

**THE ASSOCIATION
FOR THE STUDY OF PEAK OIL**
“ASPO”

NEWSLETTER No 25 – JANUARY 2003

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.

It presently has members in: Austria, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Portugal, Sweden and the United Kingdom

Mission:

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

Newsletters on Websites

This newsletter and past issues can be seen on the LBSystemstechnik website <http://www.energiekrise.de>
(Press the ASPONews icon at the top of the page) and the ASPO website www.isv.uu.se/iwood2002

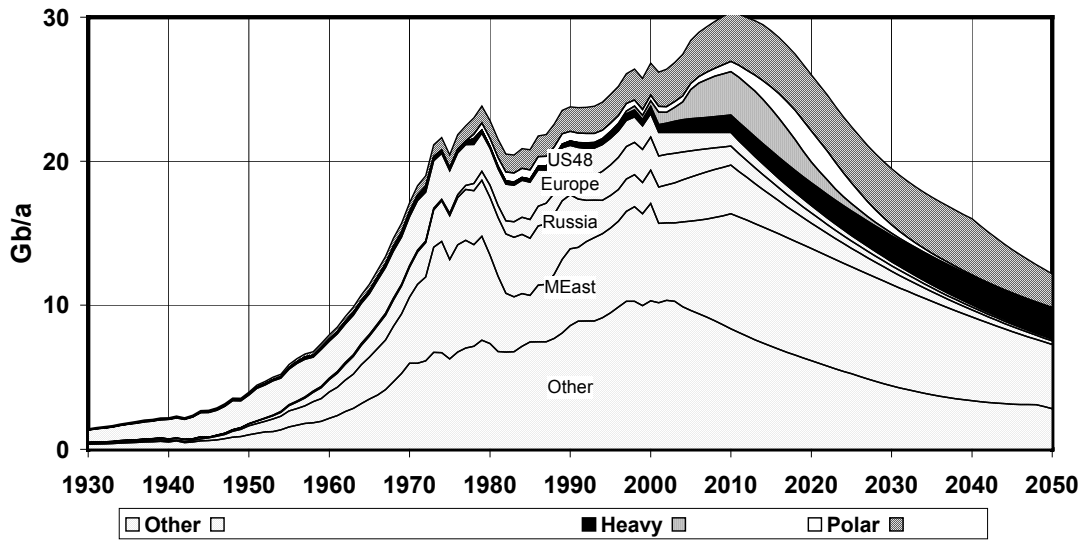
CONTENTS

- 125. Exxon-Mobil publishes the Genuine Discovery Trend***
- 126. Oil prices begin to surge***
- 127. Nothing New***
- 128. BP and Depletion***
- 129. Country Assessment - Norway***
- 130. Ireland’s Dire Energy Situation***
- 131. Update of the ASPO Depletion Model***
- 132. New Websites on Oil Depletion***
- 133. Venezuela shuts down***
- 134. An outraged Texan***
- 135. US Negative Reserve “Growth”***

The Newsletter’s e-mail address is aspoone@eircom.net

The General Depletion Picture

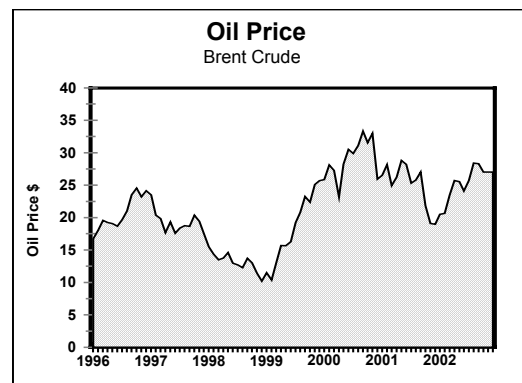
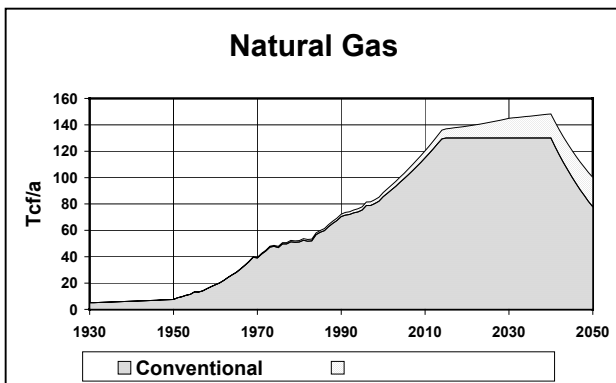
Oil & Natural Gas Liquids 2002 Base Case Scenario



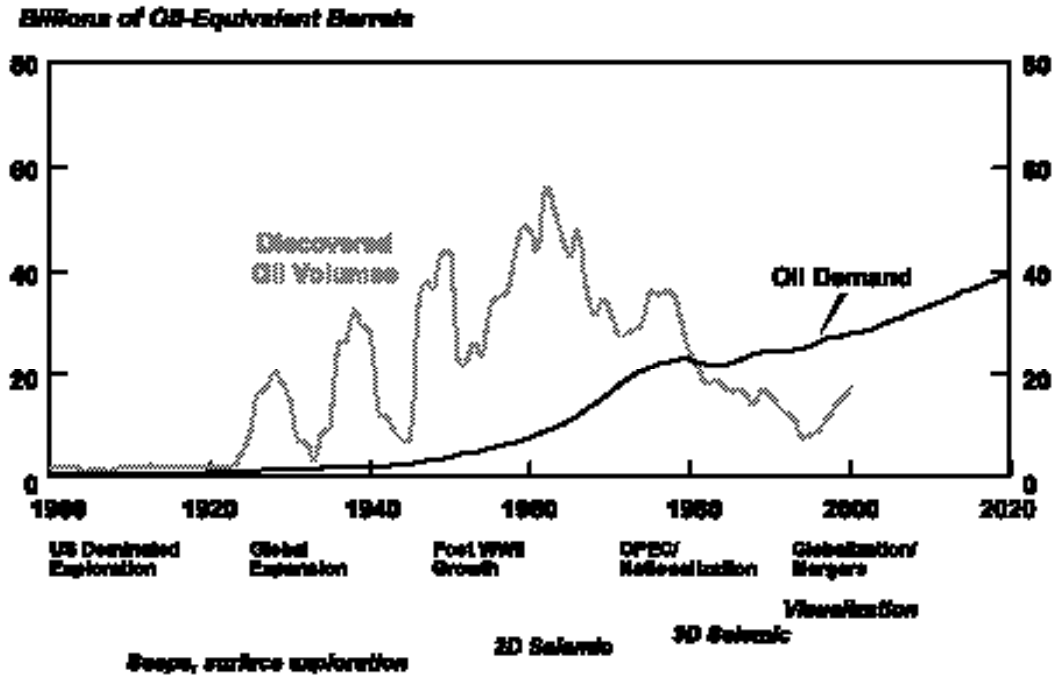
ESTIMATED CONVENTIONAL OIL PRODUCED TO 2075			
Past	Future		Total
Known Fields		New Fields	
873	884	143	1900
ALL LIQUIDS			
958	1742		2700
In billion barrels (Gb) Status end 2001			

	PRODUCTION RATE FORECAST Mb/d				Status: end 2001 Total to 2075
	2005	2010	2020	2050	
<i>Conventional Oil</i>	60	60	46	21	1900
US-48	3.5	2.6	1.4	0.2	195
Europe	4.9	3.6	1.9	0.3	75
Russia	8.4	9.2	4.8	0.7	200
M.East Gulf	17	22	21	12	750
Other	26	23	17	8	680
Heavy, bitumen etc	2.8	4	5	6	300
Deepwater (>500m)	5.6	8	4	0	65
Polar	1.2	2	6	0	30
Natural Gas Liquids	8.2	9	11	6	400
Total	78	83	72	33	2700

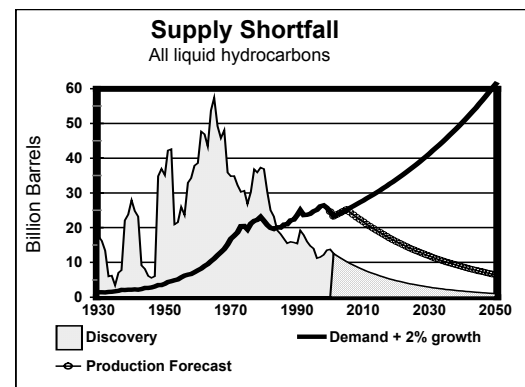
Base Case Scenario: flat demand for conventional oil due to recession; M.East swing role ending in 2010
Conventional Oil includes *Condensate* but not liquids produced from gasfields by processing – *NGL(P)*



125. Exxon-Mobil Publishes the Genuine Discovery Trend



Mr Longwell, an Executive Vice-President and Director of Exxon-Mobil, writing in *World Energy* v.5 No 3 of 2002, confirms that the discovery of oil peaked in the mid-1960s, followed shortly thereafter by gas, as has been already stressed by ASPO. It is remarkable to find the Director of a major oil company revealing the true situation with such clarity while in office. Others in his position have preferred to wait until the safety of retirement to do so. He deserves a medal. It is also noteworthy that his past discovery trend is an exact replica, down to the smallest detail, of an ASPO plot published by Campbell in *Population & Environment* v.24 n2. 2002 (reproduced to the right). The Exxon-Mobil plot is



particularly important because it demonstrates an acceptance of the need to backdate reserve revisions to the discovery of the fields responsible to obtain a valid discovery trend. This is probably the factor, more than any other, that has misled governments into failing to grasp the coming decline of oil and gas, and to plan accordingly. It is also noteworthy that the falling discovery trend has been relentless despite the application of all the technology of which the industry is rightfully proud. It is obvious that production mirrors discovery after a time-lag, which means that the onset of decline is now imminent and inevitable. This endorsement by the world's largest oil company of the views expressed by ASPO is an important development. Having now established the general position beyond all reasonable doubt, the challenge becomes to persuade governments both to see what stares them in the face and to now move with urgency to adopt new policies for energy saving and the encouragement of renewable energies in every way possible.

126 Oil Prices begin to surge

Oil prices have broken through the \$30/b psychological barrier in response both to a politically motivated, production shut-down in Venezuela and the darkening war clouds, as the United States and Britain press relentlessly for an attack against Iraq, despite a continued failure to provide any tangible evidence that it poses a threat to anyone. The rise in price demonstrates yet again that the world has precious little spare capacity. As discussed in the

December Newsletter, this is unlikely to change even with the capture of the oilfields of Iraq because of the amount of work, investment and, above all, time that it will take to rehabilitate them, especially if there is a sniper behind every palm tree and if every camel's hump has to be checked for explosives.

127 Nothing New

Dr Hammaker of McGill University draws attention to the following quotation from 1912:

“The laws expressing the relations between energy and matter are not solely of importance in pure science. They necessarily come first . . . in the whole record of human experience, and they control, in the last resort, the rise or fall of political systems, the freedom or bondage of nations, the movements of commerce and industry, the origin of wealth and poverty and the general physical welfare of the race. If this has been too imperfectly recognized in the past, there is no excuse, now that these physical laws have become incorporated into everyday habits of thought, for neglecting to consider them first in questions relating to the future.”

Frederick Soddy, *Matter and Energy*, 1912

128. BP and Depletion

Lord Browne, the Chairman of BP, who previously enjoyed the nickname “Sun God” after the company's new logo and his golden reputation with the investment community, has fallen from grace as he fails to meet his production forecast. It is noteworthy that the investment community now begins to grasp depletion as the following statement reveals.

“The real problem is that Lord Browne himself has set impossible targets that no one could ever meet. With the natural depletion of mature fields, oil companies such as BP must find an extra 6% or 7% a year just to stand still. To add a further 5.5% is beyond reality and no oil company in history has been able to do this,” said Mr Gheit, who warned that Lord Browne's credibility on Wall Street might not survive any further failures”. (Mr Gheit is a Wall Street analyst, reported in *The Guardian* of Dec 2, 2002)

BP had some setbacks due to a hurricane in the Gulf of Mexico and other operating problems, but it shows that they are now producing at capacity everywhere, not being able to make good these particular temporary shortfalls. It probable also means that they have now drawn down their previous inventory of under-reported reserves. They are evidently now operating on flat-earth principles of “just in time”, which means that they cannot avoid the cold wind of depletion that eats away their future unless they do indeed move seriously into renewables.

129. Country Assessment - Norway

In the past two issues, we looked at two very difficult countries: the USA and Iraq. It is therefore a pleasure to turn to a country that not only honestly reports its position, but has the world's best reserve classification.

Norway

Norway is a rocky and mountainous country at the northern limit of Europe. It covers an area of about 325 000 km² with a long, highly indented coastline, crossing the Arctic Circle. The distance from its southern tip to North Cape is about as far as to Rome. It also administers Svalbard (Spitzbergen), an Arctic archipelago, under a League of Nations mandate. Its shores are washed by the North Sea, the Norwegian Sea and the Barents Sea in the north, and it has common frontiers with Sweden, Finland and Russia. It is a sparsely populated country of some 4 million inhabitants, about one-quarter of whom lives in the vicinity of Oslo, the capital.

Norway was already occupied some 14 000 years ago by hunters emanating from Europe. Later, came more settled communities who fished the lakes and fjords and sustained themselves with difficult agriculture. They were isolated communities under petty kings and warlords. The Viking era, with an advanced culture, followed during the first millennium, when warriors in longboats headed south to colonise and trade, as well as to rape and pillage. The Norwegian Vikings went westwards to Iceland, Greenland, the Shetlands and Ireland, where they established settlements, while their Danish cousins settled Normandy. It is thought that they even reached North America. Others headed east through Russia to reach the Black Sea.

Harold 1 succeeded in unifying the Kingdom in the 9th Century, but dissent amongst his successors led to fragmentation, with the country falling at different times under the control of the Danish and Swedish kings until in 1297, when the three countries were unified, Norway becoming a province of Denmark. The Black

Death decimated Norway's population during the 14th Century, thanks perhaps to a particularly active rat, called *ratus norvegicus*, which was later well-known to seamen and infested the New World

Denmark had been ally of France in the Napoleonic wars, and on defeat in 1814 was forced to cede Norway to the Swedish king, but this was opposed by the Norwegian people who wished for independence. Various conflicts and disputes with Sweden occupied the 19th Century as a growing wave of nationalism built momentum, in part stimulated by a cultural flowering, as exemplified by the famous author Ibsen, and the rediscovery of the ancient Norwegian language and folklore. Finally in 1905, an independent kingdom was declared with the crown being offered to Prince Carl of Denmark, who became Haakon VII. The First World War soon followed but the Scandinavian countries including Norway were able to maintain their neutrality.

The inter-war years saw the gradual development of fisheries, canning and shipping. Norway's great hydro-electric potential was tapped a semi-State entity Norsk Hydro, which used the energy to refine aluminium, and produce synthetic agricultural nutrients in a development of great significance for Europe. Even so, life was hard, leading to emigration to the New World, as well as a growing spirit of egalitarian co-operation at home.

Norway was victim on an unprovoked German invasion on 9th April 1940. It was forced to surrender after a short struggle, but not before the curator of a museum on the mouth of the Oslo fjord had managed to sink a battleship by firing an ancient canon. The King escaped to England to establish a government in exile, while a puppet Nazi regime under Vidkun Quisling was established in Oslo. An active Resistance movement throughout the country contributed to the eventual liberation on May 8th 1945, but was unable to prevent the retreating Germans from destroying several towns in north Norway under their "scorched earth" policy.

Post-war reconstruction was built on the already well-entrenched co-operative spirit, with virtually all aspects of national life being under heavy government control. The shipping industry was rebuilt, partly with generous tax treatment, giving rise to various dynasties. They conquered world markets with capitalistic drive, but changed their coats in home waters to become unostentatious and responsible patrons of their communities. Socialist governments, built more on co-operation than envy, dominated the post-war epoch.

If anyone in Norway thought about oil at this time, they pictured the sands of Arabia, little imagining that the stormy waters of the North Sea might one day give them a key oil position. Few noticed the first hint when a communications failure led to the unintended deepening of a well in Holland in 1947 to find gas derived from deeply buried coal in an unlikely Permian reservoir. That led to the discovery of the giant Groningen gasfield ten years later. It in turn attracted attention to the adjoining waters of the southern North Sea, which was soon to be rewarded with a string of gas fields extending into British waters.

Not long afterwards the European office of Phillips Petroleum of Bartlesville, Oklahoma, turned its eyes north to wonder what the northern North Sea might offer, opening talks for exploration with Norway. At that time, jurisdiction extended only three miles from the shore, so the countries bordering the North Sea had to decide how to divide it. At first, ever fair Norway opposed the notion of a median line on the grounds that it would give a disproportionate share of the mineral resources to the coastal States at the expense of the inland countries. Britain, with fewer scruples, pressed for a median line solution, eventually winning the support of Norway that itself was bounded by a deep trench, which would have deprived it of the prospective tracts if water depth alone had been taken into account. By this thin thread hung the train of events which would eventually deliver untold wealth to Norway, making it one of the world's largest exporters of oil and gas.

The first concessions (licences) were awarded in 1968 covering the southern part of the shelf. One of the first wells to be drilled was 2/11-1 by the Amoco Group. It was searching for deep gas under geological conditions similar to those in the southern North Sea but to everyone's surprise encountered oil indications in Cretaceous chalk. This normally impermeable formation, made famous by the "White Cliffs of Dover", had not been regarded as a possible oil reservoir. A few months later, the Phillips Group drilled an adjoining block and fell into the giant Ekofisk Field, with its Chalk reservoir. As later knowledge revealed, it was indeed almost a miracle of Nature depending on a remarkable geological combination. A thick pod of Upper Jurassic oil source rock at a depth of peak generation is overlain just here by a special type of chalk that was laid down as a slump under conditions that preserved its original porosity. Norway had become an oil nation.

The next milestone came when Shell discovered the Brent Field in 1971 in the British sector of the northern North Sea, as improved seismic technology led to the identification of Jurassic troughs beneath the younger sediments. The field lay on a structural trend extending into Norwegian waters, where a huge structure was soon identified, yielding in 1973 the Statfjord oilfield, which remains to this day the largest North Sea oilfield with over 3.5 Gb (billion barrels) of oil.

Norway reeled at the prospect of unimaginable wealth, and soon began to re-examine its oil policy, rightly fearing that oil might undermine its carefully balanced economy and society. To that point, the concessions had been granted on the basis of a normal royalty and corporation tax, but now the country moved to toughen its terms while respecting, in its ever-honest fashion, the rights already granted.

Britain had already created a State Oil Company under its then socialist government, which set an easy precedent for Norway to follow. Den Norske Stats Oljeselskap (or Statoil) was established under what at first sight seemed a highly advantageous arrangement, whereby it would hold a mandatory 50% in all concessions, with its exploration costs being met by the foreign companies, while it retained the right to increase its share to as much as 85% in the event of success. A special oil tax was also introduced. The world price of oil was soaring at the time in response to the oil shocks, and the industry accepted these outrageous terms not wishing to be left out of what was rightly perceived to be one of the world's last great oil provinces. The Norwegians earned the sobriquet of being "blue eyed Arabs". But all was not what it seemed, for the companies' ever-ingenious tax lawyers soon found that they could take the cost of carrying Statoil as a charge against their taxable income. So, at the end of the day, it was the long-suffering Norwegian taxpayer who met the cost of the creation of the State Company. It started to burn up national wealth at a prodigious rate, now employing more than 11 000 well paid people.

In addition to the State company were two other strong national companies were established. Norsk Hydro, of fertilizer fame, took an early position as a partner of Elf, while Saga represented shipowners and industrial interests, who sought to counter the excessive role of Statoil. It was later acquired by Norsk Hydro, when it ran into financial difficulties arising from an overseas acquisition.

The Norwegian Petroleum Directorate was established to run exploration, deciding which companies would work together as groups; which prospects would be drilled and how many commitment wells were to be imposed, effectively treating the foreign companies as if they were contractors. But the companies did not object as the cost of all of this was taken as a charge against taxable income under terms that meant they were effectively spending "10cent dollars", enjoying a colossal unseen subsidy.

At first, the government moved with admirable caution so as to accommodate the new industry into the economy. New licensing was delayed until 1979, when a number of prime prospects were awarded yielding a string of giant discoveries to the north and east of Statfjord. But with the passage of time, the early caution was abandoned as the country succumbed to the political pressures of new Norwegian rig owners and contractors, who sought rapid expansion, and as the people at large began to develop an unquenchable thirst for wealth, a departure from the attitude of their somewhat Spartan, God-fearing antecedents.

During the 1980s, exploration moved to the northern shelf. A basin with similar geology to the North Sea was identified at Haltenbanken, off mid-Norway, eventually yielding some 10 Gb of oil, but the huge expanses of the Barents Sea turned out to be no more prospective than their geology suggested. A classic source of oil in a narrow Jurassic rift was identified on the western margin but the geology elsewhere was generally unfavourable. In part, this was due to large vertical movements of the crust under the weight of fluctuating ice caps in the geological past that had depressed such source rocks as are present into the gas-window and destroyed seal integrity.

In short, the bulk of Norway's oil had already been found by the early 1980s, and what has followed has been little more than a mopping up operation to find and produce ever smaller accumulations. This unwelcome reality is however countered by optimists who continue to believe in exploration, drawing attention to the vast size of the Norwegian shelf, and dream that technological progress might extract more oil from known fields. Some improvement in recovery has indeed been achieved in the difficult chalk reservoirs, for which there was plenty of scope as very low recovery factors of below 20% were at first assumed. For a brief moment, it seemed that Statfjord could recover as much as 70%, setting a precedent for other similar fields, before it was realised that the complex east flank also held large amounts of oil-in-place, returning the recovery factor to about 45%. Some of the more recent small fields are giving disappointing results, as companies were forced to make optimistic assessments to justify development at all. The licensing terms have been progressively ameliorated to match the dwindling oil prospects, and to keep the exploration business alive.

Oil production commenced in 1971 and has grown steadily to just over 3 Mb/d. Some 16 Gb have been produced, which is close to half the total discovered. Peak production was passed in 2001 (barring any short-lived surge from new small developments), and will be followed by a relatively high decline of almost 7% a year. The golden days of Norwegian oil are accordingly coming to an end, but a new chapter of gas production is about to open, calling again for clear thinking government policy.

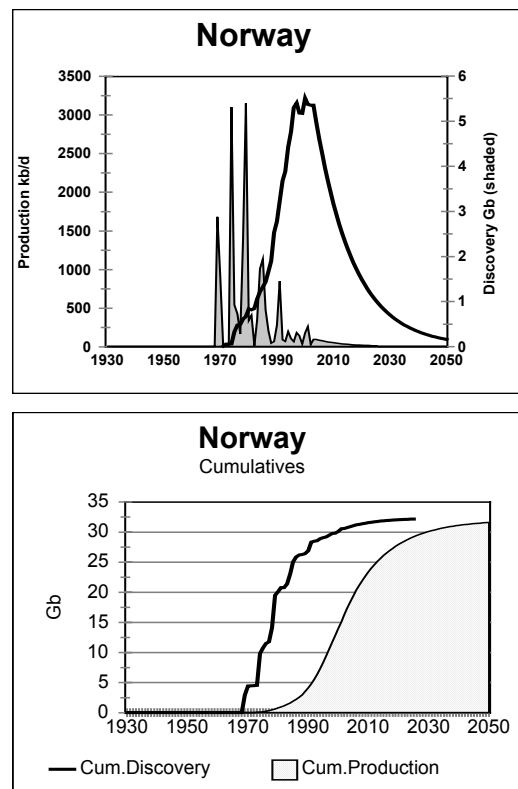
The gas will come mainly from the axial regions of the North Sea and the depths of the northern basins, where the same prolific Upper Jurassic oil source rocks have been depressed into the gas window. Older sources may also be present in the Barents Sea, comparable with those found in northern Russia. The Troll Field on the northeastern margin of North Sea, was a major gas discovery in 1979, with some 1500 G.m³, and has been followed recently by an even larger accumulation at Orme Lange in a comparable geological setting to the north.

Some hopes have been expressed for new discovery in the deep water Atlantic Margin province that flanks Norway and the British Isles. The probability, however, is that the critical Upper Jurassic source-rocks are, at best, only locally present, and, even where present, too deeply buried to yield oil, save in some freak occurrences where re-migration from earlier accumulations has occurred. The province may have gas potential, but with so much other more accessible gas available is unlikely to be of interest for a long time to come.

Some 775 G.m³ of gas have been produced so far, with future production from known fields being estimated at about 3500 G.m³. One could imagine that about 30% more will be discovered, so that a total of over 4500 G.m³ may be left to produce in the future. Just how fast this is to be depleted should be a central issue for government policy, but Norway has now become accustomed to the mammoth flow of oil wealth, and general consumerism, accompanied by immigration as a source of cheap labour, has reached unprecedented heights. There is accordingly every likelihood that it will open up gas as fast as possible to provide a replacement for oil revenues. Gas production reached a plateau of about 26 G.m³ during the 1980s before rising to double that rate to-day with the construction of new pipelines. The country may be tempted to double that again to 100 G.m³ with the construction of still more pipelines to Europe and the UK. Although its resource base could probably support that level of extraction until around 2030, a more prudent policy might limit export earnings to present levels, allowing the resource to last longer. But that carries geopolitical risks as it is never easy to be a rich man in a crowd of beggars, Europe becoming increasingly desperate for Norwegian gas to counter the stranglehold of Russian supply.

Norway – Conventional Oil		
<i>Rates Mb/d</i>		
Consumption	2001	0.2
Production	2001	3.1
	Forecast 2010	1.8
	Forecast 2020	0.9
Discovery 5-year average (Gb)		0.013
<i>Amounts Gb</i>		
Past Production		16.3
Reported <i>Proved Reserves</i>		9.5
Estimated Future Production to 2075		
From Known Fields		14
From New Fields		1.4
Future Total		16
Past and Future Production		32
Current Depletion Rate		7%
Depletion Midpoint Date		2003
Peak Discovery Date		1979
Peak Production Date		2003

NB This assessment is based on data to end 2001, which is now subject to update.



With hindsight and a better recognition of inevitable depletion, it might have been a sounder policy for Norway to have used its state company to develop its oil and gas much more slowly itself, having said goodbye to the foreign companies after thanking them for their pioneering contribution. Oil and gas in the ground might have proved a much better asset than the financial rewards, taken at a time of generally low oil price. But that has been far from government thinking. Statoil, evidently perceiving the limitations of the homeland, was allowed to move overseas on the well-known principle that "distant fields are greener". It has been an expensive experiment with little to show for the investment. More remarkable yet, has been the decision to privatise Statoil, such that foreign investors may now come to own the remaining priceless national assets that the unconscious Norwegian taxpayer contributed. Evidently Norway has its fair share of flat-earth economists.

In general, Norway's politics have moved to the right in recent years, eclipsing the long record of Labour Party control. Its electoral system however tends to give rise to coalition governments in which small parties may find themselves with a disproportionate power.

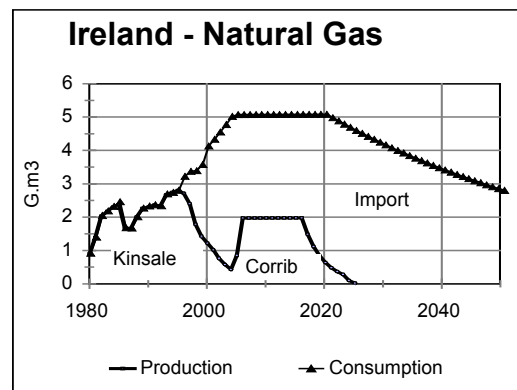
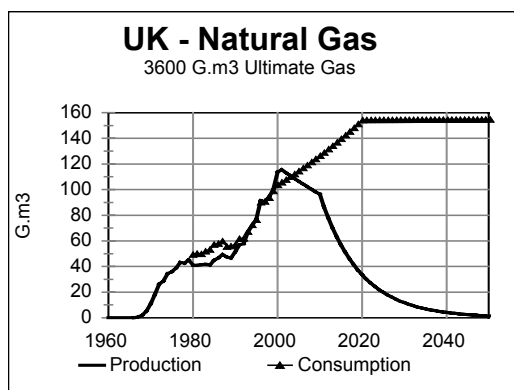
Norway was invited to join the European Union in 1994, but declined after a referendum. The farmers and fishermen feared for their subsidies, and the country's oil wealth allowed it to stand aside. Nevertheless it voluntarily complies with much European legislation, not wanting to find itself too isolated. It has been an enthusiastic member of NATO, having had a common frontier with the former Soviet Union, and it has contributed greatly to various UN peace-keeping missions. Its enthusiasm for NATO may lapse, however, if that becomes an arm of an increasingly aggressive US policy, especially in the Middle East where Norway played an important part in fostering a solution to the Israeli conflict under what are known as the Oslo Accords

130 Ireland's Dire Energy Situation

Ireland has enjoyed (in some senses *suffered* might be a better word) an economic boom in recent years as foreign companies found it an attractive place for investment so as to benefit from a young, well educated workforce and various tax incentives. Charming old-world Dublin has been transformed into a modern metropolis close to gridlock as Mercedes and BMWs choke the streets. The pubs pulsate with affluence. The demand for electricity has accordingly soared.

Ireland was not endowed with more than very minor coal deposits, the traditional fuel for electricity generation, but in an imaginative scheme during the early days of the new Republic harnessed hydroelectric power from the Shannon River, setting up a state entity to achieve rural electrification.

The search for oil and gas off Ireland commenced in the late 1960s. As many as 141 exploration wells have been drilled at a cost of about \$1.5 billion, resulting in only two modest gas fields, the first now approaching exhaustion. It is doubted in the face of a record of almost unremitting failure that many more will be found, although exploration continues. Imported coal still provides 31% of the country's electricity generating fuel, but there are mistaken plans to convert the largest coal-fired station to gas for environmental reasons. Oil supplies 14%, indigenous peat 11% and renewables 3%. The remaining 40% is from gas. The Kinsale Head gasfield was able to meet the needs until 1996, when a pipeline to Scotland was built to draw on cheap imports. Demand continues to grow, and a second pipeline is now planned, with the new Corrib gas field making a useful contribution for a few years, before it too heads into decline. Ireland is accordingly becoming utterly dependent on imports from the United Kingdom. So far, they have been cheap and reliable, but this happy situation is unlikely to last much longer.



The UK's belief in the free open market has meant that owners of gas fields have had every incentive to produce them at the maximum rate possible by hooking them up to existing pipelines and adding compressors. No doubt the tax regime has subsidised such a high rate of depletion by allowing the costs as an expense against taxable income. Instead therefore of

having a long plateau, with most fluctuation being seasonal, production has soared to a peak, and is now set to decline equally rapidly, such that the country will be importing 50% by 2010 and more thereafter. It is assumed in the modelled plots that demand in the two countries will eventually stabilise or decline due to recession or government policy, in the face of growing import dependency. If not, the situation becomes even more dire.

The UK will be able to import gas at first from Norway, as discussed above, but before long will depend on Siberia and other distant sources, while Ireland will have to be content with such amounts as Britain will be willing to re-export via Scotland. One may imagine that the private companies in the UK, which operate the pipelines, will soon come to realise they have a captive market in Ireland to exploit with high tariffs. Furthermore they may not welcome the additional burden of providing extra pipeline capacity to the continental grid for re-exports to Ireland. To compound the problem, Ireland is mistakenly privatising its own electricity supply industry. One good solution would be for Ireland to build rotors to generate electricity from the massive tidal flows that follow the coasts, which seems preferable to the thrashing blades of windmills on every hill and inch of coastline. Better still would be to park the Mercedes and reduce demand for which there is great potential scope through energy efficient housing, local markets, better public transport and eventually the bicycle.

Scant hope comes from the European Union whose open market policies seek to undermine the responsible national utilities of continental Europe, having failed to observe the dire consequences of such policies in Britain. The latter's government regulator still works to reduce energy costs when the precise opposite is needed to make the depleting gas resources last longer, encourage energy saving and the move to renewable. The country's nuclear industry, which supplies about a quarter of its electricity, has been almost bankrupted under the open market policies being unable to compete with cheap short term gas supply.

Had a promoter arrived a few years ago proposing to base Ireland's electricity supply on Siberian gas, he would have been laughed out of town, yet that is the unfolding prospect.

131 Update of the Depletion Model

The annual update of the world production and reserves has appeared in the Oil & Gas Journal, permitting an update of the ASPO depletion model as summarised at the beginning of each newsletter. It shows that 63 countries, including most of the critical Middle East countries, report implausible unchanged reserve estimates, which accordingly have to be reduced. A most remarkable increase is for Canada, which goes from 4.8 Gb to 180 Gb as a result of the new inclusion of tarsands, hitherto treated as non-conventional. It demonstrates again the importance of distinguishing the different categories of oil to avoid confusing analysts, who might otherwise be tempted to suppose that reserves are "growing". Other important, and possibly genuine, large percentage increases were in Russia, Kazakhstan, Egypt, Ecuador and Suriname. A very remarkable fall was for Mexico whose reserves are reported to have tumbled from 20.9 Gb to 12.6 Gb : the 20.9 itself having previously fallen from an earlier 50 Gb. This again reflects reporting practices rather than any change in the reservoir. Overall, world reserves are reported to have grown from 1031 to 1212 Gb, but this largely reflects the 175 Gb very misleading definitional increase in Canada.

The update involves reviewing every country to try to iron out anomalies, draw the right boundaries between the several categories of oil and gas, and reflect current knowledge of its potential. No one pretends that the conclusions will be correct, but it is hoped to keep the range of errors within acceptable limits. A first pass at the update indicates the following main estimates: Past Production – 880 Gb; Future Production from Known Fields – 869 Gb; and New Fields – 151 Gb, still giving a total of 1900 Gb to 2075. Much more work is needed,

to resolve the many outstanding anomalies and uncertainties, before updating the ASPO plots is justified.

132 New Websites on Depletion

An important new website www.oildepletion.org by R.W.Bentley of Reading University offers a comprehensive review of oil and gas depletion and its implications. An interview with C.J.Campbell, discussing depletion, can also be seen on the website of the Meta Foundation
www.globalpublicmedia.com/ARCHIVE/COLINCAMPBELL/ColinCambell.2002-12-18.php

133 Venezuela shuts down

One important event that attracts little media comment is the virtual shut-down of Venezuelan production as the executives of the state oil company, Petroleos de Venezuela, try to take on the populist government of President Chavez. The dispute is now more than 25 days old. More of the oil wealth of Venezuela has its way to Miami than into the mouths of the poor, whose numbers have expanded greatly over the years, but they have at last found a champion in President Chavez, who aims to redistribute wealth more evenly. The so-called oligarchs, who dominate so many countries in Latin America and elsewhere, are naturally trying to resist the threat to their privilege. The collapse of Venezuelan exports will have an impact on the United States, its principal customer. It will also serve to demonstrate just how little spare capacity the world actually has, at least in the sense of production that can be brought on at will. Oil prices are beginning to soar.

134 An Outraged Texan

The November issue of the Newsletter evidently touched a raw nerve in a Texan, who writes that he “would not think of recommending it [the newsletter] to anyone”, adding

“Make no mistake about it, the U.S. will go for growth as long as it can, hopefully pulling Germany, Japan, et. al. along with it. And never under-estimate the resiliency and resourcefulness of the U.S. economy, nor the determination of the U.S. people when they [finally] gear up to meet a challenge”.

The offending article seems, on re-reading, to be quite mild in tone, and its factual content has not been questioned. The response speaks of the passions that may erupt when people find themselves facing unforeseen and unpalatable deprivation from depletion. Resource Wars, as described by Professor Klare in his book of like title, may thus be a natural consequence.

135 U.S. Negative Reserve “Growth”

Jean Laherrère draws attention to a recent report by the US Department of Energy http://www.eia.doe.gov/pub/oil_gas/natural_gas/data_publications/crude_oil_natural_gas_reserves/current/pdf/arr.pdf

showing that positive reserve revisions of 1.6 Gb for oil and 18.4 Tcf for gas were exceeded by corresponding negative revisions of 1.76 Gb and 20.7 Tcf. Furthermore, 5.2 Gb of the reported 22 Gb Proved Reserves lie in reservoirs not currently in production, which rather questions their “proved” status. This is a further nail in the coffin of the flawed USGS report of 2000 that makes particular claims for “Reserve Growth”. The largest one hundred fields, out of a population of 33 000, contain almost 70% of the reserves and provide 54% of the production, the corresponding percentages for gas being 48% and 32%. New discovery in 2001 was dominated by two deepwater fields: Thunder Horse with 1.4 Gb; and Manatee with 0.7 Gb.

The Newsletter very much welcomes contributions from ASPO members and other readers, who may wish to draw attention to items of interest or the progress of their own research.

Permission to reproduce the Newsletter, with due acknowledgement, is expressly granted.

Compiled by C.J.Campbell, Staball Hill, Ballydehob, Co. Cork, Ireland