

The Book of Numbers

The “BP Statistical Review of World Energy” has now been published for over 50 years. It remains by far the most accessible source of global energy statistics available. Looking back to the earliest editions not only reveals the astonishing, almost exponential, increase in the world’s energy demand, but also how the preoccupations of the oil industry have changed down the years.

| by *Chris Cragg*

It was 1952 when BP first published its annual review of oil industry statistics. In practice BP staffers had been gathering up as much numerical material as possible in reports for the Deputy Chief Executive for some time. They were obviously needed for

the purposes of forward planning, not least regarding the need for tanker shipping as Saudi Arabia and Kuwait started on the rapid expansion of their oil production. The trouble was that there was not a lot of information around.

Indeed, by comparison with the first decade of the 21st century, the world of oil was remarkably opaque in the 1950s. There wasn’t much of a spot market let alone a system of futures and derivatives. Deals were done on the basis of twenty-

year supply contracts. As BP drilled 300 wells in Kuwait, found only two dry holes and finally realised – due to similar pressure levels – that it had discovered the enormous Burgan field, neither the oil companies, nor governments had really much idea how much oil the world was actually using. Pricing information too was scarce.

Furthermore, the companies were not supposed to talk to each other about it. Not for nothing had the US Government passed the 1913 Sherman Act aimed specifically at Standard Oil to smash up its marketing monopoly. In the view of the US Government, anti-trust laws and competition were more important than getting a fix on global energy consumption. The Europeans had adopted similar conventions.

In many ways this is not so surprising. The US was self-sufficient in oil and much of the world used very little of it. Indeed it is often forgotten that in the first half of the 20th century, oil was really not the dominant fossil fuel worldwide except in North America. Back in 1938, of the 257 million tons of crude used globally, the US alone was consuming 153 million, or 59%. Furthermore it was a major exporter. Even two decades later, the US still used 48% of global oil production, but since it came from Texas, this appetite had little impact on the global economy.

Even the years of World War II, with its images of fleets of aircraft, tanks and vessels, plus the enormous importance of strategic oil in the Caspian and what is now Indonesia, did not greatly change the overall level of oil consumption. Its military use was offset by the shut down of civilian consumption and rationing. It was only in the post-war world that oil began to assume the economic importance that it has now, and its geopolitical importance to governments only came to the fore in a dramatic fashion as late as 1973.

In practice, if governments paid relatively little attention to where the oil companies got their oil, the companies did and what

they wanted was an unspoken agreement that as Arabian Gulf oil production grew rapidly somebody would balance the speed of development. Like Opec later, the companies wanted at least some indication that this rapid expansion would not crash the market. Given the potential for anti-trust action, this was not an easy proposition, but it was clear

Strategic shift |

Looking at the first 16-page issue, the world was certainly a very different place. The US still had 27% of global reserves and Russia only 8%; a position that is now 2.5% and 6.6% respectively. The companies were conscious that the Middle East was going to be the greatest crude producer, but production there had hardly got

The Arab-Israeli war did not cause the jump in oil prices

that without any form of macro overview of global production market volatility was inevitable.

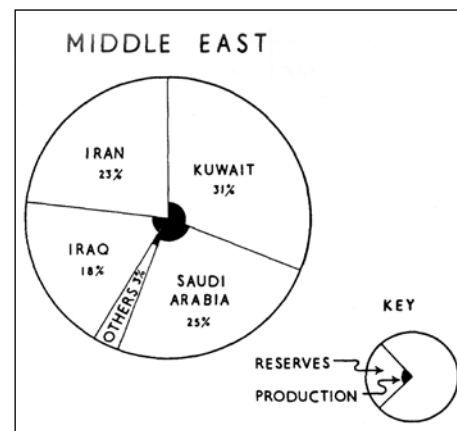
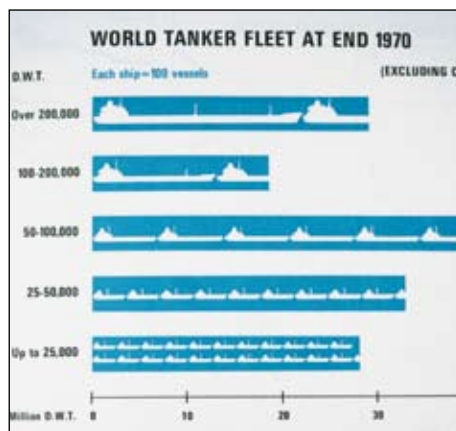
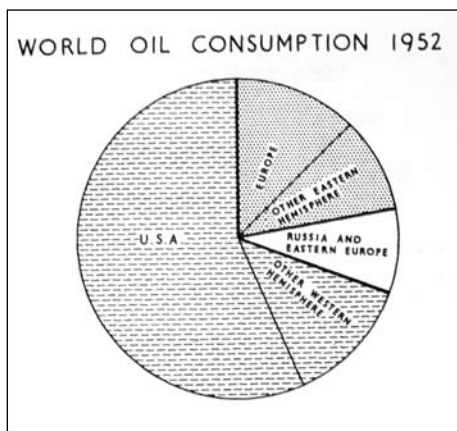
The solution was an agreement to publish the BP Statistical Review and make it available to all. Under BP's leadership, the then Seven Sisters did indeed collude to gather statistics, but they did so openly, seeking in addition all the governmental numbers they could find. And it was as well that they did so, for the ever-growing consumption of oil in the coming decades was to make it more and more vulnerable to global events; civil war in Nigeria, closures of the Suez Canal, coups in Libya, revolution and counter-revolution in Iran and not least the Israel-Palestine conflict.

into its stride. Of the 634.3 million tons produced, 449.5 or 72.4% was produced in the Western Hemisphere, the lion's share of 331 million tons being produced in the US. Given that the 2006 figure was 3,914.1 million tons, global oil production has increased six-fold since the days when Americans drove around in iconic 1950s cars.

World refining capacity was just about adequate with a capacity of 690 million tons but 55% of it was located in the US. More intriguingly, the entire tanker fleet was 32 million dead weight tonnage (dwt), but by far the biggest tanker was in the range of 14,000-18,000 dwt. In effect, one of the world largest tankers now could carry the load of 35 of the kind of tankers



Main Inter-Area Trade Movements, BP Statistical Review 1952



being used then. Equally, the world's oil tanker fleet has expanded ten-fold since the 1950s.

This reflects the major strategic shift of the oil industry in the 20th century, which is still misunderstood today. Look at any school history book and the 1973 oil crisis will be explained in terms of the Arab-Israeli war of that year. In fact, while the war exacerbated the sudden

year's later, in April, President Nixon abandoned the permit quota system and the US was suddenly in the global oil market in a major way for the first time.

The result was mayhem in the shipping market as US importers scrambled for Middle Eastern crude. Freight rates per barrel shot from \$2 to \$10. People in the mid-west, who had never had any experience of international shipping

found, the oil industry was extremely wary of saying how much a barrel of oil was actually worth; a situation that led to the founding of Petroleum Argus and Petroleum Intelligence Weekly respectively. Nasmyth had been hired by the UN to throw some light on this mysterious commodity and had been astonished at the industry's "who needs to know?" attitude.

In fact, prior to 1973, the price of oil – in money of the day – had been flat-lining since the 1880s and wasn't all that interesting. Post-1973 however this suddenly became a matter of considerable importance to governments. Shock at the impact that the 1973 crisis had on the global economy led directly to the founding of the International Energy Agency in 1974 and a policy of 90-day buffer stocks. Previously governments had largely left the stock position to the companies, although mindful of the Cold War, they had insisted that they were kept.

With the IEA in place, the cosy world of the Seven Sisters could no longer remain opaque. Furthermore, if prices were not to be kept secret any longer, there were plenty of opportunities to expand the trading system. The "Rotterdam spot market" arrived around 1976, with quotations for Brent and WTI now freely available. This in turn has since led to the futures and derivative markets of today.

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jump in oil prices then, it did not cause it. The jump in prices preceded the war by a couple of months and was caused by the sudden emergence of the US into international oil markets, rather in the way China and India are doing now.

Tony Scanlan, who subsequently edited the Review, was working in BP at the time calculating the need for tanker tonnage. His explanation of the crisis is simple. Prior to 1973, the US had been protecting the Texas oil industry from outside competition. Around 80% of the US market was shielded and what could be imported needed a Federal permit. Not by coincidence did Marion King Hubbert's "peak oil" theory, made in 1956, come true for the US in 1970. Three

were suddenly chartering tankers. Not unnaturally, with Saudi light selling at \$1.5 a barrel fob, a then little known organisation – Opec – decided it wanted a higher share of the end price and had the opportunity to get it. The Middle East War, which broke out in October, put a geopolitical gloss on the situation, but did not cause it. The real cause was the decline of US self-sufficiency. Three years later by 1976, the US was importing more than Japan, which had no oil industry at all.

Secret |

If there was one thing conspicuously absent from the Review prior to the 1980s, it was prices. As both Jan Nasmyth and the legendary journalist Wanda Jablonski

Another result of 1973 and subsequently 1979, was that the Review began to take notice of other forms of energy at Scanlan's urging. Today it seems remarkable that the oil industry regarded natural gas as an irritant. In what would now be regarded as a scandal, gas was simply flared if there was no immediate market. However, the price explosion clearly had a reaction on the use of oil itself. Before 1973 Japan had been burning crude direct in power stations without even refining it.

In 1966, for example, Western European refineries were producing 39% of their output as fuel oil for power generation and less than 3% as jet kerosene. In the 1970s and 1980s, many countries backed out of heavy fuel oil, leaving it to the bunker market and turned to both natural gas and coal for electricity generation. There was an immediate need for investment in the refining sector to improve the yields of the lighter fractions. Oil's future role was gradually

to be confined to the transport and petrochemicals sectors.

As a result the Review started to expand and monitor natural gas, nuclear, hydropower, coal and consequently world primary energy. This shift must have taken an enormous amount of work because

well as the ten-year tables for the various types of energy, there were coloured graphs and maps.

All this took a great deal of fact gathering and some in the company began to think that matters were getting out of hand. There were moves to shut the operation down, or at least charge money for it. One

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to create a series of useful numbers for comparison, the staff had to backtrack by ten years; a task carried out by Gilbert Jenkins, who subsequently wrote the invaluable "Oil Economist's Handbook". In addition, it was decided to break down the volumes of different products sold in a variety of important countries and the world. By 1986, the Review was 36 pages long and much more sophisticated. As

issue did have a price on it, but if there is one thing large oil multinationals are not good at doing it is collecting small sums of money like magazine publishers. Besides most oil journalists were walking away with it from press conferences and the only people charged were usually interested students. Senior managers got the message. Ironically, as one energy researcher at Energy Intelligence put it:



Chief Economist of BP Christof Rühl. Photo: Chris Cragg



Tony Scanlan, former economic advisor of BP. Photo: Chris Cragg

'If I had to pay for it every time I consulted it, I'd be giving BP thousands a year!'

Most visited |

Over the past few years the Review has gone from strength to strength and is now using the sophistication of the internet, with Excel files and on-line conversion calculators. The statistics have now been increased to include renewables like wind, solar and ethanol, while the graphics have become clearer. It is also now published

in Russian and German.

The Review is currently produced by the 14-member office of BP's Chief Economist, with help from a team at Heriot Watt University in Edinburgh. In practice however it is a collaborative effort. BP staff in the field are asked to contribute as is a tanker tracking company, based in Switzerland. Government figures are scrutinised closely.

The current Chief Economist, Christof

Rühl is delighted to be in charge of it. "Wherever I go, no matter how remote, you can bet somebody will have a copy." The version on the internet, which is larger than the printed version, is by far the most visited of the entire BP world-

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wide web. So far, the internet version has a statistical database that goes all the way back to 1965. If one year's figure for, say, coal consumption in China seems strange in the context of previous years, it is re-evaluated and changed in subsequent editions.

Putting all this in context, there are still some governments that do not believe in open access to information about energy. In Russia, for example, oil and gas reserve figures are still a state secret. Given that Russian companies are required to reveal reserves for the purposes of market capitalisation, this is not actually a problem for the Review. Indeed, BP's figures from the bottom up are probably more accurate than those thought up by central government bureaucrats.

Yet in practice, the world of energy production and consumption is considerably more open than it was in March 1952, when BP first started to publish its version of the oil industry numbers. It needs to be. Faced with the twin potential problems of peak oil and global climate change, BP's little book of numbers is a vital annual fix on the state of the world's economy and future. Oh, and by the way, let's not get too depressed, but the world's fastest growing hydrocarbon is...coal. ■