THE ASSOCIATION FOR THE STUDY OF PEAK OIL AND GAS

"ASPO"

NEWSLETTER No. 93 – SEPTEMBER 2008

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

(Formally constituted entities are shown in bold face)

Missions:

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

Foreign language editions are available as follows:

Spanish: www.crisisenergetica.org

French: www.oleocene.org (press "Newsletter")

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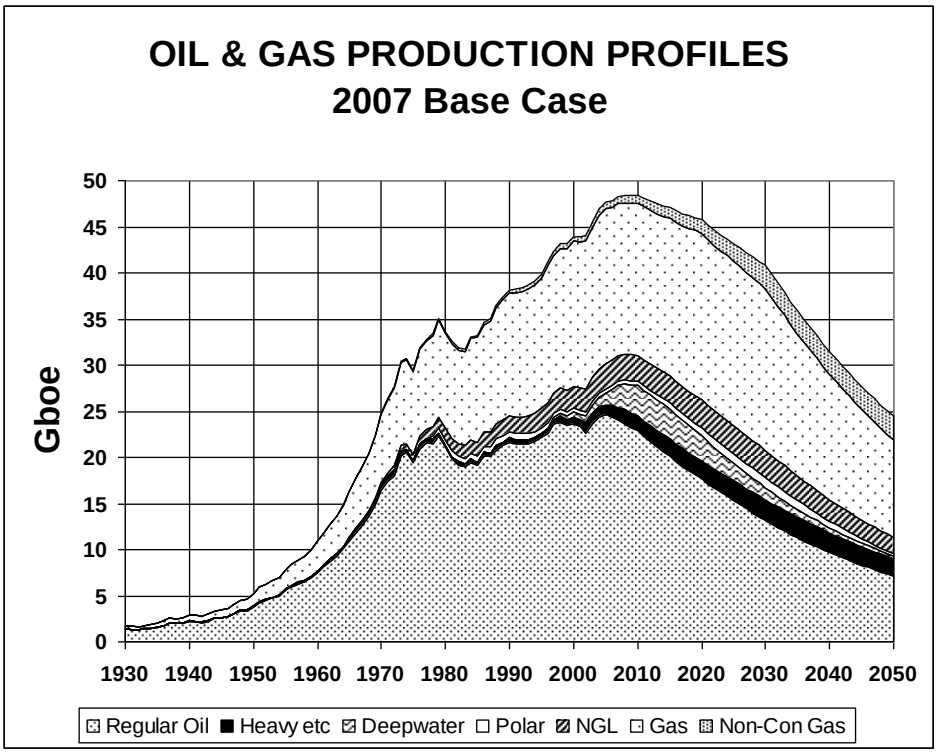
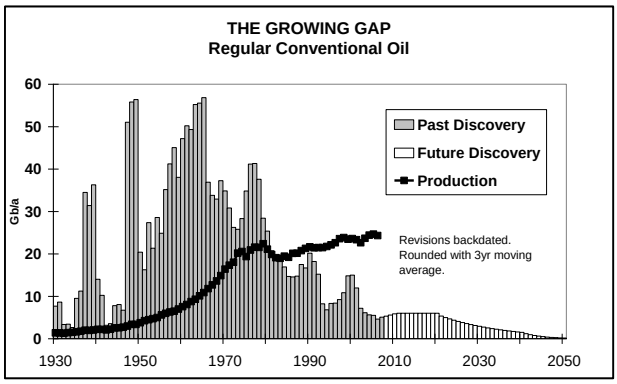
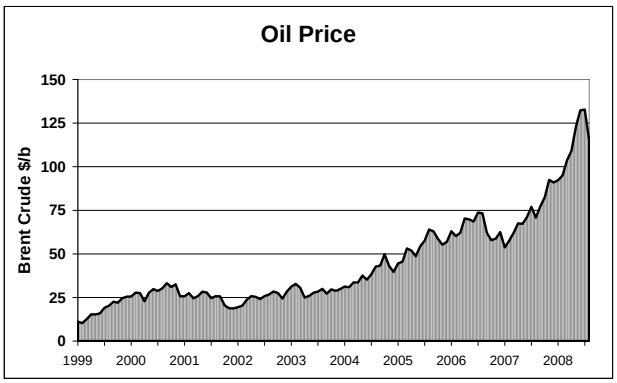
Index of Country & Regional Assessments with Newsletter Reference (*revised)

The General Depletion Picture



ESTIMATED PRODUCTION TO 2100					End 2007							
Amount			**Gb**	**Annual Rate - Regular Oil**						**Gb**	**Peak**
Regular Oil				Mb/d	**2007**	**2010**	**2015**	**2020**	**2030**	**Total**	**Date**
Past	**Future**		**Total**	US-48	3.7	3.1	2.4	1.8	1.0	200	1970
Known Fields		New		Europe	4.3	3.5	2.5	1.7	0.9	76	2000
1009	725	141	1875	Russia	9.7	9.7	7.8	6.2	3.9	230	1987
	866			ME Gulf	19	19	20	20	17	663	2015
All Liquids				Other	29	27	23	19	13	706	2005
1151	1299		2450	**World**	**66**	**63**	**55**	**48**	**36**	**1875**	2005
2007 Base Scenario				**Annual Rate - Other**							
M.East producing at capacity				Heavy etc.	3.9	4.6	5.2	5.5	6.2	184	2030
(anomalous reporting corrected)				Deepwater	6.7	8.8	9.1	7.5	3.6	85	2013
Regular Oil excludes Heavy Oils				Polar	1.2	1.3	1.7	2.2	3.0	52	2030
(inc. tarsands, oilshales); Polar &				Gas Liquid	7.7	7.7	8.0	8.4	8.2	228	2027
Deepwater Oil; & gasplant NGL				*Rounding*			1	-2	-2	26	
Revised 06/05/2008				**ALL**	**85**	**85**	**80**	**70**	**55**	**2450**	2008





1077. Spain reacts to Peak Oil

The Government of Spain has introduced a series of measures to cut the country's energy consumptions and reduce the imports of oil and gas. They include:

- Cutting motorway and urban speed limits to respectively 50 and 25 mph;
- Reduced air-conditioning and heating in public buildings;
- A reduction of street lighting by a half;
- Distribution of 50 million low-energy light bulbs.

They sound like eminently sensible measures, and probably set an example for other countries to follow, while at the same time underlining the colossal impact that Peak Oil is having on living conditions around the world.

1078. 33rd International Geological Conference

A major international conference in Oslo was attended by about 5000 participants. The issue of Peak Oil was covered directly and indirectly in several of the sessions.

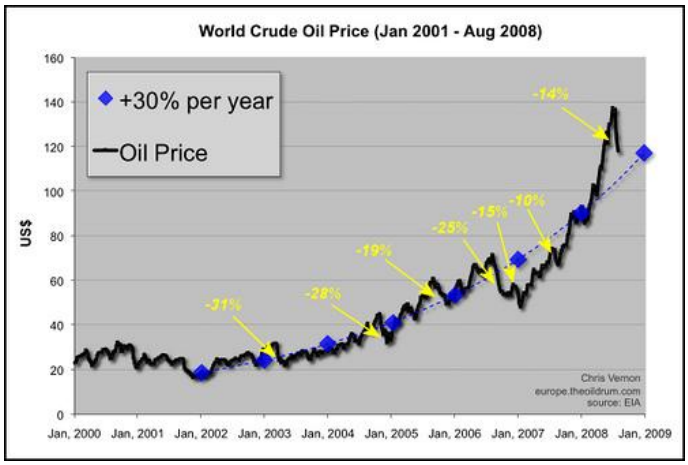
The issue of an imminent Peak in production no longer seems to be in serious dispute, although debate surrounds the precise date and height of peak, and the impact of non-conventional oil and gas in ameliorating the subsequent decline in production. Attention now shifts to address the response as general economic expansion gives way to contraction, carrying far-reaching social and political consequences. The issue of climate change is also hotly debated: the climate has changed radically many times in the geological past from the impact of volcanic activity and cycles of solar radiation, but it would be surprising if anthropomorphic factors were not having an impact on the present situation.

Of especial interest was a presentation by Paul Nadeau of Statoil who reported that virtually all productive oil and gas reservoirs have a temperature in the range of 60-120 ^{o}C. This reflects a combination of geological factors, including: source-rock maturity; permeability and porosity controls; and migration processes, but the important point is that it is simply a pragmatic observation not relying on obscure science.

It is certainly a major limiting factor in the search for new oil and gas fields.

1079. A Fall in Oil Price

Oil prices weakened since mid-July from a high of about $145 to around $113 in early August, before rebounding. The primary cause of the fall seems to be a reduction in consumption in the United States, which declined by 800 kb/d during the first half of this year, the largest fall in 26 years. This in turn may have prompted a surprise strengthening of the dollar, although it is also possible that the central banks controlling the Euro and the pound sterling are selling their currencies to reduce their value in the face of growing recession in Europe in order to strengthen exports and reduce imports.



The oil market overreacts to small physical imbalances, and minor shifts of behaviour by central banks, investors and speculators may have a disproportionate impact, especially in an election year.

The downturn may not materially affect the underlying trend, as depicted by Oil Drum (13.08.08) showing an overall upward trend of 30% a year since January 2002, on which temporary downturns are superimposed. If the same trend continues oil prices would reach $200 by end 2010. If that prompts a *Second Great Depression*, falling demand would weaken oil price. Working these swings must provide a satisfactory reward for skilled operators in the financial world, who may do better from oil price fluctuation than a general devaluation of conventional investments.

Tobacco companies are still attractive investments, despite overall contraction. They are regularly sued by people contracting lung cancer, causing the stock to fall briefly before the lawyers settle the case and the stock rebounds. Brokers carefully watching these situations make a good regular income in the strange workings of the Stock Market.

1080. A Sense of Direction

There is now no serious doubt that *Petroleum Man* will be virtually extinct by the end of this century. In other words, the children of someone born today will end their lives without the abundant cheap energy supply that their parents and grandparents enjoyed. In energy terms, current oil production is equivalent to that provided by 22 billion slaves working around the clock. It is therefore obvious that the prime objective of any intelligent government is to prepare for this situation which is imposed by Nature. In this connection, it is well to recognise the irony of depletion: namely that the more efficient countries are in extracting and marketing their oil, the sooner it will be exhausted. It makes no sense therefore to urge Middle East countries to step up production, even if they are in a position to do so.

There is much that could be done to prepare for what unfolds, although the adjustments are difficult. The obvious first step is to properly inform people of the situation so that they will support rather than oppose the measures that have to be introduced.

It is not difficult to imagine some of the changes, especially in urban conditions. For example, on-street parking could be progressively forbidden so that people would find it increasingly difficult to use their cars in towns. The bicycle could stage a come-back, especially the modern electric bicycle whose battery can be charged going down hill or by athletic peddling. Indeed, such a change might soon be seen as providing a much better atmosphere than the choked and crowded conditions of to-day. Evidently, easy air travel would be a thing of the past: but there can be few worse experiences today than going to a crowded airport to have one's knees fondled by aggressive security guards. Much electricity could be saved by switching off all those public loudspeakers and screens, which are installed everywhere yet provide negative pleasure.

As transport becomes ever more expensive, countries could rediscover themselves, being spared the ravages of world trade and rampant consumerism. Military intervention by western powers would cease to be feasible, sparing the victims: even the poppy farmers of Afghanistan could resume their traditional way of life. Conflict might not be eradicated but it could be confined to tribal or local confrontations, freed from land mines, helicopter gunships and other sophisticated weaponry.

It seems obvious that the Planet will not be able to support nearly the same number of people as today, but a new more benign age may dawn for the survivors.

1081. A Tense World Situation

Reading history suggests that economic recession and perceived injustices in exploited segments of society can lead to violent responses and war. Eastern Europe, the Balkans and adjoining territories to the east seem to have always been something of a flash point perhaps because the area is made up of different tribal groups, arising from earlier migrations out of Asia, which were perhaps prompted by climate changes. The frontiers have changed many times in recent history.

At first, the conflict was between landlord and peasant, but, with the coming of the Industrial Revolution fuelled by coal and later oil and gas, it shifted to one between industrial workers on one side and the managers, investors and financiers, together with the politicians they control, on the other. Communism, Socialism and National Socialism were different responses to the same underlying tensions. Governments are commonly advised by economists evaluating the current situation on outdated principles, based on past experience before the resource limitations were felt.

The latter half of the 20th Century was a relatively tranquil epoch of good management and growing prosperity around the world, driven perhaps by the flood of cheap oil-based energy, which allowed the expansion of mechanised agriculture and the application of synthetic nutrients to provide the food for a rapidly growing population. It reflected in a sense a certain culmination of earlier economic practices.

A new chapter opened in the early years of this Century with soaring oil prices from growing shortages, ultimately imposed by natural depletion. This fundamental change of circumstance gradually affected the economy and the distribution of political power in an environment of growing tensions. Afghanistan and Iraq were invaded and occupied, while threats continue to be made against Iran. In parallel, food riots, insurrections and serious political tensions have broken out in many countries as people react to changes in their daily cost of living.

The latest strange incident involves Georgia, through which important pipelines from the Caspian pass. In November 2003, a 36-year old, former New York banker came to power following a coup, known as the *Rose Revolution*, which was evidently funded from abroad. Several members of the former government met their deaths in mysterious circumstances, while US and Israeli military personnel established themselves in the country. Significantly, Georgia itself also supplied 2000 troops for the occupation of Iraq, demonstrating the direction of its allegiance.

On the 8th of August, this year, it launched an attack on the enclave of South Ossetia, home to a people whose historical background distinguishes them from the rest of the population within currently drawn frontiers. The attack was duly repulsed by Russian forces, causing a flurry of diplomatic activity.

NATO started as a strictly defensive pact in the Cold War, but has since become proactive as its leaders seek to expand their sphere of economic and political influence. It bombed Kosovo during the break-up of Yugoslavia, although that hardly posed a threat to anyone; it has a contingent fighting in Afghanistan; and now contemplates taking a position in Georgia. Meanwhile, Britain re-arms its fleet with the nuclear warheads and the United States plans to install a missile facility in Poland. It is noteworthy that a previous US Energy Secretary explained his country's interest in the Caspian region in the following terms:

> "This is about America's energy security. It's also about preventing strategic inroads by those who don't share our values. We're trying to move these newly independent countries toward the west. We would like to see them reliant on western commercial and political interests rather than going another way. We've made a substantial political investment in the Caspian, and it's very important to us that both the pipeline map and the politics come out right."

Recent events sound like somewhat ominous steps, reminiscent of the incidents that preceded the previous world wars, but it is too early to evaluate their true significance. Whatever the outcome, it would not be unreasonable to see them as side effects of Peak Oil at the dawn of the second half of the Age of Oil, when this crucial energy supply, that has changed the world so radically, heads into terminal decline.

1082. The Good News

As conventional US oil and gas fields reach terminal decline, the country has mobilised its well known attributes of initiative and enterprise to tap non-conventional deposits with remarkable success. They have somehow found out how to profitably drain thin productive zones in dense shale sequences, lacking normal porosity and permeability. Several large tracts, holding the Bakken, Fayetteville, Marcellus, Barnett and Woodford formations are now under development in different parts of the country with the help of sophisticated drilling and evaluation methods. It must be boom time for drilling contractors.

US Natural gas prices were no more than a few cents per kcf until 1973, when they surged to an early peak in 1984 at about $2.70/ kcf. They then fell back to a plateau at just under $2 until 1998, when they surged again up to about $7.30 in 2005, before reaching an all time peak of $13.6 in early July of this year, since when they have slumped back to $8. The explanations for the fluctuations are obscure but presumably reflect speculative movements on the spot and future markets. The recent decline may reflect both the deepening recession which cuts demand, and also optimism for the entry of Non-conventional gases. One unexpected consequence has been the collapse in the market for imported Liquefied Natural Gas.

The Dow Jones industrial average has also fallen from a high of about 14000 to 11000 of the past year, while rebounding 500 points over the past month.

1083. ASPO-USA Conference

ASPO-USA has published a most impressive programme for its annual conference entitled **The Energy Challenge : The Future Starts Now**. It is to be held at the Hyatt Regency in Sacramento, California on September 21-23rd. (see www.aspo-usa/aspousa4/) .

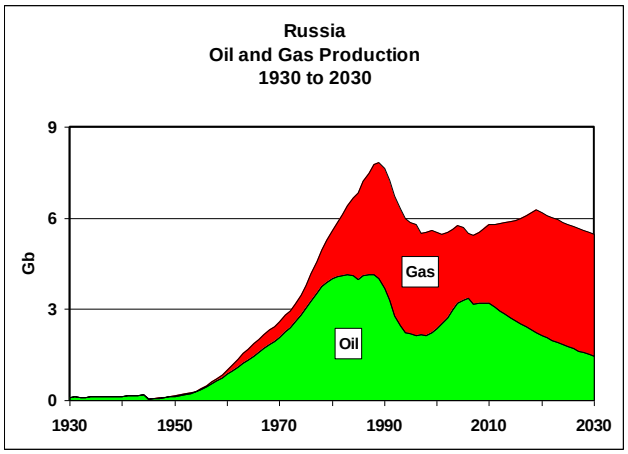
1084. Russia Re-evaluated

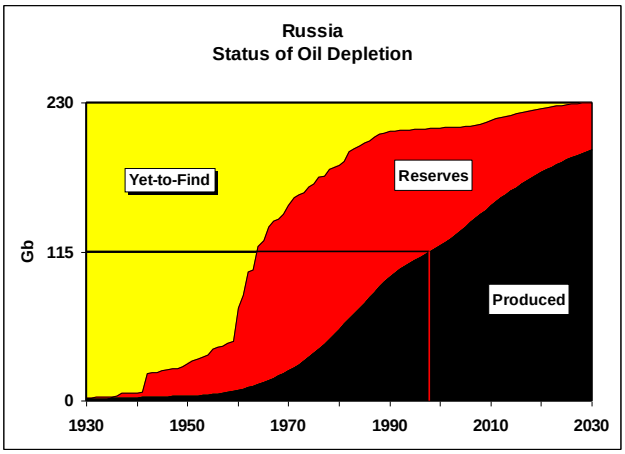
Russia was last evaluated in Newsletter 31 of July 2003 and in view of present tensions, it might be worth reviewing its oil and gas position, which as of critical importance as it becomes Europe' principal supplier, especially of Natural Gas. It is a particularly difficult country to evaluate, both because its reported reserves tended to be exaggerated under the Soviet classification, and because of the need to distinguish the Polar regions which are excluded from *Regular Conventional* oil and gas as defined herein.

The following is reproduced from the recently published Atlas of Oil and Gas Depletion.

RUSSIA

RUSSIA						EURASIA			2007	
Production						**Peak Dates**			**Area**	
Amount			**Rate**				Oil	Gas	'000 km^2	
	Gb	Tcf	Date	Mb/a	Gcf/a	Discovery	1960	1966	Onshore	Offshore
PAST	141	538	2000	2365	17530	Production	1983	2025	17000	1400
FUTURE	89	962	2005	3301	13280	Exploration	1988		**Population**	
Known	71	673	2010	3190	14440	**Consumption**	Mb/a	Gcf/a	1900	90
Yet-to-Find	18	289	2020	2152	22400	2006	1022	15750	2006	141
DISCOVERED	212	1211	2030	1452	22400		b/a	Kcf/a	Growth	1.6
TOTAL	230	1500	**Trade**	2167	-3276	Per capita	7	105	Density	8
Applies to Regular Conventional Oil & Gas only, excluding extensive Polar regions.										





Essential Features

Russia is the world's largest country covering an area of 17 million km^2 (including the Arctic regions), which is almost double the size of the United States. It supports a population of about 150 million, being rather sparsely populated.

The country, which has an extreme continental climate, can be divided into six main physiographic regions, described generally from west to east. First, is the Russian Plain, which is a glaciated terrain of lakes and rivers, being drained principally by the Volga River that flows south into the Caspian Sea. Second, are the northward-trending Ural Mountains, which is an ancient chain rising to no more than 2,000m, and cut by accessible passes. Third, are the huge plains of West Siberia, which are drained by the Ob and Yenisey Rivers, flowing northward to the Arctic. Fourth is the Central Siberian Plateau, covering extensive tracts at an altitude of 300-700m, being flanked to the south and east by mountainous country, and including Lake Baikal, the world's largest lake, covering 31,500 km^2. Fifth, are the mainly mountainous Pacific borderlands, including the peninsulas of Sakhalin and Kamchatka, which flank the Sea of Okhotsk. Sixth are the Arctic Seas and islands, some of which are of a substantial size.

Geology and Prime Petroleum Systems

Much of the eastern part of the country is underlain by the Siberian Shield, composed of ancient non-prospective rocks. A Permian tectonic plate boundary gave rise to the Urals Mountain.

This large territory has a large number of sedimentary basins, from which we may recognise six prime petroleum systems.

- The Western basins between the Barents and Caspian Seas with Silurian source-rocks, including the Volga-Ural (Pre-Caspian) basin, and the North Caucasus.
- The West Siberian basins with Jurassic source-rocks.
- The Arctic domain, which is predominantly gas-prone due to the deep burial of source rocks under the weight of fluctuating ice-caps in the geological past, including the Timan-Pechora trend, which runs offshore into the Arctic Ocean.
- The locally productive Tertiary deltaic basins of the Pacific margin, especially at Sakhalin.

Exploration and Discovery

It is important to note that *Regular Conventional Oil and Gas* excludes Polar Oil by definition, which poses a particular difficulty in the case of Russia, because the available database is insufficient to apply the boundary accurately. Another difficulty is posed by the changing frontiers with the rise and fall of the Soviet Government, with

much early information being confused or lost in the mists of time. The assessment given here is accordingly no more than an approximation.

Exploration commenced in the 1840's in the vicinity of Baku on the Caspian, then part of the Russian Empire, where hand-dug wells were sunk in the vicinity of seepages. It lapsed during the early years of the Soviet Union, until it was revitalised after the Second World War. In fact, the Soviet explorers proved to be highly efficient, being able to apply scientific methods, free of commercial constraints. They even had the luxury of being allowed to drill boreholes for geological information. They pioneered the geochemical breakthrough that identified source-rocks and generating belts.

Drilling commenced prior to the Second World War at a very low level, but picked up in the 1950's and 1960's with more than 200 exploration boreholes being drilled in most years, reaching an overall peak in 1988 when 464 were drilled.

Discovery in sub-Arctic Russia peaked around 1960, and was followed by the corresponding peak of production in 1987. Exactly how much was found is hard to know, because the Soviet classification of reserves ignored commercial constraints. It is normal to equate the reserve categories $A+B+C_1$ under the Soviet classification with the so-called *Proved Reserves* of the West, but decline curve analysis shows that reserves of most Russian fields, reported on that basis, have to be reduced by about 30% to obtain realistic estimates.

It is clear that the reserve estimates of around 60 Gb as reported by the *Oil & Gas Journal* are far too low. Exactly how far is difficult to know, but we tentatively favour a figure of about 70 Gb. It gives a fairly low depletion rate of 3.5%, which is one argument against higher estimates. If we add to this 30 Gb of Polar oil, together with substantial deposits of heavy oil in Eastern Siberia and NGL from gasfields, which are here excluded from *Regular Oil* by definition, we could approach the total of 100-120 Gb, as has been reported by Russian companies.

Production and Consumption

Early oil production is unsure and also confused because it does not distinguish the different regions of the former Soviet Union, but it is estimated that about one billion barrels had been produced by 1937, at which date production had risen to about 350 kb/d. It fell steeply during the latter years of the Second World War but rose thereafter passing a low of 1 Mb/d in 1956 to reach an overall peak of 11.36 Mb/d in 1987. It then collapsed with the fall of the Soviet Government to 5.7 Mb/d in 1998, before recovering to 8.7 Mb/d in 2007, at which point 63% of the assessed endowment had been produced, if we exclude, by definition, Polar production. In part, the recent rise was making good the production that would have already been secured but for the dislocations accompanying the fall of the Soviet regime. Production is now expected to remain approximately flat to 2010 before commencing its terminal decline at almost 4% a year. But for the anomalous fall in production, the overall peak would have been passed in the 1990's.

Oil consumption is currently running at 1022 Mb/a, making the country a substantial exporter of 2167 Mb/a. But on present trends and assessments, export capacity will fall to zero by around 2015, or even sooner if domestic consumption should increase faster than expected.

In earlier years, associated gas must have been substantially flared, but after the Second World War it began to be exploited as a fuel for heating and electricity generation. Production in sub-Arctic Russia grew steadily to peak in 1991 at 22 Tcf a year, but has since fallen to about half that amount, as Arctic supplies rose to a dominant position. It should be noted therefore that the figures above indicate the import of Arctic gas to meet Russia requirements reflecting this study's differentiation between Arctic and sub-Arctic gas production. It is difficult to forecast the future but it is here assumed that new sub-Arctic production will indeed be brought on stream to reach a plateau at about 22 Tcf a by 2020, at the indicated midpoint of depletion.

The Oil Age in Perspective

The country of Russia was occupied over its long history by Slavs, Huns and others, migrating from the plains of Mongolia. The western part of the country came under the control of the Varanginians, who may have been related to the Vikings, establishing a trade route from the Baltic to the Black Sea. The orthodox Christianity of Byzantium was adopted around 1000 AD.

Later, in their turn, came Mongol and Tartar invaders, but they were generally assimilated in a growing number of principalities and petty kingdoms that were developing in Western Russia, including Muscovy on the site of the present capital. Ivan the Terrible began to expand Muscovite influence in the 16th Century, being largely the pawn of his noblemen. He espoused European influences, being responsible for the construction of the Kremlin with the help of Italian craftsmen.

The Romanov Dynasty followed and continued in power to the 20th Century. Peter the Great (1689-1725) consolidated power, settling disputes with Turkey to the south, and Sweden and Poland to the west, which paved the way for the expansion of a new Russian Empire. His main achievement was the establishment of a competent administration and an improved educational system, as well as the founding of St. Petersburg on the shores of the Baltic, which gave Russia an outlet for world trade.

The next luminary was Catherine the Great, the German widow of an ineffectual Czar, who came to power in 1763 after a coup d'etat, organised by her lover, Count Orlov. Her reign was marked by both amorous and territorial conquests. A general state of tension developed after her death in 1796 with various wars against Turkey and the European powers, which resulted in the invasion by Napoleon who was, however, defeated at the gates of Moscow in 1812.

The Czars faced great difficulties in administering their vast territories, and relied heavily on the nobility who owned and controlled an under-class of serfs to work their lands. The 19th Century also saw the development of industry, mining and railways, with the emergence of a culture of prosperous capitalists, miners and industrial workers, effectively drawing the curtains on the earlier, essentially feudal, environment.

The Crimean War of 1853-56 found Russia in conflict with Britain, France and Turkey, who were opposing the threat of Russian expansion into the Middle East, whose importance then lay, not in its oil, but in its strategic position facing the British Empire. Defeat led the reigning Czar to move towards the liberation of the serfs, which was naturally resisted by the nobility. Progress was slow and sowed the seeds of revolution, in some cases encouraged by sympathetic intellectuals. Russia's large Jewish population was mistrusted by both the officials and the serfs alike, who were possibly reacting to the hidden pressures of usury. Waves of anti-Semitic pogroms swept the country, forcing many Jews to emigrate.

Russia's eyes turned eastward during the early years of the 20th Century where, in company with Britain, France and Germany, it sought to capture the markets of China and Japan, exploiting also the conflicts between those countries. The trans-Siberian railway was constructed. But a surprise attack by the Japanese in 1904 led to war, in which Russia suffered several defeats that in turn stimulated more domestic unrest. In the following year, disgruntled workers demonstrated in St. Petersburg, with the intent of delivering a petition to Czar Nicholas, but they were brutally cut down in a massacre that became known as Bloody Sunday. The Bolshevik Movement, amongst others, gained strength, pressing for reform.

Meanwhile in Western Europe, a newly united industrial Germany was challenging the mercantile empires of Britain and France, who reacted by signing a complex set of alliances, including a pact of mutual assistance between France and Russia. The catalyst for the outbreak of the ensuing world war in 1914 was a move by Serbia, whose Slav population was supported by Russia, to secede from the Austrian Empire. With the outbreak of hostilities, a Russian army marched into East Prussia, but was repulsed. The privations of war exacerbated the tensions at home, which erupted in February 1917 in a spontaneous popular outburst against the Government that was soon exploited by the Bolsheviks who proposed a Soviet administration. Several of these leaders, including Lenin and Trotsky were Jewish, who were perhaps resentful of previous anti-Semitic oppression, becoming advocates of Zionism. A civil war followed in 1918 between the so-called Red and White armies. Czar Nicholas and his family were arrested and murdered, and an oil workers' leader from Baku, later to be known as Joseph Stalin, came into prominence, eventually taking control of the Government after Lenin's death in 1928.

The inter-war years saw Russia, leading the Union of Soviet Socialist Republics (USSR), develop largely in isolation, with all strands of its economy placed under state ownership and control. Stalin proved to have an iron hand, suppressing any hint of opposition by ruthless means. Millions of people lost their lives. Even so, the Soviet experiment appealed to many intellectuals in other countries, inspiring elements within the socialist movement, seeking a milder variant.

The Second World War was essentially an extension of the first, and after an initial alliance with Germany under a non-aggression pact, Russia again joined with Britain and France. After initial reverses which brought the German army to the gates of Moscow, the Red Army began to advance, and in 1945 raised its *Hammer and Sickle* banner over the ruins of Berlin. Russia had suffered grievously in the war, and was not about to give up the territories it had conquered in East Europe, where puppet Communist regimes were established. The British and French empires were extinguished by the war, leaving the United States and the Soviet Union to glower at each other for the next forty years in what became known as the Cold War. That in turn ended in 1991 when a moderate Communist leader, Mikhail Gorbachev, was ousted by the late Boris Yeltsin. A new capitalism, complete with robber barons, came to Russia, leaving many Russians to look back with a certain nostalgia for the old days when they knew where they stood. The Soviet Empire was dismembered, with many of its component parts becoming independent countries facing their own internal conflicts. Foreign oil companies flocked to Russia, and new entrepreneurs in Russia itself took positions with capitalistic verve.

Vladimir Putin succeeded Boris Yeltsin as President in 2000, and was re-elected in 2004 for a second term. He comes from a humble Communist background, his grandfather having been no less than the personal cook to both Stalin and Lenin, but he advanced rapidly to graduate in Law at Leningrad University in 1975. He later joined the Intelligence Service, before returning to St. Petersburg, where he worked for the city administration, becoming active in politics. In 1997, he submitted a doctorial thesis at the university entitled *The Strategic Planning of Regional Resources*, which may be of great significance, suggesting that he is fully aware of the depletion and the geo-political significance of Russia's oil and gas.

Since cementing his power as President, Putin has successfully recovered State control of the country's oil and gas industries, extinguishing some of the new local companies, including Yukos, whose founder finds himself in jail for tax evasion. Some major companies, such as BP and Shell, continue to operate, but face a diminished role, more akin to that of a contractor than the proprietor of national resources.

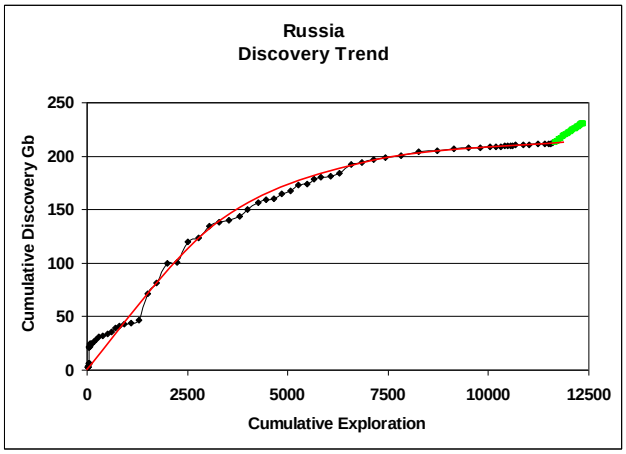
Mr Putin was succeeded in early 2008 by Mr Medvedev, who ran Gasprom, Russia's State Gas Company, although Mr Putin remains in an influential role as Prime Minister. It remains to be seen what policy a future government will adopt, but looking ahead, it seems that Russia is relatively well placed to face the Second Half of the Age of Oil. It has substantial oil and gas resources, mainly under State control, which it will likely try to preserve for the benefit of its own citizens. At first, this may be challenged by, especially, Europe as a hostile act, but gradually, as the true nature of global depletion becomes appreciated, people may understand the logic. The rouble may emerge as a strong well-

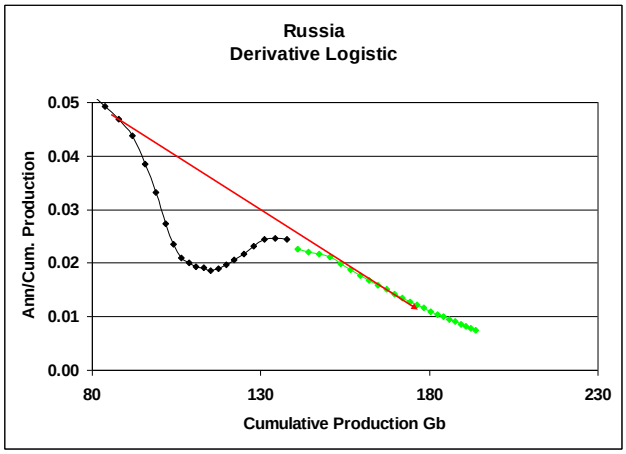
managed currency, relative to the dollar and euro which weaken, as the market upon which they were built declines in parallel with global oil supply.

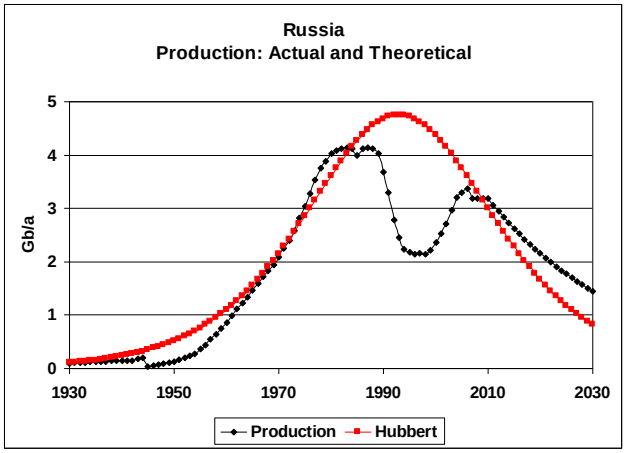
Urgent steps will have to be taken to reduce the massive waste of energy in Russia, especially for domestic heating, which was provided virtually for free under the Soviet regime, but otherwise the country could probably learn to live within the bounds of its natural resources, having been spared the excesses of industrialisation and affluence found in the West. Its birth rate has already fallen markedly, reducing the pressures.

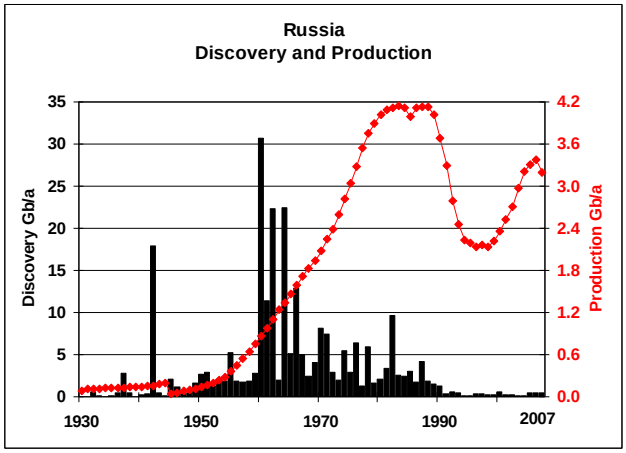
In international affairs, it is likely that Russia will remain largely aloof, maintaining what could be called the Cool War. It may well come to the help of the Middle East in recovering from the impact of the Anglo-American invasion, especially in the realm of oil production, and it may help supply China with much needed energy. So far as Europe is concerned, there seems to be a special relationship with Germany, whose former Chancellor now finds himself as a director of Gazprom.

There arises a certain irony whereby countries and people who suffered during the first half of the Age of Oil may do better during the second half as the Planet reverts to a more sustainable structure.









1085. Estimating Discovery and Reserve Growth

It is not easy for those without access to detailed field by field data to evaluate discovery. As a first step, it might be reasonable to make a simple calculation based on public reserve and production data. The Oil & Gas Journal reports, for example, that United Kingdom *Reserves* at the end of 2006 were 3.875 Gb, and that production in 2007 was 1490 kb/d (0.545 Gb). Accordingly, if nothing was found in 2007, production would reduce the reserves by like amount, but in fact the reported reserves in 2007 were 3600, a decline of 0.275 Gb, implying that the balance of 0.269 Gb was new discovery.

But the situation is confused by positive or negative *Reserve Growth*. The estimate of future production from an oilfield is termed *Reserves*, which are in turn subject to operational and economic assumptions. Onshore, a field may be produced until the wells almost run dry, as the operating costs are low, but offshore, the situation is more complex as the initial platforms may drain only the prime traps and reservoirs, to which in due course may be added subsidiary facilities to tap any remaining pools, depending on operating costs and naturally oil price. Thus, late stage developments may lead to upward reserve reports, although in fact the potential was probably foreseeable early in the field's life. It was normal and quite reasonable in financial terms for oil companies to report conservatively and thereby provide a comforting but misleading image of

steady growth, commonly attributed to the impact of technological progress and engineering skill. In discovery terms, any positive or negative revisions must be backdated to the original find to obtain a valid discovery trend. It is obvious that if some of the giant fields, found early in the history of a particular area turn out to be larger than at first reported, the subsequent downward discovery trend will be that much steeper.

We may note, incidentally, that the days of reserves growth in onshore US fields seem to have come to an end, with positive and negative revisions being now about in balance.

Calendar - Forthcoming Conferences and Meetings

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

2008

Sept. 21-23 – ASPO-USA Conference, **Sacramento**, California

Oct. 20th-21st - 7th International ASPO Conference, **Barcelona**, Spain [ASPO-SPAIN]

NOTES

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PUBLICATIONS

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

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A privately printed booklet entitled ***Living through the Energy Crisis*** by C.J.Campbell and Graham Strouts is available from www.zone5.org (price €7 plus postage)

~

An Atlas of Oil and Gas Depletion

By C.J.Campbell and Siobhan Heapes

Provides an evaluation of oil and gas depletion, together with political and historical summaries, for 65 countries, which are summed into regional and world totals. *Non-Conventional oil and gas* are also covered, and a final chapter places the Oil Age in an historical perspective.

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ISBN: 978-1-906600-26-6
Hardback, cloth bound, 404 pages, full colour.
Copies can be purchased from Jeremy Mills Publishing by telephone, fax, post or through the website:
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