pointed out the growing shortfall in world food supply. This is in part attributed to climate change, but dwindling energy supplies during the Second Half of the Age of Oil must exacerbate the situation.

(See *The Guardian Newspaper of March 10th for coverage*)

1026. Russian Gas Exports

The consultancy CERA is known for its cornucopian view of future oil and gas supply, but now Mr Thane Gustafson, a Senior Director, expresses doubts that Gasprom can maintain gas supplies to Europe. He comments that supply depends heavily on fields on the Yamal Peninsula and its offshore extensions having an extreme Arctic environment.

Gasprom's capitalisation has risen to \$350 billion over the past ten years, but it will apparently be hard pressed to meet rising demand. It has been suggested that there might be a shortfall of as much as 100 bcm by 2015, according to the former deputy energy minister, Mr Milov.

It gets cold in the Russian winter, and so it makes eminent good sense for the country to conserve its own resources for its own people. NATO seeks to establish itself in the Ukraine supposedly to build missile tracking stations. It is easy to understand why the Russians might be less than enthusiastic, wondering about the direction in which the missiles might be aimed.

(Reference furnished by Richard O'Rourke)

1027. Oil price in different currencies

The present surge in oil price started in 1999 when it stood at \$ 17.97 which at the then exchange rate was equivalent to 17.4 euros. Taking the present price at say \$100, it means that in dollar terms the price of oil has increased by a factor 5.6 whereas in euro terms by only 3.8, such has been the devaluation of the dollar. The high price of oil primarily results from profiteering by Middle East countries as actual production costs have not changed materially there. It must be delivering a huge financial surplus, much presumably being held in foreign currencies. But in any event it sounds like a hugely inflationary factor.

At root, money is supposed to be no more than a convenient medium by which people can exchange the rewards of their labour. Someone might for example agree to cut a neighbour's hair in exchange for a bag of potatoes. If the overall financial system disintegrates, responding to these inflationary pressures and the recognition that the oil-based energy which fuelled the economy over the past century is in decline, it might be time to rediscover local currencies to better reflect barter. The Transition Town movement of Britain and elsewhere is already moving in this direction, with the town of Totnes having established the Totnes Pound. It is surprising that they were legally entitled to do so, given the financiers' control of Government, but it certainly sounds like a step in the right direction in these troubled times.

1028. Financial Cycles

A Russian Economist in the early part of the last Century identified financial cycles in the following terms, but now as we enter the *Second Half of the Age of Oil* we face an additional factor which will likely make the financial cycle much more extreme, giving an extremely harsh and prolonged winter. The following summary of the cycle is described by Ian Gordon

THE KONDRATIEFF CYCLE

The Kondratieff Cycle was first described by Nicholai Kondratieff, a Russian Economist early in the 20th century. He discovered a 50-60 year cycle in economic data series of the economies of the United States and other Western industrial nations. He used it to explain the underlying patterns of rises and falls in these economies.

An important underlying feature of the cycle is a build-up in debt during the up-phase of the cycle, and a destruction of that debt as the economy collapses in the crash phase at the end of the period, normally considered to be 50-60 years.

Spring

- Gradual increase in business activity and employment
- Consumer confidence increases in line with growing economy
- Consumer prices start a gradual increase from very low levels
- Stock prices begin a steady rise and reach a peak at the end of Spring
- Interest rises slowly from historic low levels in line with gradual credit expansion

Summer

- Summer War – 1st Cycle: War of 1812
2nd Cycle: US Civil War
3rd Cycle: Word War I 1914-1918
4th Cycle: Vietnam War
- Financed by massive increase in money supply leads to large inflation which peaks at the end of Summer
- Gold prices reach significant peak at end of Summer
- Interest rates rise rapidly and peak at end of Summer
- Stock market under pressure and ends Summer with a bear market low

Autumn

- Massive stock bull market financed by fiscal and monetary largesse
- Stock prices reach euphonic peak to signal start of winter
- Inflation and commodity prices fall
- Real Estate prices rise and reach peak at beginning of winter
- Gold and Gold equities in bear market, reach bear market low at Autumn's end
- Debt reaches astronomical levels by end of Autumn
- Massive consumer confidence due to stock prices, real estate prices and plentiful jobs

Winter

- Stocks start major bear market, the bear market is in proportion to the preceding bull market
- Debt repudiation significant
- Bankruptcies
- Banks and quasi banks in crisis
- Credit crunch – interest rates rise
- International currency crises – à la 1931-34
- Gold and gold equity prices rise as deflation takes hold

1029. ASPO hits the Senate

Senator Roscoe Bartlett addressed the Senate on March 14th on the subject of Peak Oil and its impact on the United States. He pointed out that peak world discovery was in the 1960s and that the World currently uses more than it finds in new fields. He referred to ASPO and was very complimentary to Professor Aleklett of Uppsala University, who organised the first ASPO Conference and was sitting in the gallery.

1030. The Motor Industry admits to Peak Oil

The Observer Newspaper of 23 March covered an interview with Mr Johan Willems, a Director of General Motors responsible for Advanced Propulsion and Environmental Communication, who is reported to have stated:

The car companies accept that we may have passed Peak Oil (the point at which global oil supplies begin to decline) but they believe that car propulsion will evolve to such an extent that oil scarcity will no longer be a problem.

The growing awareness of the Peak Oil issue is indeed remarkable. We have, as yet, no idea of the nature of the propulsion evolution contemplated: perhaps it will include provision of pedals for passengers to keep the vehicle moving. (Reference furnished by Chris Skrebowski)

1031. Major Oil Companies hint too

Chevron has published a most remarkable advertisement as follows, and deserves huge credit for doing so:

Chevron - Human Energy

With our planet's population continuing to increase, and the quality of life for millions in the developing world improving daily, our demand for energy is also growing. And to meet everyone's needs 25 years from now may take 50% more energy than we use to-day.

Finding and developing all the fuel and power we need for our homes, businesses and vehicles, while protecting the environment, could be one of the greatest challenges our generation will face.

The key to ensuring success is found in the same place that created this need : humanity itself. When the unique spirit we all possess is allowed to flourish, mankind has proven its ability to take on, and overcome, any issue. It's a spirit of hard work, ingenuity, drive, courage and no small measure of commitment. To success, to each other, to the planet.

The problem.....becomes the solution.

This human energy that drives us to succeed has been there every day since the beginning. And it will be with us to shape many tomorrows to come.

So join us in tapping the most powerful source of energy in the world. Ourselves

And watch what the human race can do.

It is not difficult to decipher the not-so-hidden messages. First, after *Peak Oil*, we cannot expect to continue to be able to run down to the Chevron Filling Station and tank-up as in the past. Second, Mankind has to react with *hard work and commitment*: in other words, we have to progressively replace the energy equivalent of the 22 billion slaves working round the clock, which oil currently supplies, with more of our own hard labour. Chevron speaks of the huge *Challenge*, calling for *ingenuity, drive and courage*, which implies a call for entirely new directions. The word *Challenge* carries an implication that it will be successfully met, but in the real world that is often far from the case.

The simple solution is to radically reduce our total energy consumption – and one obvious way to do that is to reduce our numbers. This may be implied by the Chevron's recognition that the *Problem becomes the Solution*. We can imagine a declining population from a combination of causes: famine may sweep the world as a result of soil destruction by mono-agriculture, depleting aquifers and the loss of the tractor; tribal warfare may spread, replicating the conditions already prompted by the invasion of Iraq; and nuclear weapons may be fired in desperate attempts to maintain past hegemony. But, as Chevron points out, the *Problem becomes the Solution* for the survivors who in reduced numbers find a new benign and sustainable pattern of life without the almost free energy that oil provided to their ancestors with such devastating consequences.

Shell too joins the new direction by co-sponsoring with CNN a page size advertisement in Time Magazine of 31st March 2008. It comprises an article by Jeremy Leggett on Peak Oil, Climate Change and Renewable Energy. It quotes the former US Secretary of Energy, James Schlesinger, who said at the ASPO Conference in Cork : *The peakists have won*. Shell's production evidently fell by 6% last year.

Calendar - Forthcoming Conferences and Meetings

ASPO members and associates [shown in parenthesis] will be addressing the subject of Peak Oil at the following conferences and meetings. Information for inclusion in future newsletters is welcomed.

2008

April 15th – Peak Oil Debate : Geological Society, **London** [Campbell]

May 3rd – Conference : ASPO ITALIA, **Torino** [Bardi]

May 24th – Meeting : ASPO Switzerland, **Basel**.

August – Geological Conference, **Oslo**, Norway [Campbell, Laherère]

NOTE

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Multi-Science Publishing Co. (Sciencem@hotmail.com) wishes to advise that copies of the book *Oil Crisis* by C.J.Campbell, providing background reading, are still available for purchase.