

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

NEWSLETTER No. 62 – FEBRUARY 2006

ASPO is a 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. Independent national affiliates are in existence or formation in Australia, Canada, Egypt, France, Germany, Ireland, Italy, Netherlands, New Zealand, Portugal, South Africa, Spain, Sweden, United Kingdom and the United States.

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.**

Newsletter: The newsletter is currently compiled under the auspices of ASPO IRELAND, which maintains a full and searchable archive of past issues at www.peakoil.ie.

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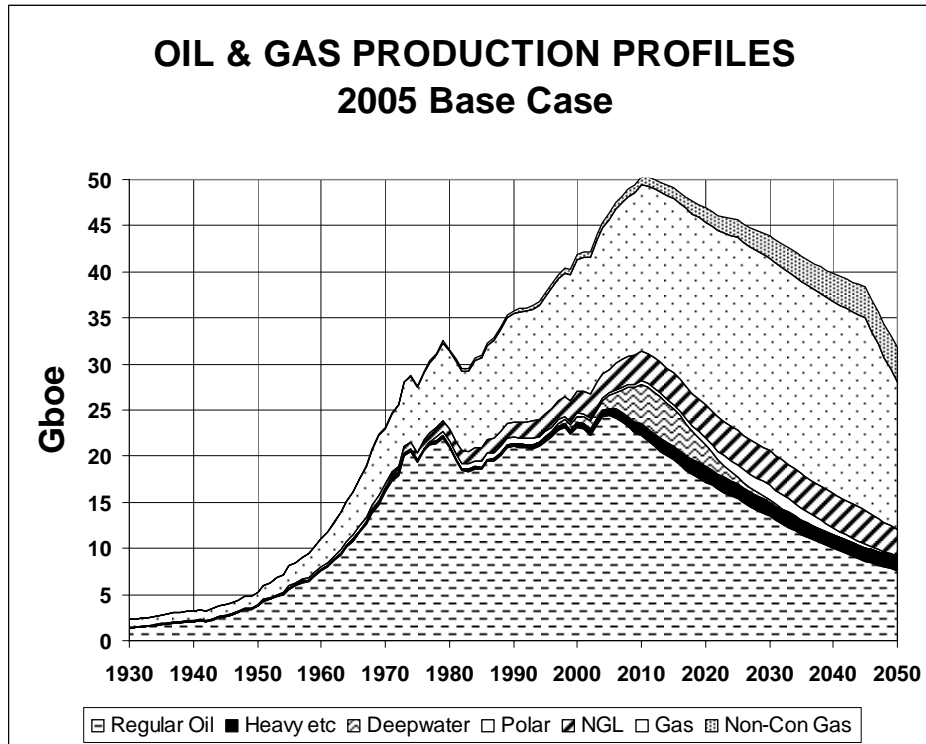
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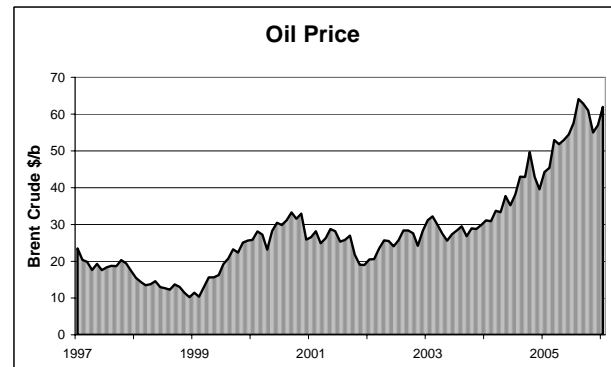
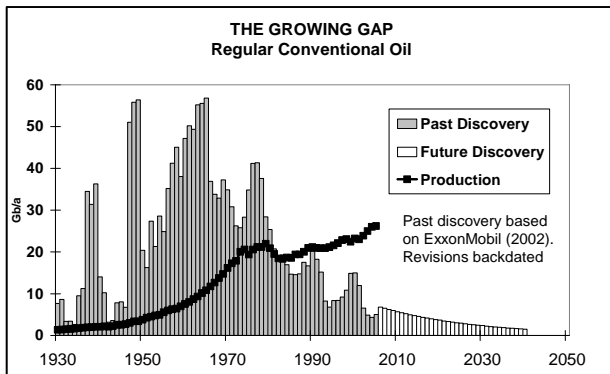
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The General Depletion Picture



ESTIMATED PRODUCTION TO 2100									End 2005			
Amount			Gb		Annual Rate - Regular Oil					Gb	Peak	
Regular Oil					Mb/d	2005	2010	2015	2020	2050	Total	Date
Past	Future		Total		US-48	3.6	2.8	2.2	1.7	0.4	200	1971
Known Fields	New			Europe	5.2	3.6	2.5	1.7	0.2			2000
968	759	123	1850		Russia	9.2	8.4	6.8	5.5	1.5	220	1987
			882		ME Gulf	20	20	20	20	11	680	1974
All Liquids					Other	29	26	22	18	7	675	2005
1074	1326	2400		World	67	61	54	47	21	1850	2005	
2004 Base Scenario					Annual Rate - Other							
M.East producing at capacity (anomalous reporting corrected) Regular Oil excludes oil from coal, shale, bitumen, heavy, deepwater, polar & gasfield NGL					Heavy etc.	2.3	3	4	4	4	151	2021
					Deepwater	3.6	12	11	6	4	69	2011
					Polar	0.9	1	1	2	0	52	2030
					Gas Liquid	6.9	9	9	10	8	276	2035
					Rounding						-2	2
Revised	25/12/2005				ALL	80	86	80	70	35	2400	2010



665. *Kuwait admits to Exaggerating its Reserves*

Several earlier items in the Newsletter have drawn attention to the unreliable nature of Middle East reported reserves, pointing out, in particular, how Kuwait increased its reported reserves from 64 Gb to 90 Gb in 1985 although nothing particular had changed in the oilfields. This action in turn forced the other OPEC countries to announce matching massive increases to protect their OPEC production quotas, which were partly based on reserves. The Petroleum Intelligence Weekly now reports that elements within the Kuwait Petroleum Corporation have let it be known that Reserves now stand at 48 Gb, of which 24 Gb are deemed fully proved and only 15 Gb remain in the giant Burgan Field. That is hardly surprising, given that it has been producing since 1946. The field has four major sandstone reservoirs broken into separate compartments by faults. The field has a history of water incursion going back to 1973, which was not helped by the uncontrolled flows when the wells were fired in the Gulf War.

According to Reuters, three major oil companies are competing for service contracts to develop Kuwait's northern fields, which are much smaller. In the absence of a unitization agreement it may well be possible to suck oil from across the border with Iraq, a practice which indeed prompted that country to invade in 1991. One of the companies is BP, which must have comprehensive knowledge of Kuwait's fields from its previous engagement in the country when most were found. Its Statistical Review of World Energy nevertheless continues to report the official *Reserves* of 99 Gb, putting in some doubt the credibility of the Chief Executive's statement in the Introduction that *The 54th edition of the Statistic Review again sets out the facts.*

The ASPO database currently estimates that future production from known Kuwait fields will amount to 54 Gb. It sounds like a reasonable number. A comparison of the reported reserves for the other main Middle East countries is listed in the table.

	Gb	BP	ASPO
Saudi Arabia	262.7	159	
Iran	132.5	69	
Iraq	115	61	
Kuwait	99	54	
UAE	97.8	39*	
Total	707	382	
*Abu Dhabi only			

Iran too now threatens to cut production. It is widely seen as a political gesture, but it may rather reflect a physical inability to hold production at present levels.

666. *Country Re-Assessment – Colombia*

Colombia covers more than a million square kilometers on the northwest corner of South America. It is cut by three ranges of the Andes, which are flanked to the southeast by extensive plains in the headwaters of the Amazon and Orinoco rivers. Its coasts are washed by the Caribbean and the Pacific, separated by the narrow isthmus of Panama.

One of the chieftains of the ancient Colombian Chibcha civilisation had the habit of covering his body in gold-dust before bathing in Lake Guatavita, in which emeralds and other precious stones were thrown to placate the gods. *El Dorado*, as he was known, stimulated the interest of the Spanish Conquistadores in the wake of Columbus, who reached the northern coast on his last voyage in 1502.

In a remarkable short span of fifty years, the Spaniards had established themselves throughout the country, building towns and monasteries high in the Andes. By 1739, Bogotá had been established as the Vice-Royalty of Nueva Granada, holding dominion over what is now Venezuela, Ecuador and much of Central America, south of Mexico. But in 1819, Simon Bolivar, the great "Liberator" of South America, who was born in Caracas, defeated the Spanish royalists, bringing independence to the region, which later however fragmented into separate republics. Cornelius O'Leary, a mercenary Irish soldier from Cork, wrote the national anthem for the new republic. The last territorial adjustment came in 1903, when the United States engineered the secession of Panama after Colombia had refused consent for the construction of the Panama Canal. The United States tried to make amends in 1914 by paying an indemnity of 25 million dollars.

Independence brought the eternal conflict between federalism and centralism, exacerbated by physical mountain barriers and the fact that the several regions had been settled by immigrants from different parts of Spain. It sowed the seeds of the violence, often degenerating into banditry that has been endemic for two centuries before the narcotics drug trade brought it to its current extreme level. Large tracts of the country are now under the control of war lords, some importing arms by air to support private armies, while surprisingly also sponsoring certain social programmes in their regions. The coca leaf has been grown since pre-Conquest days, without posing any particular problem, but that changed when cocaine became a commodity on the global market.

Colombia's population has more than doubled over the past thirty years to reach almost 50 million. It is of mixed European, Indian and Negro origins, who live without particular racial discord. A few indigenous

Indian communities survive in remote areas but probably face extinction or integration. The violent political situation has driven people to the cities, especially Bogotá, the capital, where more than 10 million live: many in desperate conditions. Their untreated effluent now flows over the once beautiful Tequendama Falls, putting up a bacteriological fog. But despite every adversity, the Colombians retain their vitality, courage and good humour.

Colombia has had a long oil history, starting in 1905 when General Virgilio Barco secured rights to the Colombian extension of the Maracaibo Basin, and Roberto de Mares took a concession in the Middle Magdalena valley, which yielded the giant LaCira-Infantas Field in 1918 with 830 Mb. These two areas dominated Colombian oil production for many years, with the rights eventually passing to subsidiaries of Shell, Esso, Mobil and Texaco, before the creation of the State oil company, Ecopetrol in 1951.

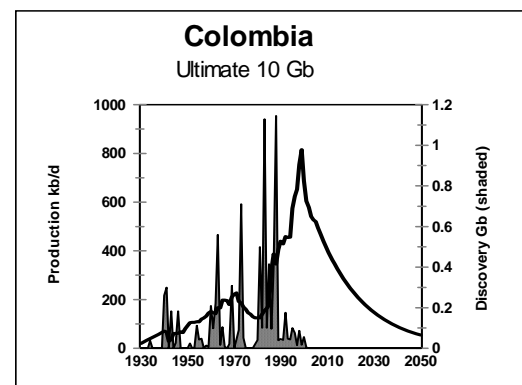
The prospects of the foothills of the Eastern Andes had been evident from the earliest surveys, being in part confirmed by oil seepages, but development was delayed by the exceedingly remote location and the fact that mountain ranges to over 2000m would have to be traversed by long export pipelines. However, Texaco and Gulf mounted a heroic campaign that was rewarded in 1962 by the discovery of the Orito field (300 Mb) in the Amazon headwaters, close to the Ecuadorian border. An export pipeline across the Andes to the Pacific was duly constructed. Next, Occidental brought in Cañon-Limon (1.1 Gb) in 1983 at the northern end of the belt near the Venezuelan border. That was followed farther south by Apiay (540 Mb) in 1981, and Cusiana (950 Mb) in 1988. These giant fields highlight the second and last cycle of major oil discovery in Colombia. The geology of the country is well known, with exploration at a mature stage after the drilling of over 1500 wildcats. Peak drilling was in 1988 with about 80 exploration wells, but the number has now fallen to about 15 a year. It is reasonable to extrapolate the trend, expecting exploration to end around 2025 after another 150 boreholes. A total of about 9.3 Gb of oil have been found, of which 6.3 Gb have been produced, leaving perhaps 700 Mb to be found in the future.

The source of Colombia's oil is a few hundred meters of Middle Cretaceous organic claystone of the *La Luna Formation*. It was laid down about 90 million years ago in one of the World's prime epochs of oil generation, being also responsible for the finds in Mexico and the US Gulf Coast as well as the vast, partly degraded, deposits of Venezuela. In Colombia, it is confined to the eastern part of the country, meaning that other large sedimentary basins, especially along the Pacific Coast, which lack this essential source, are likely to remain barren, save perhaps for gas generated in the Tertiary. It follows that future discovery is likely to be confined to ever smaller finds in the established regions, with some upside possibility concealed by the complexity of the thrust belts and the difficult terrain. There is also perhaps a slim chance of some non-conventional deepwater discoveries on the delta front of the Magdalena River.

Production, reflecting the two main discovery cycles, reached a peak of 816 kb/d in 1999 at the midpoint of depletion. It has since declined to 520 kb/d giving a current depletion rate of just under 5% a year. Consumption stands at about 220 kb/d, equivalent to about 40% of production, meaning that the country is presently an important exporter, largely to the United States. This perhaps partly explains the latter's military intervention with the provision of helicopter gunships to patrol the pipelines from frequent dissident attacks. The widespread terrorism and drug trade provide an ample pretext for any further interventions to maintain the flow, although the success of such operations is far from assured in view of the mountainous terrain. In any event, falling production from natural depletion means that Colombia's export potential is set to decline, so that production will fall below domestic demand

COLOMBIA		Regular Oil
Population M		46
Rates Mb/d		
Consumption	2005	0.22
per capita b/a		1.8
Production	2005	0.52
	Forecast 2010	0.4
	Forecast 2020	0.25
Discovery 5-yr average Gb		0.01
Amounts Gb		
Past Production		6.32
Reported <i>Proved Reserves</i> *		1.5
Future Production - total		3.7
From Known Fields		3.0
From New Fields		0.7
Past and Future Production		10
Current Depletion Rate		4.9%
Depletion Midpoint Date		1999
Peak Discovery Date		1983
Peak Production Date		1999

*Oil & Gas Journal



by around 2020, or sooner if consumption should increase above present levels. It has modest gas reserves amounting to about 22 Tcf, being produced at about 2.2 Tcf/a

Colombia may be among the first countries to enter post-globalism, having already seen the emergence of small sustainable communities and local markets. In its case, the transition is due not so much to the decline of essential fuel supply as a result of oil depletion, but to the impact of the international narcotics trade which gives it a particularly violent character. In energy terms, Colombia is in fact well blessed, with many years of, albeit declining, oil supply, which could be conserved for national needs, and a good renewable energy potential from hydroelectric and solar power. It is also endowed with substantial coal deposits. It may well align itself with Venezuela and Bolivia who are moving the free Latin America from foreign commercial and financial exploitation. One useful step might be to legalise the production of cocaine to free the country from the influence of the drug trade which has so damaged the national life, leaving it to foreign governments to police their own addicts at home.

667. Europe faces the first phase of its Energy Crisis

In 2005, Western Europe produced about 10 Tcf of gas and consumed 15 Tcf. It has produced about 350 Tcf to-date and has about 320 Tcf left to produce (including that from estimated new finds). Norway, UK and the Netherlands have been the principal producers. Norway plans to increase production whereas the others are in decline from depletion.

In other words, its imports, now running at about 5 Tcf a year, of which about 3 Tcf come from Russia, are set to rise, even without increased consumption. The Soviet Union became heavily dependent on gas for fuel, which was supplied to its people more or less at cost. This internal practice has survived the fall of the Soviets with most profit being secured from exports charged at five times the domestic price.

The Ukraine was a member of the Soviet Union, but the last election saw a move towards the West in the so-called Orange Revolution, which, it is thought, was partly funded and encouraged by Western interests operating under various charitable cloaks. The Soviets reasonably reacted by saying that if it left the Russian orbit it would have to buy Russian gas at export prices. The Ukrainians for their part pointed out that the key pipelines from Russia passed through their territory, giving them the option of countering with raised transit fees. This dispute led to a brief interruption in supply to Western Europe. A subsequent cold spell in Moscow, when the temperature dropped to 40° below, led to a further interruption affecting Italy. It could be said that Gerhard Schröder took on a more important role when he moved from being Chancellor of Germany to become a Director of Gazprom, the main Russian gas utility.

In earlier years, the gas utilities of Europe signed long term contracts with the oil companies, checking the security of supply back to the reservoir. But that reliable system has largely fallen victim to short-term trading, as extolled by classical economic theory. Under that ethic, it could be said however that the man who controls the pipeline valve has a key place in the market environment, having the right to profiteer for keeping it open. If it were a product lacking natural limits, he would be constrained from exploiting his control excessively by the simple mechanism of the buyer turning to a rival valve. But this does not work in the case of gas because there are so few alternative pipeline arteries to turn to. The spot market seems an absurd way in which to manage this commodity.

Norway clearly also plays a critical role, discussed further below in Item 671. But in simple terms Western Europe has no alternative other than to wean itself of its dependence on gas.

668. Aviation Fuel

The Times of London of January 5th contains a prominent article by Camilla Cavendish entitled *A policy that pretends we can all fly on the cheap is a policy that won't fly*. It stresses the absurdity of tax-free aviation fuel, largely used to carry weighty beer drinkers to the sun. Not only does aviation pollute the atmosphere and damage the environment with noise and congestion but uses up precious fuels, soon to be needed to plough the fields. But on the other hand, the depletion of the aviation fuel may carry a hidden blessing by grounding all those B-52s. In 2001, when peace still reigned, the US Department of Defense alone purchased 133 Mb of fuel, and the global military consumption must now be several times that amount.

669. USGS Update

The American Association of Petroleum Geologists has now published a memoir ((No 48) by the team that produced the USGS world assessment of oil and gas in 2000. It is a lengthy tome containing many useful maps of the world's petroleum systems and tables of data. In general, it seems, not surprisingly, to confirm the 2000 Study which assessed how much conventional oil could be found in the period 1995-

2025 at 732 Gb, giving an average of 24 Gb a year. The actual discovery over this period has been less than half this amount, which is doubly damning because the larger fields are usually found first in any province. It also stresses “Reserve Growth”, a somewhat misleading term for what in reality is mainly under-reporting. The two factors are inter-related for if the presently known fields turn out to be larger than reported, then the downward discovery trend would be that much steeper, carrying serious implications by extrapolation for the yet-to-find estimate.

The first impression is that this memoir is something of a rearguard action in support of the original report but more study is required to evaluate it in detail.

670. *The New Dinosaurs*

Although the major oil companies were founded on the early discovery of giant fields, most of their growth was achieved by acquisition. The mother of them all was Standard Oil, which in the late 19th Century made an empire in the United States, primarily by exerting a stranglehold on the market through special rebates on the railroads and ownership of the tank-cars. It was dismembered by anti-trust legislation in 1911 but its daughters grew to be major international oil companies in their own right. Exploration was really quite a small part of their long-term business, as they became effectively financial constructions, securing their assets by acquisition and merger in one manner or another.

World reserves of *Regular Conventional Oil* stand at about 760 Gb, of which about 530 Gb lie in the Middle East Gulf and Eurasia Regions where the major international companies have only minor roles. Accordingly, as a rough estimate, they may collectively own about 30% of the 230 Gb elsewhere, suggesting that their over-all share of the world’s reserves is about 10%.

Much of the estimated 120 Gb left to find lies in small fields, many too small to attract the interest of the major companies, as is amply witnessed by the North Sea which has seen a proliferation of small tail-end scavengers.

This evolution suggests that there is a declining role for the major international companies. Indeed that is underlined by the spate of mergers in recent years : Exxon-Mobil; Chevron-Texaco-Gulf-Unocal; BP-Amoco-Arco; and Total-Elf-Fina. Only Shell stood alone, and it was finally forced to admit to its dwindling resource base.

Looking ahead we may expect them to remain dominant in the refining business, which by its nature is centralised, but to gradually withdraw from both production and marketing as supply declines from depletion. Whether their monolithic centralised administration makes them suitable candidates to move into the production of renewable energies is perhaps open to doubt.

671. *Norway Re-visited*

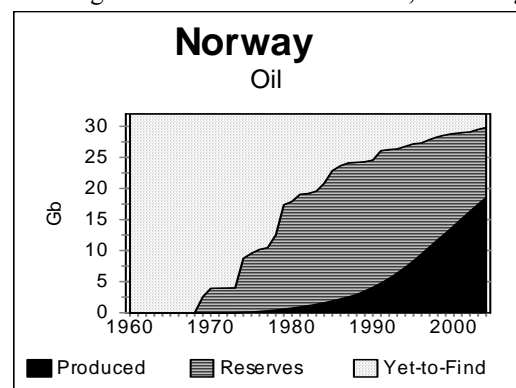
The following article looks at one of the World’s key oil and gas countries.

Norway Re-visited

The origin of North Sea exploration goes back to 1936 when Shell exhibited an operating oil rig at an industrial fair in Holland that unexpectedly encountered some indications of oil, stimulating exploration over the ensuing years. Another chance event was a communications failure in 1957 which resulted in the unintentional deepening of a well near Groningen in northern Holland. It penetrated Permian desert sandstones which, to everyone’s surprise, had been charged with gas derived from the natural coking of deeply buried coal. That in turn led to successful exploration for gas in the southern North Sea, extending into British waters.

In 1962, the Phillips Petroleum Company of Oklahoma approached the Norwegian Government for exploration rights in the hope that similar prospects might extend northwards. Exploration commenced, once the offshore boundaries with neighbouring countries had been agreed, and was soon rewarded. In 1969 Amoco drilled Well 2/11-1 looking for the deep gas but made the surprise discovery of oil in the Cretaceous chalk under most exceptional and unforeseen conditions, which soon delivered the nearby giant Ekofisk Field, operated by Phillips.

Meanwhile, advances in seismic technology had made it possible to identify a buried Jurassic rift in the northern North Sea which extended from British into Norwegian waters, and yielded a string of giant discoveries in both countries, including the Statfjord Field with 4.6 Gb, the largest in the North Sea.



During the 1980s, exploration moved north to evaluate new provinces. Haltenbanken came in with about 10 Gb but the gas prone Barents Sea was disappointing. A geochemical breakthrough had made it possible to identify and map the prime source of oil in a sequence of organic-rich claystones, laid down during an epoch of extreme global warming, 150 million years ago.

Norway itself is a beautiful country of mountains, islands and fjords extending for over 2000 kms along the seaboard of Scandinavia. Its four million people have had a long and fascinating history. Life was harsh in the early days when the natural limits of the frozen North forced the Viking kings in their longboats to find external livelihoods in terms of foreign conquest, settlement and trade, not to mention rape and pillage. That epoch was followed by a long period of Danish and Swedish domination before independence was finally recovered no more than a century ago in 1905.

The country was subject to an unprovoked invasion by Germany in 1940, suffering greatly during the remainder of the Second World War. Post-war reconstruction called for central planning and strong government in what became a highly regulated country in which an ethic of natural egalitarian co-operation runs deep. To catch cod in an open boat in midwinter called more for co-operation than competition. Norway had a particular strategic importance in the Cold War becoming a full supporter of NATO, but declined to join the European Union, correctly fearing that that would disrupt the finely-tuned social structure of the country.

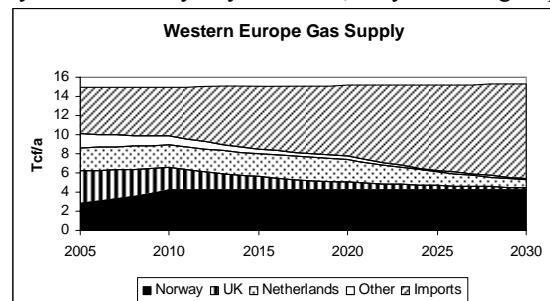
Oil came to this very well-run, socialist country as a great surprise, and like all other aspects of the economy was at first subject to close government control. A State company, Statoil, was formed in 1973 being given prime positions under advantageous terms, whereby its costs were carried by the foreign companies, although the latter were able to claim the expense as a charge against national tax with a high marginal rate. In effect, at the end of the day, it was the unconscious taxpayer who footed the bill. But it did not matter as oil revenues poured ashore at a prodigious rate. Even so, the Government moved cautiously selecting the applicants for exploration rights and closely controlling virtually all aspects of the business during the golden age of oil discovery during the 1970s and early 1980s when most of the country's oil was found.

In total, almost 100 fields have been found yielding some 30 Gb of oil and 140 Tcf of gas, probably representing respectively about 95% and 80% of what will ever be produced. The classic pattern of an early peak in discovery based on a relatively small number of giant fields is well represented. There remain possibilities for finding ever smaller oil fields in the existing producing areas, and the chance of a freak discovery in new deepwater and polar areas cannot be wholly discounted. The potential for new gas discovery is greater, but the country already has substantial surplus capacity.

Oil production commenced in 1971 and rose steadily to a peak of 3.2 Mb/d in 2001 which coincided with the midpoint of depletion, again reflecting a classic relationship. It has since fallen to 2.7 Mb/d and is declining at about 7% a year, which is a relatively high rate, reflecting exemplary operating efficiency in an offshore environment. Production will have halved within ten years. It has delivered a massive amount of revenue, not only providing extreme affluence but allowing the country to build up a fund of 200 billion dollars which is invested, if that is exactly the word, on world markets by leading fund managers, being in fact the largest single investment in the world.

Gas production commenced in 1977 with the construction of pipelines to Britain and continental Europe, and has risen progressively to 7.6 bcf/d (2.8 Tcf/a). There are two major gasfields: Troll with 48 Tcf, found in 1979; and Ormen Lange with 14 Tcf, found in 1997. Plans have been announced for building additional export pipeline capacity to 4.2 Tcf/a by 2010. Assuming some 30 Tcf of new discovery, it is clear that production at that level could be sustained for some fifty years.

The structure of the oil industry has changed greatly from the early days. At first, only a small group of selected major companies was admitted, later to be joined by three national companies Statoil, (the State Company), Norsk Hydro and Saga. The latter two subsequently merged when Saga ran into financial difficulties in an overseas venture. These three companies were given privileged access to the prime positions, as was consistent with the national interest. Furthermore, Norway built up a strong contracting business both in drilling and geophysical surveying, which attracted the interest of some of the ship-owning dynasties. A recent radical change of policy has admitted a number of small companies buying up tail end production and promoting highly speculative exploration in the best of capitalist traditions. The policy may be designed to release new enterprise and initiative, but in fact the new entrants find themselves with small interests in joint ventures run by major companies, often having other priorities. Furthermore, Statoil and Norsk Hydro are taking positions overseas where they will no longer have a privileged national status and where their tradition of fair dealing and honesty may prove a positive disadvantage. It might have made more sense to give them exclusive control of Norway's remaining oil and gas to be found and produced in a systematic way to the national interest.



In earlier years, Stavanger supported a successful fish canning industry but by the 1980's had become the oil capital of Norway. Even so, it was a gentle charming town of beautiful white wooden houses in tidy streets. A few shops provided for the needs of its people and the Dickens pub was there to meet a modest urban thirst. The town just about shut down on Saturday afternoons as its clear-eyed inhabitants headed for the hills or relaxed, fishing in the beautiful wooded islands and channels of neighbouring coastline. A handful of yachts shared the jetties with fishing boats.

The flood of oil wealth has changed the environment greatly: smart shops, restaurants, throbbing night clubs and bars have proliferated as have ugly concrete and glass office blocks and apartment buildings. Marinas are full of expensive yachts, not all of which often put to sea, and the once empty streets are choked with large cars. Supermarkets abound, all stacked to the ceiling with consumer goods. There is even a huge corresponding re-cycling plant where out-of-season furniture is thrown away, tins are compressed, and un-eaten food composted. This material is of such a scale as to fuel a substantial electricity power plant. The houses, some carpeted in a layer of plastic toys for the children, make high demands for electricity being well lit and heated 24 hours a day. The taxis are typically now driven by Kurds and a mosque has been built.

How Norway will fare during the Second Half of the Age of Oil remains to be seen. Although oil production is declining, high prices will continue to deliver a huge revenue unless they themselves trigger a world economic recession. In that case, the 200 billion dollar oil fund may lose most of its value, being less of a pension fund than hoped.

It may be asked if the earlier policy of slow development to the Nation's long term benefit was not a good one. The same question is now to be repeated in relation to future gas supply. If the country were content with the existing and planned pipeline capacity, present reserves of gas would last for at least fifty years: the supply itself becoming increasingly valuable as shortages in Europe begin to bite in earnest. It is however never easy to be a rich man in a crowd of beggars. Norway will therefore likely come under increased pressure to join the European Union and thereby be forced to receive a flood of starving immigrants and see its remaining natural resources depleted at the maximum rate possible. It already faced such pressure at the time of the 1980 oil shock when the German Minister at an oil conference was urging the country to open its doors with the words *Norway - do not forget your history*, summoning up images of the jackboot on the frozen streets.

So, the Government faces very serious challenges in formulating a policy to meet the transition of the 21st Century. The next generation may have to finish their days again catching cod from open boats in midwinter. They may not exactly admire the profligate behaviour of their grandparents who had such a memorable party on oil wealth, but they will likely live happier, simpler, and more fulfilling lives, when they mend their shoes and knit their sweaters from home grown wool. Perhaps it would be a good idea to harness the waves, winds and tides that batter the long coastline.

Contributed by C.J.Campbell

672 ASPO-5 International Conference

Professor Bardi of ASPO-ITALIA has now finalised the arrangements for the 5th ASPO International Workshop which will be held at San Rossore, near Pisa in Italy on July 18 and 19th 2006. Further details about what promises to be a major event are available as aspo5@aspoitalia.net

673. New Depletion Study by German Government Agency

The Federal Institute for Geosciences and Natural Resources (BGR) has published a useful new report assessing the status of depletion of Energy Resources, including uranium, thorium, coal, natural gas and oil (see www.bgr.bund.de). In the case of oil, it addresses the issue of Peak Production, properly pointing out that the natural pattern is for peak to coincide with the midpoint of depletion, when half the total has been taken. It very properly recognises that there is a total, described as *Ultimate Recovery*, providing a useful country by country assessment. It combines the Yet-to-Find with a correction of reserve under-reporting (or *Reserve Growth* as it is often misleadingly termed), together amounting to 600 Gb. Clearly, if more has been discovered than reported, then the downward trend of discovery would be that much steeper, reducing the Yet-to-Find estimate. The report carries an Ultimate of 2800 Gb, compared with ASPO's estimate of 2400 Gb for All Liquids, but the gap would narrow if corrections were made for the spurious official Middle East reserves, still accepted by the BGR. It is noteworthy that the higher BGR number shifts the peak by only about five years from the ASPO estimate of 2010. The importance of course is not the date of peak itself but the vision of the long remorseless decline that follows it, which is amply demonstrated by the BGR.

In the past, the BGR has been under political pressure deliver comforting results, and so, it good to see it now coming out with much more realistic assessments, even if still perhaps erring on the high side.

674. Australian Senate Inquiry into Peak Oil

ASPO-AUSTRALIA solicits contributions to a Senate Inquiry as follows

Submissions to Australian Senate Inquiry, Please.

ASPO people worldwide and national ASPOs are all urged to lodge personal and collective submissions to the Australian Parliament (Senate) inquiry into Peak Oil. Short or long; new, or just a note with useful references. Global, or national issues, including what Governments in general should do.

Due by 24th February to rrat.sen@aph.gov.au.

Details on the ASPO-Australia website, www.ASPO-Australia.org.au

Inquiry into Australia's future oil supply

Terms of Reference: Australia's future oil supply, with particular reference to:

1. projections of oil production and demand in Australia and globally and the implications for availability and pricing of transport fuels in Australia;
2. potential of new sources of oil and alternative transport fuels to meet a significant share of Australia's fuel demands, taking into account technological developments and environmental and economic costs;
3. flow-on economic and social impacts in Australia from continuing rises in the price of transport fuel and potential reductions in oil supply; and
4. options for reducing Australia's transport fuel demands

675. What they don't want us to know about the coming oil crisis

An 8-page colour pullout with the above title was published in the Independent newspaper of London on 20th January 2006. It opens with the following summary:

Soaring fuel prices, rumours of winter power cuts, panic over gas supply from Russia, abrupt changes to forecasts of crude output.... Is something sinister going on? Yes, says former oil man Jeremy Leggett, and it's time to face the fact that the supplies we so depend on are going to run out.

Not long afterwards, the British Government announced a Public Inquiry into the country's energy situation, finally recognising that North Sea oil and gas production is in steep decline from depletion. It is a commentary on the ineptitude of government that prefers to react rather than plan and prepare. Given that discovery peaked in the 1970s, the present situation could have been readily predicted long ago. Britain has become a gas importer finding itself separated from a dwindling supply by many transit countries. They, not unreasonably, conclude that charity begins at home preferring to meet their needs before pumping it on to someone else.

676. Motor Industry

The Ford Motor Company has announced that it plans to close 14 factories and axe 30 000 jobs. General Motors is in the same boat also announcing major closures and redundancies. It reflects a fall in demand for large vehicles as a result of soaring fuel prices, as well as the high pension obligations to the US workforce. It highlights the collapse of US domestic manufacturing as companies move overseas to benefit from cheap labour, low on pension rights. It is indirectly related to the peak oil issue and may be one of several intangible signals, hinting of an impending stock market crash, as in different ways investors begin to grasp that economic growth can no longer be taken for granted in a world of declining energy supply.

677. Shell follows Chevron's lead in admitting to Peak Oil in as many words

Vision for meeting energy needs beyond oil

By Jeroen van der Veer

Published: January 24 2006 20:21 | Last updated: January 24 2006 20:21

On top of concerns about high oil prices now comes the fear that we have reached "peak oil" and that global oil output will start to decline. Have we? If oil has peaked, do we face a future of growing energy shortages, rising prices and international conflict for supplies?

No one should underestimate the energy challenge. With continued economic growth, the world's energy needs could increase by half within 25 years. Unchecked, this will result in significantly higher carbon emissions. Many scientists agree that emissions from human activities are changing our climate and call for urgent action. The world's energy needs must be met while cutting carbon dioxide emissions.

But where are we going to find this energy? **My view is that "easy" oil has probably passed its peak.** But there are other reserves that are still a long way from their peak. In unconventional oil and gas – resources that are harder to tap – there are plenty of reserves. The oil industry has to explore new frontiers, develop new hydrocarbon energy sources and integrate "CO2 solutions".

The challenge is to develop technology that can fuel growth without environmental degradation. That means applying advances on the scale necessary to make real progress. It means integrating technologies because that is where the real benefits come in this complex business. It means applying those

technologies in increasingly demanding projects, and accessing resources in challenging frontier environments such as the Arctic or in deep offshore waters.

The biggest impact technology could have is to increase significantly the amount of conventional oil we recover from existing reservoirs. This is little more than one-third on average at present across the industry. Smart technology enabling engineers to monitor and control reservoir processes remotely, along with techniques using heat, gas or chemicals to make oil flow more easily, could significantly boost recovery rates.

Integrating technology will also enable us to access previously inaccessible hydrocarbon resources. Much of the world's huge reserves of natural gas are still untapped. Cooling gas into liquid allows it to be transported as liquefied natural gas for power generation in other markets. Demand for LNG is set to double in the next decade but this, again, depends on technological advance. Technology is also being used to turn gas to liquids. This will enable the industry to unlock reserves and convert gas into fuels such as diesel, which will be ideal for reducing pollution in major cities.

Other new hydrocarbon energy frontiers include heavy oils and where oil is contained in sand and shales, contaminated and tight gas and coal-bed methane. There is lots of coal, too, particularly in the US and China.

At Shell we are testing an environmentally sensitive way of unlocking the large potential of oil shale in Colorado using electric heaters to heat the rock formation and release light oil and gas. Coal gasification offers a way of using coal more efficiently, cleanly and flexibly. The resulting "syngas" can fuel efficient combined cycle power plants. It can also be used, with the same technology as gas to liquids, to produce high-quality liquid fuels. The world will need these resources. But they are more carbon-intensive and increase the urgency of finding ways of tackling carbon emissions.

So my vision is for "green fossil fuels" with much of their CO₂ captured and sequestered underground or in inert materials. In the medium term, this could be cheaper, more convenient and more flexible than alternative energies. A typical one-gigawatt coal-fired power plant produces the same carbon emissions as 1.5m cars. China alone is building about 17 of these plants a year. This is why sequestration should be a priority for power plants.

One prerequisite for success is ensuring sufficient investment to access more difficult resources and undertake long-term technology development. The International Energy Agency estimates that meeting global energy needs will require investing more than \$17,000bn by 2030. Given the urgent investment needs, exacting windfall taxes is counterproductive, particularly in an industry with a history of volatile prices.

So, while the good news is that there is a wide variety of energy sources to deal with the energy challenge, our industry has its work cut out for it. It will have to mobilise its experience and talents but also rely on governments and consumers to recognise that we share common concerns and have to respond to changing circumstances.

Chief Executive of Royal Dutch Shell
(As reported in the *Financial Times*)

678. Recent Middle East History

Historians begin to piece together the recent record of the Middle East countries explaining the backgrounds to various wars, invasions and covert actions, most of which seem to have had a certain oil agenda. Two such works are:

Everest, Larry *Oil, Power and Empire – Iraq and the US Global Agenda*

Ahmed, Nafeez, 2005, *The War on Truth – 9/11, Disinformation and the Anatomy of Terrorism*; Arris Books (ISBN 1 84437 059-3)

It is hard to know what to make of the information they contain, but they are certainly well documented with apparently authentic references, delivering rather chilling accounts of events that were accompanied by much suffering and loss of life. It was Clemenceau, the French Premier in the last Century who famously said that *a drop of oil was worth a drop of blood*. It seems however that more than drops are now at stake. Perhaps there is an economic law that life gets cheaper as oil gets more expensive. Apparently most of the US Navy, including landing craft, have put to sea : one can only guess at the destination, but Iran is a candidate.

(Information furnished by Julian Darley)

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.

February 1	The Swiss Finance Conference, Zurich , Switzerland [Alekklett]
February 8-10	Nordic Biogas Conference, Helsinki , Finland [Alekklett]
February 15	EU Advisory Group on Energy, Brussels [Gilbert]
February 23	Goldman Sachs, Florida [Gilbert]
March 10	City of Huntington Beach, California [Gilbert]
March 29	Business & Environment Seminar, Cambridge , England [Campbell]
April 2-4	Ireland's Response to Peak Oil, Dublin [Campbell],
April 20-24	Peak Oil, Limerick University, Limerick , Ireland [Campbell]
April 24	CERI, Calgary , Canada [Gilbert]
June 21-22	Global Commodity Markets, Zurich [Campbell]
July 18-19	ASPO-5 International Conference, San Rossore , Italy

Note

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