



Association for the Study of Peak Oil&Gas

NEWSLETTER No 48 –DECEMBER 2004

ASPO is a network of scientists, affiliated with European institutions and universities, 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.

The following countries are represented: Austria, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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 for Mankind.**

Newsletters: This and past newsletters issues can be seen on the following websites:

<http://www.asponews.org>

<http://www.energiekrise.de> (Press the ASPONews icon at the top of the page)

<http://www.peakoil.net>

A Spanish Language edition is available on www.crisisenergetica.org

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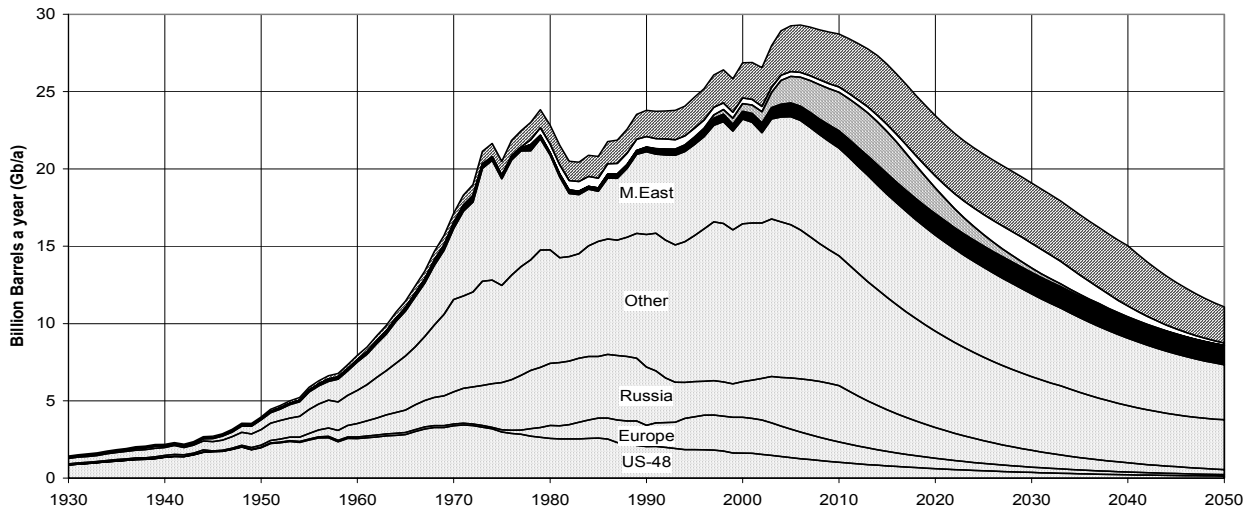
Calendar of Forthcoming Conferences and Meetings

Abu Dhabi	42	Canada	48	Iran	32	Norway	25	Turkey	46
Algeria	41	China	40	Iraq	24	Oman	39	UK	20
Angola	36	Colombia	19	Italy	43	Peru	45	USA	23
Argentina	33	Denmark	47	Kuwait	38	Russia	31	Venezuela	22
Australia	28	Ecuador	29	Libya	34	S. Arabia	21		
Azerbaijan	44	Egypt	30	Mexico	35	Syria	17		
Brasil	26	Indonesia	18	Nigeria	27	Trinidad	37		

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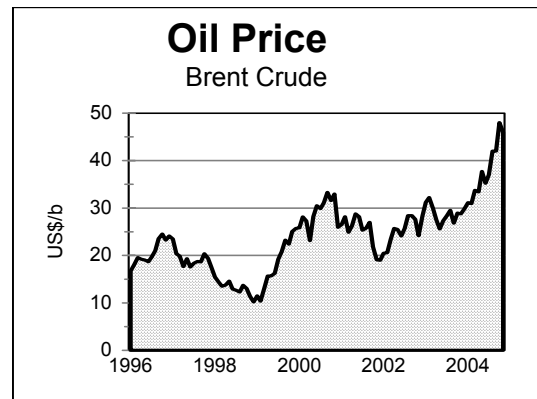
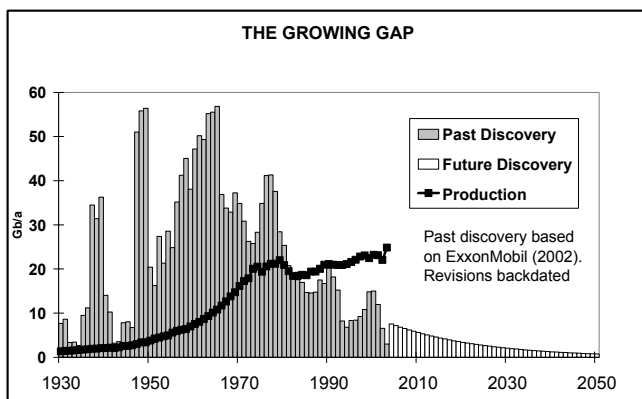
The General Depletion Picture

OIL AND GAS LIQUIDS 2004 Scenario



US-48
 Europe
 Russia
 Other
 M.East
 Heavy etc.
 Deepwater
 Polar
 NGL

ESTIMATED PRODUCTION TO 2100							End 2003			
Amount			Gb	Annual Rate - Regular Oil				Gb	Peak	
Regular Oil				Mb/d				Total	Date	
Past	Future	Total	US-48	2005	2010	2020	2050			
Known Fields	New		Europe	5.0	3.6	1.8	0.3	75	2000	
920	780	150	Russia	9.1	10	5.5	0.9	210	1987	
	930		ME Gulf	19	19	17	10	675	1974	
All Liquids			Other	27	23	17	9	690	1997	
990	1410	2400	World	64	58	43	20	1850	2005	
2004 Base Scenario				Annual Rate - Other						
M.East producing at capacity (anomalous reporting corrected) <i>Regular Oil</i> excludes oil from coal, shale, bitumen, heavy, deepwater, polar & gasfield NGL				Heavy etc.	2.4	3	4	3	139	2036
				Deepwater	5.6	9	4	0	58	2009
				Polar	0.9	1	2	0	52	2030
				Gas Liquid	8.2	9	11	6	270	2027
				Rounding		-1	1	31		
Revised	22/11/2004		ALL	81	80	65	30	2400	2007	



447. *New books*

The library of books on oil depletion, peak oil, and its dire impact grows rapidly, as awareness reaches many sectors of society. The following additions may be noted:

Oil Crises & Climate Challenges : 30 Years of Energy Use in IEA Countries
214 pages, ISBN 92-64-01882-4 (2004)

Oil: Anatomy of an Industry by Matthew Yeomans

Published by The New Press, New York, ISBN 1-56584-885-3

The New Great Game : Blood and Oil in Central Asia; Atlantis Books ISBN 1 84354.121.1

448. *Further Study on Saudi Arabia*

The following analysis by John Lyles presents a logical review of the Saudi situation.

A Study of the Reporting of Saudi Arabia's Reserves

Recent presentations by Saudi Aramco Representatives and a review of the technical literature allow the construction of the following table showing the evolution of Saudi Aramco reserves, Oil Initially in Place (OIIP), and recovery factors

Saudi Aramco often compares the proved reserve estimates for 1975 with the current claimed proved estimate of 260 Gb. This is misleading as, by the definition of Probable and with the passage of time and production experience, surely most of the 1975 Probable would by today be expected to be re-classed as Proved. One should compare Proved plus Probable (2P) reserves and recovery factors.

On this basis, the claimed 2P recovery factor has been increased by about 50 % (from 38% in 1980 to 56%). Some elementary maths and petroleum engineering knowledge are sufficient to demonstrate that new discoveries cannot be important in this increased recovery factor. It must pertain almost totally to the pre-1975 reserve base.

The amount of technical data available on Ghawar allows one to construct both an independent view of its reserves and a very good estimate of current Saudi Aramco claims. Estimated cumulative production from Ghawar is 54 Gb, and the remaining proved reserves are about 60 Gb (a total of 114 Gb) with another circa 10 Gb as Probable, giving just over 200 Gb Initial Oil-in-Place. (These numbers are fully consistent with the comments of Dr. Afiffi of Saudi Aramco during his recent AAPG lecture tour.) A 1975 Proved & Probable (2P) estimate for Ghawar is not in the public record, but one can make an educated guess. If Ghawar had the same percentage of the 1975 Probable of 67.7 Gb as it had of Proved (46%), then the Aramco 2P Reserve estimate would be 91 Gb. In fact, this is likely a conservative estimate. Inspection of the table above, knowledge of the Saudi field size distribution, and the history of Ghawar Proved Reserve bookings (disclosed by Dr. Saleri of Saudi Aramco for the northern part of the field) all constitute powerful circumstantial evidence that this assumption is approximately correct. On this basis, Ghawar could have accounted for at most 35 Gb of the roughly 200 Gb in 2P Reserve additions since 1975. (Of further interest is that a similar exercise can be done for Abqaiq which suggests that its 2P Reserves have expanded by about 4 Gb from 1975 to 2003, or about 30%.) This implies that the recovery factors in the other large fields in the reserve base have been increased substantially more than for Ghawar, and that the 2P Reserve estimate for Ghawar was reasonably accurate, given the modest production history and zero water cut up to that time. This raises further questions about Saudi Aramco claims that the original 1975 reserves estimates were ridiculously conservative.

Based upon the conclusions of this analysis, Ghawar can be excluded from the current OIIP and Proved Reserve numbers. Exclusive of Ghawar, Saudi claimed OIIP is 500 Gb and remaining proved reserves of about 200 Gb. Surprisingly, excluding Ghawar does not have a significant effect on the aggregate recovery factor.

Proved (ex Ghawar) – 49% ; Proved & Probable (2P) (ex Ghawar) – 54%

Excluding Ghawar, the 200 Gb of Remaining Proved Reserves are 18 % depleted. After removing the estimated remaining Ghawar Reserves from the 131 Gb Proved Developed number, only about 70 Gb, or 35 %, is developed. Of this 18 % depletion, about half is accounted for by only two fields (Abqaiq and Safaniyah, which have produced over 20 Gb). Of the entire 85 or so recognized Saudi fields, only about a dozen have ever been produced, and only 5-6 have produced significant quantities.

	1975	1980	2003
Reserves			
Proved Remaining			
Ghawar	47.7	48E	60E
Safaniya	17.9	?	?
Abqaiq	9.1	?	5E
Others	33.1	66E	195E
Total	107.9	113.5	260
Production	24.4	41E	99
Total	132.3	154E	359
Proved Developed			
Probables	67.7	65.2	32
Total Proved & Prob.	200	219E	391
Oil-in-Place		575E	700
Recovery Factors			
Proved		27% E	51%
Proved & Probable		38% E	56%
E=Estimated by author. Other data from AAPG & Aramco. ? – included in "Others"			

We may ask if a 50 % Recovery Factor, combined with such a high proportion of Proved and low proportion of Probable (roughly 90/10) is credible, either in the abstract or with reference both to the low state of depletion and the high percentage of undeveloped reserves.

The Association for the Study of Peak Oil, Wood Mackenzie, and PFC Energy consultants, all estimate remaining Saudi reserves in an order-of-magnitude of 150 Gb. The U.S. Geological Survey (USGS) estimates about 180 Gb in its study of 2000 based on IHS data. While reserve estimates are properly based upon technical factors and production history, the conclusions must make sense when compared with historical experience. The above analysis is much more consistent with these lower estimates than Saudi Aramco claims.

The thrust of above analysis seems to be confirmed by the following press report from Dow Jones

The former head of Saudi Arabian Oil Co's oil exploration Wednesday sharply criticized U.S. government oil supply projections. "The whole industry laughs at it," said Sadad Al-Husseini, former executive vice president of exploration at Aramco, the world's biggest oil company.

The EIA, statistical arm of the U.S. Department of Energy, projects crude from the Organization of Petroleum Exporting Countries oil will increase 90% in 20 years and that demand for Saudi oil will jump 137%, to about 22mbpd.

Saudi Arabia's own models, forecast top production for the same time at a much lower 15mbpd. Saudi Arabia now produces some 9.5mbpd.

They are perhaps unaware of how unrealistic these numbers are," Al-Husseini said.

OPEC supplies half of the world's oil exports. The EIA's predictions assume very low oil prices. Al-Husseini said oil will be much more expensive, encouraging greater fuel economy and the development of alternative fuels that will shrink reliance on oil.

He also questioned U.S. projections on future oil finds and said declining production in existing will INCREASE. emphasis mine

"Should we be worried? Yes," he said.

Billions of barrels of oil calculated to be part of world reserves by the US government include nearly unusable pitch, he said.

Al-Husseini said he wanted to call their figures to task because they shape major government policy decision more than any other agency's data.

449. Country Assessment - Canada

Canada is the second largest country in the World covering some 10 million km². The central plains and lakes overlying the Canadian Shield are flanked to the west by the Rocky Mountains and to the east by an older Appalachian chain, while to the north is an archipelago of Arctic Islands. It has an extensive common border with the United States, and is flanked to the northeast by the autonomous Danish territory of Greenland. It is a very sparsely populated country supporting no more than about 30 million.

The earliest settlers crossed the Bering Strait from Siberia at the end of the Ice Age, more than 20 000 years ago. In the 9th Century came the Vikings, who established a few small settlements, to be in turn followed in the 15th and 16th Century by British and French fisherman attracted by rich catches off Newfoundland.

In 1534, the French explorer, Jacques Cartier, made his way up the St Lawrence River to reach the sites of what are now Quebec and Montreal. Settlers followed developing the fur trade, later supported by the French Government wishing to incorporate Canada into its Empire. The Jesuits also arrived with the intent of converting the indigenous population.

British commercial interests likewise appeared, partly expanding northwards from colonies in America, which led eventually to armed conflict, echoing contemporaneous wars in Europe. The American Revolution and secession brought further conflict and confusion, but British control was progressively established, leading in 1867 to the formal declaration of Canada's Dominion status within the British Commonwealth. The extermination of the bison, on which the indigenous people depended, led over the years to their decline to less than 2% of the present population. Their lands were also expropriated as railways were constructed

CANADA		<i>Regular Oil</i>
Population M		30
Rates Mb/d		
Consumption	2003	2.15
	per person b/a	26.1
Production	2003	1.1
	Forecast 2010	0.74
	Forecast 2020	0.42
Discovery 5-yr average Gb		0.003
Amounts Gb		
Past Production		19.16
Reported <i>Proved Reserves</i> *		179
Future Production - total		6.84
	From Known Fields	5.77
	From New Fields	1.07
Past and Future Production		26
Current Depletion Rate		3.15%
Depletion Midpoint Date		1988
Peak Discovery Date		1958
Peak Production Date		1973

*Oil & Gas Journal

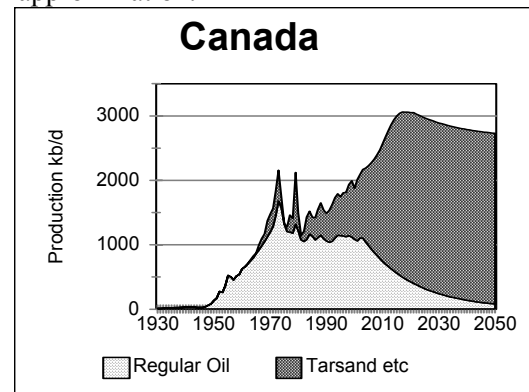
to open up the western lands to European settlement. French-speaking Quebec remains as a somewhat less than fully committed province of the country.

The Klondike Gold Rush of 1896 drew attention to the mineral potential of the North, which was followed by the discovery of massive deposits of iron, copper, lead, zinc and other minerals in the ancient rocks of the Canadian Shield. The prairies too were opened up as a rich source of wheat. The resulting economic prosperity encouraged further settlement and immigration such that the population increased six-fold from about 5 million in 1900 to its present level. Canada supported Britain in both World Wars, with its forces playing heroic roles in several battles.

Oil exploration commenced in the early years of the 20th Century without significant result until 1947 when the Leduc Field was found in a Devonian reef in Alberta, by which time some 250 wildcats had been drilled. Most of country is made up of non-prospective rocks of the Canadian Shield, with the prospective tracts being mainly confined to the foredeep of the Rocky Mountains, the Atlantic margin, and the Mackenzie Delta in the Arctic.

It is not at all easy to evaluate Canada's oil position in international terms because of its particular commercial environment and reporting practices. First, it has an exceptionally high cutoff for heavy oil at 25° API, because of the flow constraints imposed by the cold climate. Second, it has a highly fragmented industry, such that the term *wildcat* is generously applied, partly for tax reasons. It has huge deposits of bitumen and extra-heavy oil from which synthetic oil is made, and lastly much of the country lies within the Arctic Circle, whose oil is here excluded from what is termed *Regular Oil*. Much more study is needed to unravel the statistics, with this assessment being no more than an approximation.

The Western Canadian Sedimentary Basin, lying mainly in Alberta, is the prime oil province, but is now at a mature stage of depletion so far as *Regular Oil* is concerned. The Atlantic Margin off Newfoundland has been developed over the past two decades delivering the giant Hibernian Field, with about 700 Mb, but is also approaching maturity. A third province is the Mackenzie Delta and Arctic Islands which are predominantly gas prone. Hopes for new discovery off the Pacific Coast are likely to be dashed as this is not a prospective regional setting. Canada is a net importer of *Regular Oil*, and its needs are likely to grow as depletion progresses unless its demand can be cut.



Substantial deposits of heavy oil and bitumen, mainly from so-called tar-sands, occur on the eastern margin of the Alberta Basin, having been formed when oil from various source-rocks within the basin migrated to be weathered and attacked by bacteria at shallow depth. Extraction is effectively a mining process, involving the removal of up to 75m overburden. In addition are various drilling methods involving steam injection. A new technology based on catalysts is showing promise. The size of the resource is enormous, but it is not an homogenous deposit being subject to many subtle but important variations in oil and reservoir character. So far, only the more favourable sites have been exploited, meaning that future developments will be ever more difficult. Another constraint is the fuel needed to run the extraction and processing, much currently drawn from rapidly depleting stranded gas fields. Large amounts of water are also used, causing the Albertan government to express concern about depletion of the aquifers. It is a costly process with a low net energy yield. Many operators have faced budget over-runs, but new interest is being attracted as oil prices soar. Production, including derivatives, is here estimated to rise from about 1 Mb/d today to a plateau at 2.6 Mb/d starting in 2020, in a slow, labour- and capital-intensive process, also carrying environmental costs. This may prove to be an optimistic assessment because, as mentioned, the local gas used to fuel the plants is in decline, and it may be more economic to use new gas from the Arctic directly as gas rather than to produce these difficult liquids. If the World faces a deep depression due to the soaring price of Regular Oil, and a collapse of the stockmarket, that might also cut the demand for the tar-sand products, which will remain relatively expensive. On the other hand, it is possible that the US government may invest in a nuclear power plant to provide the needed energy on the grounds of national security, but again that might be better used as a direct source of electricity.

Canada has substantial gas reserves, especially in the Arctic. Approximately 195 Tcf have been discovered, of which 134 Tcf have been produced, leaving estimated reserves of 60 Tcf. They are currently being depleted at a rate of 6.4 Tcf/a, of which 3.3 Tcf/a are exported to the United States. Future discovery is here tentatively estimated to be about 25 Tcf, but it could be higher.

Canada unwisely signed up to the North American Free Trade Association, allowing its resources to be drained by its neighbour. Its inhabitants may accordingly soon have to freeze in winter to keep the hairdryers of Houston going. It is reported that a new impetus to further reduce the barriers under NAFTA-Plus is under active consideration between the three governments, premised again on the pretext of "homeland security". Under such pressure, it would be as easy to forgive the citizens of Quebec if they were again to seek their independence.

450. Buying Oil is easier than Finding It.

The following article puts it well:

The Rude Awakening, Wall Street, New York, Tuesday, November 02, 2004
www.dailyreckoning.com

Cosmic Easter Eggs By Eric J. Fry

God did not post any beacons or billboards above the world's mineral deposits. Man had to find them all on his own. Unfortunately, as our resource-hungry world has depleted its inheritance of metals and petroleum, large resource deposits have become increasingly difficult to find. The world's largest oil companies have responded to this geological predicament by reducing their exploration budgets and boosting the acquisition budgets. In other words, they are going shopping in the world's stock markets for the oil reserves they cannot track down in the wild.

As the big oil companies transform themselves from explorers into mere "shoppers," every mid-size oil or gas company with a sizeable reserve base becomes an attractive "bauble." Resource investors would do well to determine which mid-sized oil companies the shoppers will consider most appealing, and try to pick up a few shares while they're still "on sale."

Mineral exploration, like a kind of cosmic Easter egg hunt, becomes increasingly difficult the longer the hunt proceeds. Today, most of the world's oil explorers are finding that the best chocolate eggs are long gone. The only goodies remaining are a few stray jellybeans and some candy wrappers. So the big oil companies are turning their attention, instead, to the candy store known as Wall Street to satisfy their permanent craving for new reserves.

"The world's biggest oil companies are failing to get value for their money," the Financial Times observed recently, citing a study by the Scottish energy consultant, Wood Mackenzie. The newly released study shows that oil and gas exploration has produced relatively dismal results over the past few years. Specifically . . . the commercial value of oil and gas discovered by the 10 largest energy groups over the last three years is well below the sums spent to find them. In 2003, for example, the top 10 oil groups spent about \$8 billion hunting for oil, but only found about \$4 billion worth of the stuff.

As a result of these dire results, several oil companies are bumping their capital expenditure budgets this year to squeeze additional production out of KNOWN fields. Development spending on existing oil and gas properties has jumped from about \$35 billion in 1998 to a record \$50 billion in 2003. During the same time frame, exploration spending has fallen from \$11 billion to \$8 billion. Of course, development spending is a self-limiting process, as it merely depletes previously discovered reserves without adding any new ones.

But to ensure their survival, oil companies must find new reserves, either by drilling for them or by purchasing them. Over the last few years, buying reserves has been much more fruitful than exploring for them. Another of Wood Mackenzie's illuminating studies, entitled, "Value Creation through Acquisitions," analyzed nearly 170 international acquisitions and mergers to determine their "value creation" for the acquiring company.

"Exploration has typically been the method by which the industry has replaced reserves," Wood Mackenzie blandly observes. "Many companies in the study group have, however, added significant commercial reserves through their acquisition strategies." The 25 acquiring companies in the study group spent about \$140 billion on acquisitions between 1996 and 2002, which, according to the study, "resulted in a total value creation through acquisitions of \$23 billion (NPV as at 1-1-03)."

Clearly, shopping for reserves beats exploring. The major oil companies will continue searching for new discoveries - of course - but the shopping season is underway in the oil patch.

Reference furnished by Kellia Ramares

451 CNN Relays ASPO's Message on Peak Oil

CNN carried the following article on its CNN-Money site, deciding to delay publication until after the election. The original included a reproduction of the graph of declining discovery at the beginning of the ASPO Newsletter, contrasting it with the EIA Scenarios, based on the USGS range, but assuming an absurd 10% decline after peak, which has the effect of delaying the date of peak.

Oil: is the end at hand?

A once-fringe group saying we'll run out of oil is gaining attention, even within the oil industry.
November 2, 2004: 2:45 PM EST By Katie Benner, CNN/Money staff writer

NEW YORK (CNN/Money) - The end of cheap oil may mean more than just higher gas prices for Americans. It may mean the end of the oil age as we know it. That is according to the so-called peak oil movement, which says that by 2008 humans will have extracted half of the earth's oil. In other words, we're using oil faster than we can ever hope to find it.

"We have all been enjoying the greatest party the world has ever seen: the great oil party," according to Kjell Aleklett, president of the Association for the Study of Peak Oil (ASPO) and a physics professor at Uppsala University in Sweden. "After the climax comes the decline when we have to sober up and face the fact that the party is coming to an end," he wrote in a paper earlier this year.

The hangover would mean not only the end of low oil prices, but also a slowdown in world economic growth. It could also lead to social and political unrest, as many countries try to keep the party going even as oil disappears. People have been predicting the end of the oil age since the first oil well was drilled in the mid-19th century. But recent events -- especially light crude's recent jump above \$50 a barrel -- have brought ASPO's 24 geologists, physicists and former oil sector employees, into the spotlight.

More than 300 people attended ASPO's third workshop in Berlin last spring, including speakers from BP and ExxonMobil, two of the world's biggest oil companies. That was up from 50 people at the first ASPO workshop in 2002. (Click here to read the ASPO, Uppsala University statement on oil depletion.)

Finite supplies

Even the U.S. government agrees that the amount of oil that can be pulled from the planet is finite. But it estimates that global oil production will likely peak in 2037, rather than in 2008. "All or nearly all of the largest oil fields have already been discovered and are being produced. Production is indeed clearly past its peak in some of the most prolific basins," the federal Energy Information Administration (EIA) said in a recent report on peak oil.

"Over the last 20 years, the size of oil discoveries has fallen off dramatically. We are finding more fields than in the '60s and '70s, but they're much smaller," said Michael Rodgers, ex-oil geologist who is now senior director of PFC Energy, a non-partisan energy consulting firm. "We're producing 3 barrels of oil for every 1 barrel of oil that we find." PFC is more optimistic than ASPO since its experts believe new technology could keep us from running out of oil. Anxieties about running out of oil "patently are not frivolous, given the stark realities evident in many areas of the world," Alan Greenspan said in a speech in Washington, D.C. this October.

But Greenspan ultimately rejected the specter of peak oil, saying that technology will be able to ensure the oil supplies necessary so long as it has a "more supportive environment," meaning more money and government support. Phil Flynn, analyst at Alaron Trading, agreed, noting high prices largely reflect turmoil in some oil-rich regions. Supply and production scares in places like Russia and Nigeria have boosted prices recently more than worries about the end of the oil age. "Countries are always drilling and exploring for oil (despite political turmoil), because there is power in having oil," ASPO's Aleklett said in a recent interview. "This takes us to the heart of a security issue," added Rodgers. "It is likely that OPEC can step in and meet demand if a peak in non-OPEC regions happens. But then we'll be even more dependent on parts of the world that aren't stable and reliable."

Beating the peak.

Even if we don't run out of oil, the federal government admits it may become phenomenally expensive. "Will the world ever physically run out of crude oil? No, but only because it will eventually become very expensive in absence of lower-cost alternatives," the EIA report said. To avoid a peak oil crisis, analysts said more conservation will be needed, especially in the United States. Accounting for only 5 percent of the world population, America currently uses a quarter of the world's oil, according to the EIA. "The U.S. government should consider the possibilities raised by the peak-oil people. We have to be prepared to deal with all plausible situations, and it has to be reflected in policy," said Rodgers.

No one from the Department of Energy was available to comment, but analysts agreed the peak movement's warnings have not been widely reflected in domestic energy policy. Most politicians will be loathe to tackle the issue, analysts said. "People don't want to face this reality," said Rodgers. "Once you accept it as a possibility -- not even as a certainty, but just as one of many possible scenarios -- then you have to make all sorts of changes (in the way you live), because it would not make sense not to."

452. Peak Oil Awareness

One of the declared missions of ASPO has been to raise awareness of *Peak Oil*: in fact it more or less coined the term. In this, it has definitely succeeded as references to *Peak Oil* now explode throughout the world with new websites appearing almost by the hour to address the issue. It also naturally triggers increasingly vicious responses from the flat-earth community who are forced onto the defensive. The following is an example of such material:

The conventional wisdom: [The 'Peak Oil' cult](#)

Terence Corcoran *Financial Post* Canada Oct. 5, 2004

The latest oil scare, gathering momentum over the last five years or so, is the "Peak Oil" movement. As the price of crude hit \$50 a barrel, the idea that the world is on the brink of a major long-term confrontation with declining oil reserves is about to go mainstream. ... The peak oil movement, it turns out, is just another wild hypothesis -- the world is about to hit some kind of oil production level that is half way to total planetary depletion -- as a front for more of the same old interventionist ideologies. ...

Yet, others react with the words:

We are on the road to peak oil and ASPO is trying to draw the roadmap. We are approaching the stoplight for peak oil and the light has turned over to yellow. ...

453. A Change of Direction by British Gas

In earlier years, Britain's gas supply was managed by a State entity with long-term national responsibilities, but then the famous Mrs Thatcher privatised it so that investors, speculators and managers could pocket the profits, often in excessive terms, under free market, kleptocratic principles. Now, the Company, which clearly sees the Country's gas supply falling steeply from depletion, has introduced a new policy. After failing to convince a blind central government, it has succeeded in persuading two urban local authorities to grant tax rebates to householders who cut the waste of energy by installing insulation and efficient light bulbs. It is estimated that as much as £5 billion worth of energy is wasted in UK households. Most remarkable of all is the abandonment of flat-earth economic principles whereby the company discourages the consumption of its product in the national interest. There is hope yet.

(See: *The Times* 8 November 2004)

454. A Sense of Proportion

The well-known Lake of Geneva in Switzerland is about 100 km long, 10 km wide and 300 m deep. That gives 300 billion cubic meters or 1887 billion barrels (at 2.69 b/m³). This is approximately the same volume as the World's total endowment of producible *Regular Oil*. The oil lake is now about half empty.

Contributed by Jack Zagar

455. BP admits to Peak

Of all the oil companies, BP has been the least forthright in explaining the Peak Oil issue, using the concept of Reserve to Production Ratio to give the misleading impression that Reserves support present production for 40 years, as if it were remotely plausible that production would drop to zero the year after. It is therefore very encouraging to find one of its executives, Francis Harper, not only admits to Peak but supports an ultimate recovery for all liquids of 2400 Gb, confirming the ASPO estimate (see Table p.2). BP is evidently now following the lead of ExxonMobil in coming to terms with this subject. The Chairman of Total has also included the ASPO forecast in his presentation.

(See www.thebusinessonline.com)

(Reference furnished by Jean Laherrère)

456. Remarkable BBC Programme

A remarkable programme was scheduled to be broadcast on BBC2 on November 18th entitled *The Man Who Broke Britain*. It covers the story of a fast-moving new bank working the Derivatives Market in which the trader had placed an oil price escape clause. An explosion in Saudi Arabia results in a price shock, causing a market melt-down throughout the world. At first, it is attributed to al-Qaeda financial terrorism, but is eventually found to be just normal banking. The financial collapse leads to widespread unemployment and demonstrations in the streets as the new destitute react. Government officials and politicians offer bland assurances that the underlying economy was strong, taking a long time to come to terms with the situation. Since the story is so close to reality due to the, now acknowledged, near absence of the spare capacity, the programme runs a good chance of being self-fulfilling, which might explain why the BBC at the last moment decided not to show it, although we hear now that it may be broadcast on December 9th on BBC2 at 21:00. Don't miss it, if it appears.

Reference furnished by Alison Kenter of WalltoWall TV

457. External Costs of Petroleum

The International Center for Technical Assessment has published a comprehensive study of the external cost of using petroleum, including road building, pollution, administration, environmental, and military costs, and finds that the real cost of gasoline in the United States is between \$5 and \$15 a gallon. Declining production in the future will naturally reduce these external costs, but the alternatives may also carry their own, possibly even higher ones.

Reference furnished by Marek Kolodziej

458. Conference on Depletion

Peak Oil UK - Entering the Age of Oil Depletion

Monday April 25 2005 at the Royal Museum, Chamber Street, Edinburgh

Global Oil Depletion

Introduction to Oil Depletion : Colin Campbell

Major Oil Projects, present - 2010 and beyond : Chris Skrebowski

Middle East oil reserves - fact or fiction? : Matthew Simmons
 Oil Depletion and the UK
 Oil Depletion in the North Sea, UK Sector : Jim Hannon
 Oil Depletion And UK Transport : David Spaven
 Economic Effects of Oil Depletion :

459. Correction to Model

The Depletion Model evolves all the time based on new data and insight. The Table on Page 2 has been revised to reflect a more reasonable assumption of heavy oil production based on the evaluation of Canada in Item 449. The resulting Ultimate for All Liquids falls to 2400 Gb after rounding, identical to that proposed by BP (see Item 455), and is only slightly below the USGS *High Probability Case* of 2452 Gb. As computed, the resulting midpoint peak of *Regular Oil* comes in 2005, and of *All Liquids* in 2007, but they are shallow peaks. A full revision awaits publication of this year's data in December.

460. No Change for Climate Change

The Intergovernmental Panel on Climate Change has decided that the Fourth Assessment Report, which is to be issued in 2007 will keep the same flawed scenarios (SRES) as given in the 2001 Third Assessment, which it judges to be reliable despite widespread criticism. In general, it seems that the organisation will not face criticism directly but retreat behind academic peer group evaluations. The trouble is that the peer group is likely to be the self-same academic economists, lacking the knowledge or mindset to address the resource limitations imposed by Nature. Climate Change is certainly an important subject deserving the closest scrutiny, so it is unfortunate that those responsible continue to provide misleading information to governments when their case would be strengthened not weakened by properly addressing the energy depletion issue and its impact on the economy and population at large, as has explained, for example, by Laherrere in several papers including:

<http://www.iiasa.ac.at/Research/ECS/IEW2001/pdffiles/Papers/Laherrere-long.pdf>

461. London Conference on Depletion

The Institute of Energy hosted an important conference on depletion in London on November 10th. Chris Skrebowski, Editor of *Petroleum Review*, set the scene by urging the participants to face the facts and look at the numbers, confused as some of them undoubtedly are. Dr Bentley followed with an excellent comprehensive review, in turn supported by Francis Harper of BP and Ken Chew of IHS presenting realistic assessments of discovery and corresponding production profiles. They were countered by the well known flat-earth assertions of Professor Odell, who yet again tried to invoke an abiotic origin of oil to support his notion of a limitless resource. He was partly supported by Robert Arnott, from an Oxford flat-earth tank, who suggested that the lack capacity reflected a lack of investment, restrictions to exploration in certain countries and the senility of explorers, whose average age is apparently 49. But he did confess to being in ignorance of the facts because the data cost too much for him to buy. Finally Michael Smith pointed out that if, for the sake of argument, the claims of potential increased capacity by the Middle East countries were accepted at face value, dubious as they were, there would still be a shortfall to world supply by 2011, assuming a 1.5% annual increase in demand.

462. Britain's Energy Time Bomb

The following article reveals a new position by the British Government, which is now forced to admit to Peak Oil. The most telling line refers to a foreign policy of "Country Action Plans on Energy". The price can be high with more than 100 000 innocents killed in Iraq so far.

30-10-04. Foreign Secretary Jack Straw warned that Britain's growing need for energy over the next decades has to be seen in a "changing context" due to declining production from the North Sea. "By 2020, we will probably be importing three-quarters of our primary energy needs -- and we will need to adapt to that," he warned when launching his government's first-ever International Energy Strategy.

Straw's warning comes after the British Foreign Office identified energy security as being one of eight international priorities last December. The concern is that the country is no longer self-sufficient with oil and gas supplies from the UK's sector of the North Sea running out fast. The situation was underlined in July, when Britain recorded its first deficit in oil trade since 1991. The worry over gas was exemplified by the closure of the North Sea's Frigg field on October 26 after one time supplying up to a third of the UK's domestic gas needs.

The UK's oil production has been in decline since production peaked at 2.8 mm bpd in 1999. Although the current output of 2.1 mm bpd is in line with the average of the past 20 years, it is predicted it could run dry within the next decade. According to the UK Offshore Operators' Association, the country will cease to be self-sufficient in

2007, production will drop to 1 mm bpd by 2010 and virtually end altogether five years later. Of even greater concern is the situation of natural gas, where the UK is rapidly moving from a position from being a net exporter to a net importer. By 2010, it is expected to be importing around 50 % of its gas. Like the rest of the EU, the dependency is expected to rise to 70 % by 2020.

In June, a parliamentary report expressed alarm about the delay in building up an infrastructure for imported supplies. It questioned whether the UK gas market had the ability to cover demand if there was severe weather over the next two or three winters. "Transco (responsible for the national grid) has the physical capacity to transport a high-surge demand for gas, but pipelines bringing gas into the UK have little spare capacity," chairman of the EU sub-committee for Internal Market, Lord Woolmer warned. This was despite concluding that globally there were ample supplies of gas from diverse sources, which would be available to the EU and UK up to 2025 and probably beyond.

As part of the UK's International Energy Strategy, Straw announced that he would be tasking British ambassadors "in priority posts overseas" to take personal charge of implementing and delivering its objectives. "We will be developing with them individual Country Action Plans on energy and climate change. And we will be enhancing our posts' capacity on energy issues and making better use of our network of energy attaches," he said, underlining the importance being attached to the security of supplies.

The energy time bomb also has important implications for Britain's economy. Since North Sea production started in the late 1970s, oil has lubricated the economy with billions in tax revenues. Even during the decline since 2000, tax revenues have been worth some \$ 900 mm, the equivalent to reducing income tax by some 10 %. The bonanza earned by record increase of 65 % in oil prices this year could be one of the last and will leave the Treasury with a big hole to fill in the country's budget. The plight is not helped with Britain's huge trade deficit, which grew last year to a record \$ 85 bn.

Britain's oil industry, which still directly employs 260,000 people, is already being consigned to the history books by the rapid withdrawal of international oil majors. Companies such as BP and Shell have been retreating from the North Sea for the last couple of years and plunging their investments elsewhere. Yet the offshore industry remains optimistic that many smaller specialist operators can continue to extract oil from mature fields. It is estimated that 30 bn barrels of oil have been pumped from Britain's oil reserves and that a further 30 bn remain to be exploited. But continued extraction will depend on costly technological developments such as horizontal drilling and water or gas injection that require oil prices to remain high. Like Houston in the US, Aberdeen is the UK's oil capital but few have doubts that its days are numbered.

by Hamed Chapman (*From Alexander's Gas & Oil Connections*)

Calendar - Forthcoming Conferences and Meetings

The subject of Peak Oil will be addressed at the following conferences and meetings, with presentations being made by ASPO members and associates [shown in parenthesis]:

2004

November 30th – Presentation to the Oireachtas (Senate Committee), **Dublin** [Campbell, Skrebowski]

December 9th - Commodities Investment Forum, **Geneva** [Gilbert]

2005

January-February – Post-Fossil Mobility Conference, **Berlin** [Blendinger] (date pending)

February 10th – Irish Government Conference on Security of Supply, **Dublin** [Campbell]

February 16th - Institute of Petroleum, **London** [Gilbert]

March 22-25 – Romania Oil & Gas Conference, **Bucharest** [Laherrère]

April 14-15 – Swiss Pension Fund Managers, **Interlaken** [Campbell]

April 22nd – Sanders Research, **London** [Campbell]

April 25th – Depletion Scotland, **Edinburgh** [Campbell, Skrebowski, Simmonds]

May 19-20th – **4th ASPO International Workshop**, Gulbenkian Foundation, **Lisbon** [various]

October 28-30th – Pio Manzu Energy Conference, **Rimini, Italy** [Campbell]

[Information on future events for inclusion in the Calendar is welcomed]

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