

60 Years

BP Statistical Review
of World Energy

bp.com/60yearsstatisticalreview



1951–2011

A large, stylized sunburst graphic composed of numerous thin, light-colored lines radiating from a central circular area. Inside this central circle, the number '60' is displayed in a large, white, sans-serif font.

60

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BP's Statistical Review, and the essential databases that support it, is one of the fundamental resources for understanding world energy. Rigorous, clear, consistent, wide-ranging – and the product of a great deal of hard work and commitment over six decades – the Review is the global 'go-to' source for decision makers and analysts around the world. Those tables of numbers, in their myriad units, tell an extraordinary narrative of how the world has changed – and the challenges ahead. I not only use it, but I read it regularly because it is such a great story.

Daniel Yergin
Chairman, IHS Cambridge Energy Research Associates



Christof Rühl
Group Chief Economist and Vice President

Celebrating 60 years

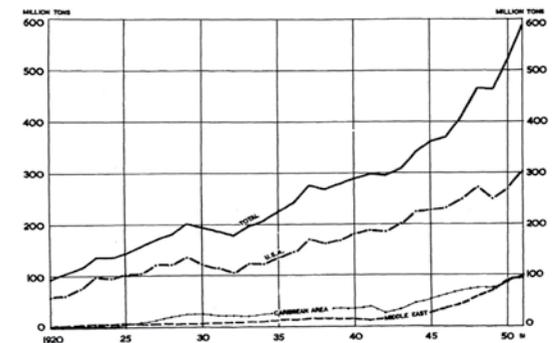
The BP Statistical Review of World Energy is now 60 years old. It is the longest running compilation of global energy statistics available. Collected down the years, it has become widely recognized as a key source of data on energy markets, useful to business, policy, academia, journalists and the public alike. It seems fair to say that it has become a crucial resource, underpinning with facts discussions about energy or the environment.

Over the past 60 years, the Review has expanded from six typewritten pages plus one page for graphical illustrations to an internet database that can be used for very detailed analysis. Behind the published data are about 300,000 single data entries – at the last count, and growing every day, of course. Yet, in a world ever more concerned with the commercial value of data, it is freely available to all who wish to use it. Above all, there is no wishful thinking, no politics and no spin. It is simply a portrait in numbers of global energy production, consumption, trade, reserves and prices.

These numbers contain the story of energy in the last half of the 20th century and the beginning of this one. They illustrate global transitions in the fuels we use and how we use them, and our preoccupations and concerns about this important element of the global economy.

I believe it is therefore worth marking the Review's birthday, to tell the story of how it started and how it grew. I hope you enjoy the story.

World Crude oil production 1920-1951 Reproduced from the 1951 Review



How it all began

It all started in April 1952 when the central planning department of the Anglo-Iranian Oil Company (AIOC) circulated a paper entitled *The Oil Industry in 1951: Statistical Review*. Hammered out on a typewriter, it amounted to six pages of statistics and text plus a further page containing a graph. It was circulated to only eight people. The first paragraph – to those in the know – was particularly poignant:

“There was a record increase of some 70 million tons in World Production in 1951 despite the suspension of Persian supplies in June, equivalent to the loss of about 20 million tons in the year. This loss was more than made up by the increased production in Kuwait and Saudi Arabia so that the Middle East as a whole showed a rise of nearly nine million tons.”

For William (Jamie) Jamieson, who put the numbers together, the reason for the 20 million tons collapse in output in Iran – the ‘Persian supplies’ – was obvious. AIOC, the precursor of BP, had been kicked out of the country, losing around 75% of its refining capacity and two-thirds of its crude supplies. Jamieson himself had been in Abadan, trying to reconcile the Iranian government’s number of barrels per day produced with what he figured had actually gone into the refinery. Now back in London, he was asked to put together some numbers on global oil production and consumption.

Today, it seems difficult to understand just how little data there was about oil production at the time. There was no International Energy Agency and, outside the US government, precious little statistical material existed at all. For fear of accusations of collusion, the big oil companies were reluctant to talk to each other even about something so basic. Nonetheless, aided by the statistician ‘Dusty’ Miller, Jamieson set about finding out as much as he could. What resulted was an estimate that global oil production was 607.3 million tons (12.2 million barrels per day) and had been rising at the rate of 9.7% per annum since 1946. If Iranian production was stalled for political reasons, the rest of the world was more than making up for it. In fact, as BP’s historian James Bamberg has pointed out, Iran probably suffered more from its actions than AIOC, for not only did other companies effectively boycott Iran’s oil, but AIOC rather rapidly found alternative sources, notably in Kuwait.

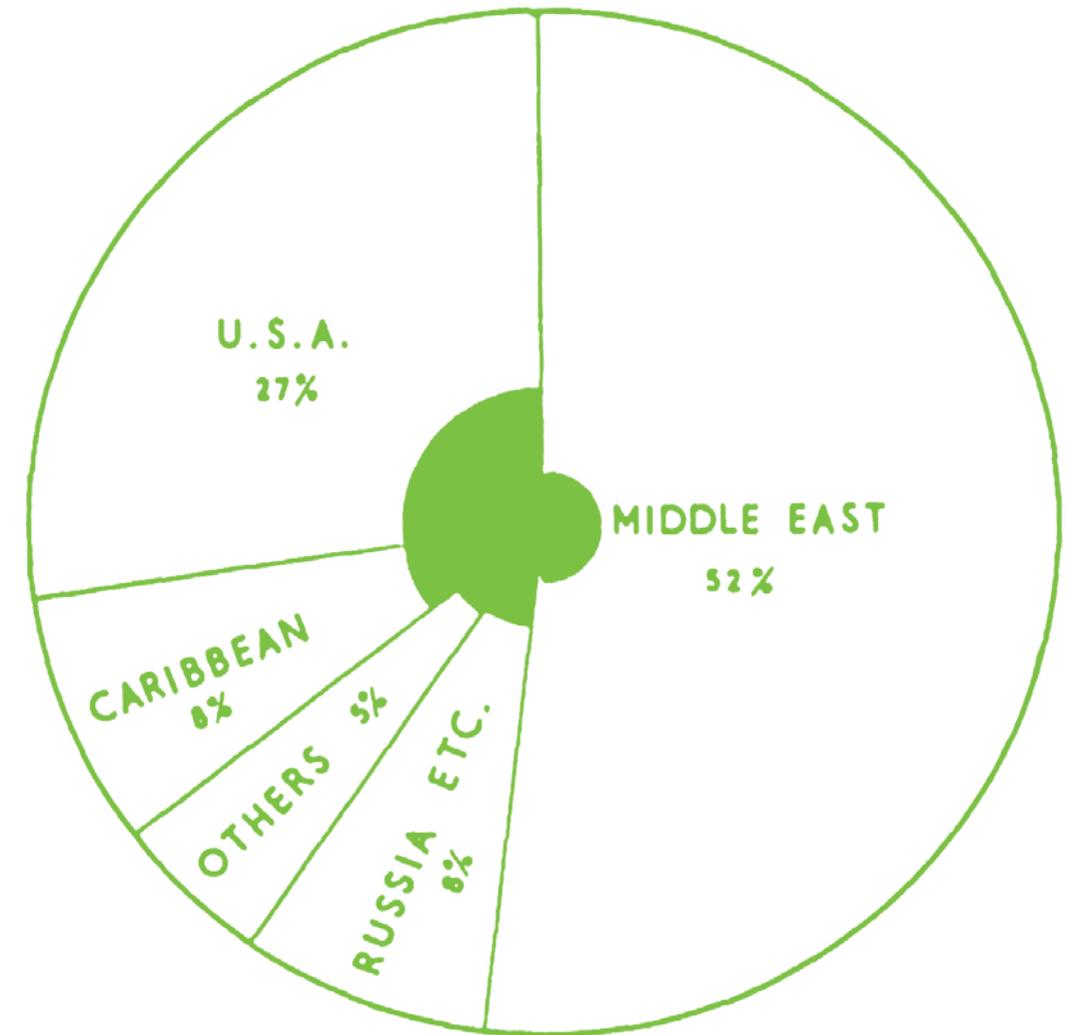
We look forward to the *BP Statistical Review of World Energy* for its insightful analysis and clearly expressed data. Like OPEC’s *World Oil Outlook*, we believe it supports the formation of realistic and objective views of the global energy industry.

Abdalla Salem El Badri
Secretary General, Organization of the Petroleum Exporting Countries

BP’s annual *Statistical Review of World Energy* is widely used in the Chinese energy sector. Upon its 60th anniversary, I would like to extend my warmest congratulations.

Zhang Guobao
former Minister and Head of the National Energy Administration, China

Proved petroleum reserves
Reproduced from the 1951 Review



The first map of a global trade

As Ken Inglis – who joined BP in 1954, the year it was formed – puts it, the crisis in Iran propelled the company into the 20th century. No small part of this process was that somebody somewhere was actually trying to put numbers on global oil production and consumption.

Indeed, such was the success of Jamieson's efforts that AIOC's senior management demanded a paper for 1952 that was double the size. While Miller began to calculate five-year moving averages of the growing production on graphs, Jamieson started to hand draw pie charts, and to show the numbers in columns.

The result was surprisingly sophisticated. It included supply and demand balances, world refinery capacities and yields, the size of the global tanker fleet and even a world consumption figure of 629 million tons (12.6 million barrels per day or Mb/d), admittedly estimated, but growing at 4.5% and following a growth in production of 30 million tonnes in the year. In spite of Jamieson's own experience in Iran, barrels per day had yet to make an appearance and the numbers used were the imperial or long tons, equivalent to 1.01604 metric tonnes.

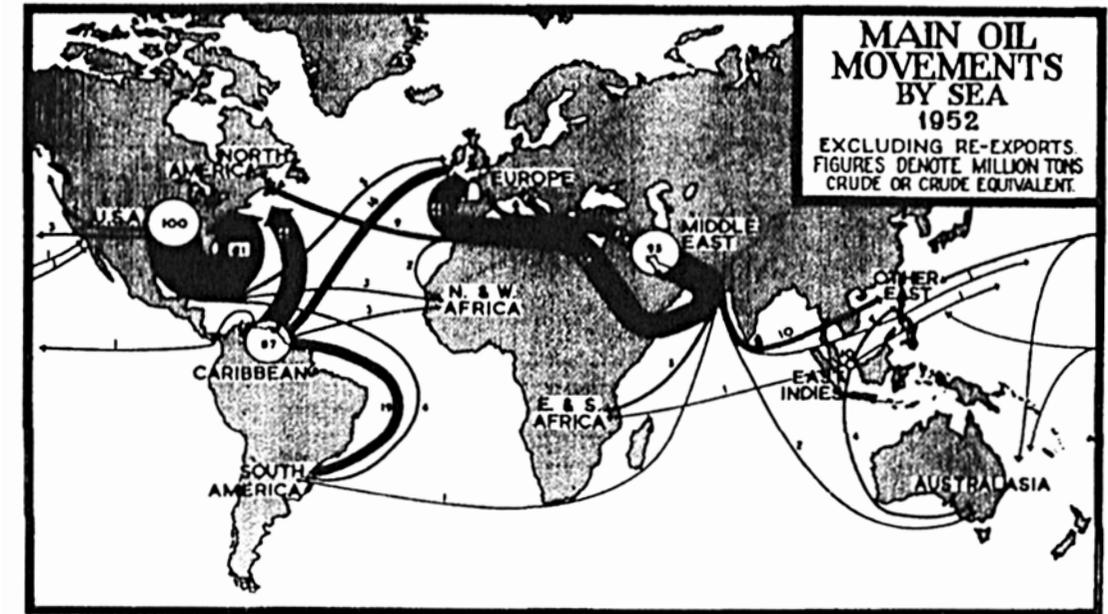
Nonetheless, one staple feature of the Review still found today first appeared. Jamieson introduced a map of the trade in crude, showing in lines of various thicknesses what was being shipped around the world. It must have been a revelation. North America's growing demand was there for all to see. Around 81 million tons (1.6Mb/d) of the US's production of 100 million tons (2.01Mb/d) were staying where they were and another 87 million (1.74Mb/d) were being imported there from the Caribbean and South America. Given that Europe had previously been dependent on US supplies in the 1940s, its growing dependence on Middle Eastern oil could not have been more graphically portrayed.

The Excel format is brilliant both for analysis and when it comes to putting together presentations, whether on long-term trends in prices, fuel shares, import dependency or the like, coupled with the reassurance that the source provides.

David Newbery
Emeritus Professor of Economics, University of Cambridge

The first map

Reproduced from the 1952 Review



Another feature that remains today is the speed of compilation. Jamieson released the 1952 statistics in March 1953. Now the greatly enlarged Review comes out in June of each following year. This is far faster than either the United Nations Energy Statistics or the general releases of the International Energy Agency.

Life in BP was undoubtedly different then. As Inglis, who went on to edit the Review, recalls, you could be sent home for failing to wear a suit and tie. And the surroundings of old Britannic House still bore the scars of the London blitz.

The company was still trying to keep the numbers the team produced to itself. The 1954 Review states sternly: "Information from this review may not be published without the express permission of the manager, General Department." Yet the Review was already being circulated to BP offices worldwide. The stern notices disappeared in 1955, and the 1956 edition appeared with the BP shield logo. It proudly notes that this "is the symbol of the world-wide organization of the British Petroleum Company Limited". The Review was quietly going public.

Branching out

One effect of going public was the disappearance of pricing information. Back in the old days an outfit called Socony-Vacuum printed a price list of Arabian crudes. What is now called Saudi Light at 36° went for \$1.75 per barrel in 1951. Meanwhile across the Atlantic, the Office of Price Stabilization was enforcing an official price ceiling. Yet when the Review went public all references to pricing disappeared until 1984, when a list of 'official crude prices' from 1973–1983 was printed.

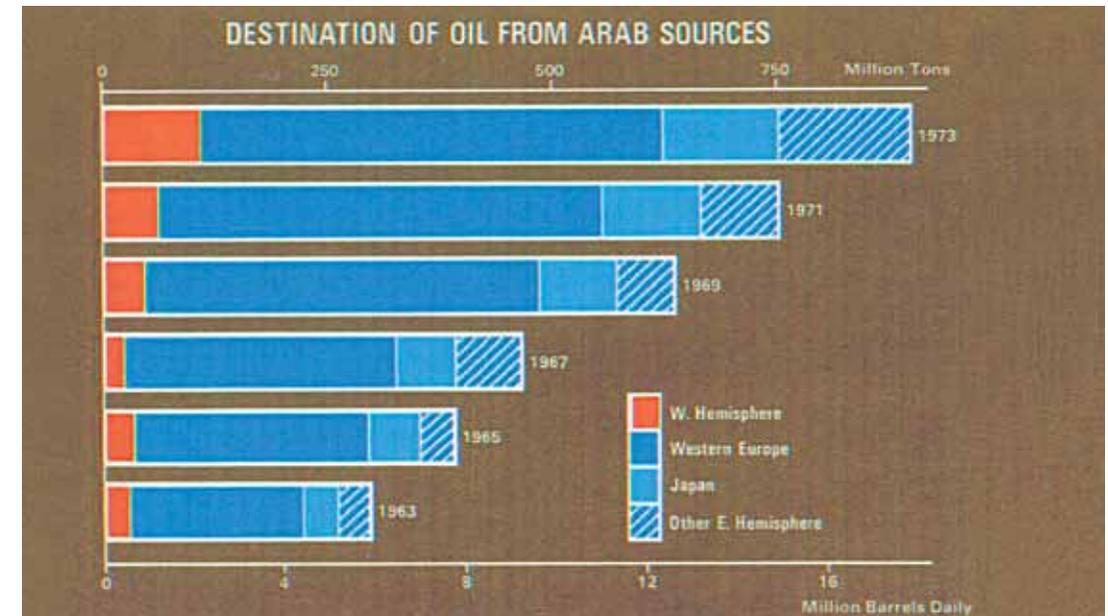
The unexpected consequence of the industry's reluctance to talk about prices was the invention of the 'price reporter'. The legendary Wanda Jablonski founded *Petroleum Intelligence Weekly* in 1961 and Jan Nasmyth founded *Petroleum Argus* in 1968 to fill the gap. Pricing was in fact a tricky subject. The official prices were often misleading, and when the 'Rotterdam spot market' emerged in the mid-1970s, it was impossible to quote a representative monthly number. Now, of course, there is a daily price in every business paper and the Review has a graph of them going back to 1861 in real and nominal numbers.

In the last years of the 1950s, the Review had clearly come to stay. It went into colour in 1957 and, in 1959, no doubt to everybody's relief, started to count in barrels per day. A page of conversion factors was added for the perplexed. To show the dramatic increase in demand, the 1960 Review shows the per capita consumption of oil for most of the industrialized countries and takes its first stab at calculating world energy demand across the fuels in barrels per day of oil equivalent.

According to Tony Scanlan, who was there at the time and subsequently edited the Review in the 1970s, the company had started to become much more interested in the place of oil in the wider context of energy. In the 1961 edition, graphs appeared for the US, Western Europe, USSR and the Rest of the World, charting gas, solid fuels and electricity defined in million tons of oil equivalent. By the late 1960s, a primary energy section had emerged and there were numbers not only for solid fuels, but for hydropower and nuclear energy as well.

Arab sources

Reproduced from the 1973 Review



Yet, in the first years of the 1970s, there was a wider undercurrent of concern for those prepared to look. In 1971, the US produced 469.9 million tons of oil (9.4Mb/d) but only added another 0.7 million in the following year. Consumption, by contrast, hit 719.3 million (14.5Mb/d) in 1971 and demand grew by another 56.9 million in 1972. US oil output was no longer growing but demand was increasing at more than 5% per year. In 1973, the gap widened even further with consumption hitting 814.7 million (16.3Mb/d) and output falling to 456.2 million (9.2Mb/d).

According to Scanlan, the British government requested information about these potential imbalances between supply and demand from BP in the months building up to the 1973 crisis. For the compilers of the Review, the growth in world dependency on the Middle East was so obvious that they produced a bar chart in the 1973 edition that showed not only the increase in 'Arab'-sourced supplies but where it was going. Not only had such supplies grown from 6Mb/d to more than 18Mb/d in the decade, but demand from the Western hemisphere had tripled. More and more oil was going into the US.

I have found the Statistical Review of World Energy to be a valuable source of objective, timely energy market information.

Alan Greenspan

Former Chairman of the Board of Governors, Federal Reserve System

The impact of 1973

Like a lot of oil price hikes, the 1973 crisis was mainly put down to political tensions and the Arab-Israeli War. The Review, however, points out additional factors at work. In fact, faced with rising oil demand and slowing production in the US, President Nixon had lifted restrictions on the importation of Middle Eastern crude, and a tanker shortage rapidly developed as the crude flowed west. Before long, the cost of shipping a barrel of oil was more than the posted price of the crude.

Right from the start the Review had been a little obsessed with the tanker fleet, listing them by flag, by size, by age and by ownership. By the early 1960s, there were even calculations as to availability. Of course, at the time, BP had a substantial fleet itself. But, if the 1973 crisis was exacerbated by a shortage of vessels, anybody who cared to look at the numbers in the Review would realize that it was not going to last. It listed the existing fleet as amounting to 220 million deadweight tons (dwt), but also noted that the amount on order amounted to 197.6 million dwt.

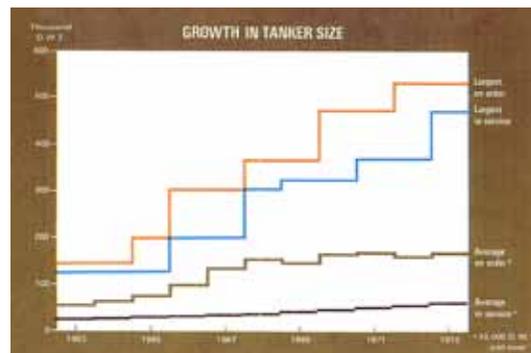
So the fleet was going to virtually double in less than a decade and the market duly crashed. According to Scanlan, owners ended up virtually begging for cargoes by the early 1980s and the Review ceased to cover the issue.

The 1973 crisis brought another more important change to the 1974 Review, which went unannounced at the time. It shifted its numbers from the imperial long ton to the metric ton or tonne. It may have been unannounced, but it did not go unnoticed, at least by the compilers of the data. Thousands of past statistics had to be recalculated!

But 1973 also shifted the world's oil industry perception of itself. If OPEC countries were going to dominate production, the international oil companies had to diversify geographically and start taking more interest in alternative sources of energy. And to diversify, they needed a lot more detailed data on other fuels, as well as where to find them.

Growth in tanker size

Reproduced from the 1973 Review



A lesson in numbers

The new information sought by the energy industry was initially provided by supplying gas, coal, nuclear and 'water power' statistics. These were tucked away at the back of the Review – which had now reached 32 pages – but they were still revealing. For example, between 1968 and 1978, Western Europe's natural gas consumption was rising at 16.4% per annum. Over the same period and until the Three Mile Island accident in 1979, the US nuclear industry had expanded 22-fold. Globally, primary energy demand was rising at almost 4% per year.

If the use of million barrels of oil equivalent for coal, gas and even nuclear fitted the oil mindset of the compilers, it did at least start to make it possible to make direct comparisons. Cubic metres and kilowatt hours would have to wait. Perhaps the greatest pointer to the future was the chart of gas versus oil reserves. A pie chart made it obvious that if OPEC had around two-thirds of the oil, the USSR was sitting on a third of the gas.

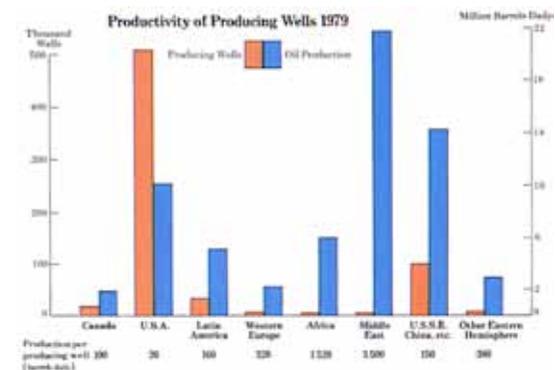
Nonetheless, oil was not neglected. Perhaps the most startling number seemed to suggest to the AIOC retirees that history was repeating itself. With Iran in the turmoil of revolution, its production of crude collapsed from 260.4 million tonnes (5.2Mb/d) in 1978 to 155.6 million (3.1Mb/d) the following year, a fall of 40.2%. This created a second global price shock and another burst of inflation to follow that of 1973.

On the exploration front, the compilers tried to analyse the productivity of individual wells in 1979 and this highlighted an astonishing difference. With more than 500,000 wells, the US was getting an average of 20 barrels per day from each. By contrast, the output of an average well in the Middle East was around 5,500 barrels per day. Meanwhile, a chart about oil product usage showed that Western Europe and Japan were using less and less fuel oil for electricity production, the net decrease between 1973 and 1979 being around 50 million tonnes. The lesson for refiners was that demand was moving in favour of the lighter barrel and something would have to be done to find a use for the heavier fractions.

As always, the numbers told the story. The impact of the Iranian revolution on the global economy was clear. And statistics about well productivity and shifting patterns of oil product demand pointed out the need for improved technology, notably more horizontal drilling, enhanced recovery and greater refinery sophistication.

Productivity of producing wells

Reproduced from the 1979 Review



BP's Statistical Review is a great tool not only for energy market analysts, but also for macro-economists, finance experts and, rather often, even for politicians. Happy birthday!

Alexey Kudrin
Deputy Prime Minister and Minister of Finance,
Russian Federation

Fuel diversity

International gas trade

Reproduced from the 1981 Review



The shift towards providing data about fuels other than oil was recognized in the Review's title in 1981. The BP Statistical Review of the World Oil Industry became the BP Statistical Review of World Energy. Yet, as if to confirm the shift of emphasis, the very last oil review in 1980 did something that still resonates today. It produced a beautiful chart entitled 'Total Discovered Oil'. This took cumulative production since 1859 to 1980 in thousand million tonnes and matched it with reserves. The lesson was graphic. The US and Western Europe had used far more than their reserves could possibly supply in the future. Yet the real astonishment was that if the US had used up some 20 million tonnes since 1859, the Middle East had added up to 50 million tonnes since 1971. Oil reserves were not running out globally, just shifting geographically. Ironically, for all the talk of scarcity, this is still true today.

Nevertheless fuel diversification was on the cards in the West and it started with natural gas. Undaunted by the large numbers it produced, the billion cubic foot was introduced to match the million tonnes of oil equivalent. And if oil was going to have a map of world trade, so was gas, even if the import-export numbers by today's standards were rather small. Collecting the

numbers was not so difficult; indeed BP Gas had been collecting its own in another publication, which was subsequently merged with the Review in 1996.

Coal was another matter. At the back of the book for some years there had been a chart of calorific values. This pointed out that to get to a million tonnes of oil equivalent it was necessary to multiply a million tonnes of coal by 0.67, a million tonnes of lignite by 0.33 and a million tonnes of peat by 0.20. In short, in terms of heating, 'coal' was very difficult to define.

Leaving aside the fact that coal statistics were in roughly the same state as crude oil statistics in the 1940s, there was another problem. Coal divides itself into metallurgical for steel production and steam coal for power production. Making the distinction was far from easy and some government numbers looked rather dubious. Annual production figures seem to fluctuate in a way that the compilers found terrifying, each bearing little relation to the previous year. To make sense of it meant endlessly adjusting previous numbers in the series, a problem that remains to this day. But the authors drew the line at low-grade lignite and peat, thereby removing much of East Germany's and Ireland's primary energy supply.

The editor explains the numbers

Up until this point, the Review had been a pretty low-key affair. It did not have any kind of introduction or analysis, just the numbers, the graphs and some useful definitions and conversion factors. Sure enough, it had a telephone number for Tony Scanlan, but that was about all. This started to change in June 1984, when the anonymous editor wrote a foreword to explain to 'regular readers' about changes in the design. Peter Brigg, the unnamed editor, was finally allowed to actually say something in the following year.

Instead of remarks about pagination, the 1985 Review began with the arresting words: "In 1984, the world consumed more energy than in any previous year in its history." They gave him just 500 words. Analysis of the data had arrived and its first sentence was true for every year between 1982 and 2008.

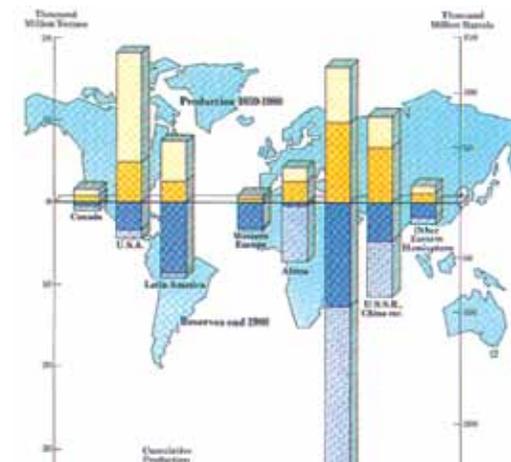
The expansion in demand for energy as a whole did not mean that the oil price could not fall. Although oil priced at \$29 per barrel was flying high in 1987 and OPEC seemed in control, the data in the Review suggested a fall could occur and it duly crashed to a low of \$12 per barrel. It came as a big surprise to most policy

makers. The BP Statistical Review of World Energy suddenly became required reading in political circles. As former BP director John Buchanan puts it: "Having a quantitative base to stand on makes for a very powerful weapon for analysis."

This was in tune with the times and the Review was thus in demand. While BP's education team had previously created a simple version for schools on computer diskette, the first comprehensive version on disk for governments, academia and the rest of the oil industry came out in 1987 – one of the very first experiments in this kind of data distribution. By 1991, virtually all of the existing data was available on disk in both Lotus and Excel formats for a fee of £120. If this sounds simple, it wasn't. The data in this new format went all the way back to 1965, a formidable task given that it required finding and filling in the numbers for an ever wider selection of countries.

Amount of oil used and reserves

Reproduced from the 1980 Review



Having reliable data is essential for energy planners, and the Statistical Review is well established as a highly respected energy data source in the industry.

Khalid al Faleh
CEO, Saudi Aramco

I believe the Statistical Review is one of the most useful sources of information and analysis about the global energy industry.

Rajendra K Pachauri
Chairman, Intergovernmental Panel on Climate Change

Sustaining objectivity

In the mid-1990s, energy was not only in the news for its impact on the economy, but also because of climate change. With the Kyoto conference coming up, some of the oil companies started to join in an exercise of much needed public education. The Review played its own part in this process. In the 1996 edition, BP chief executive John Browne wrote a foreword pointing out that the Review had become an industry 'bible', which was, by this time, perfectly true. The printed version proudly pointed out that the Review could now be downloaded from the internet and that journalists were more than free to use the numbers with attribution.

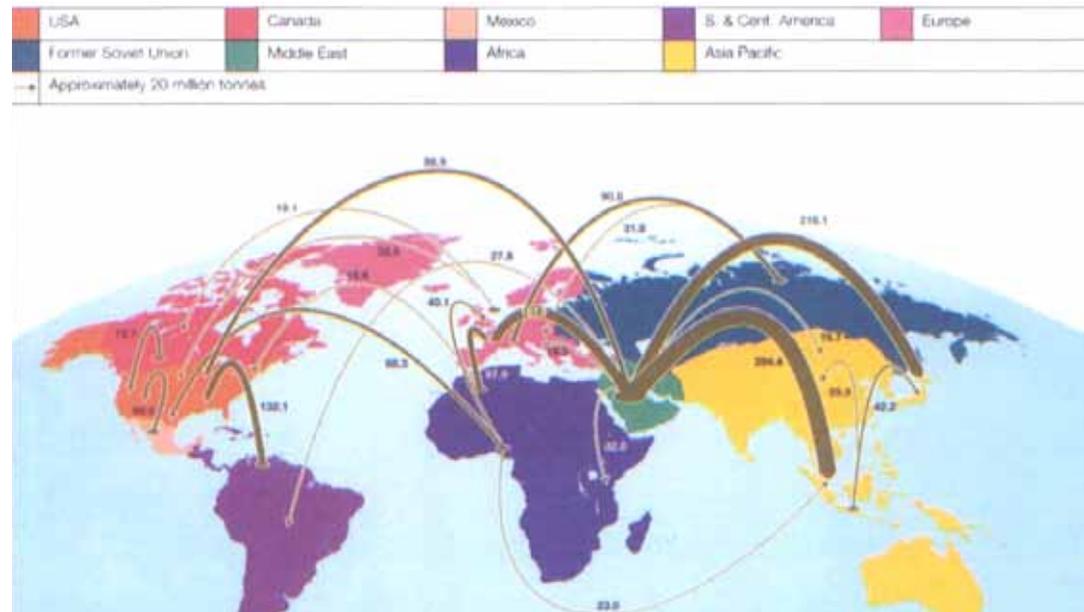
By 1998, there was more information available on the internet than in the printed version. By this time a kind of reciprocal arrangement between BP and governments had come into being. Governments responded to an annual questionnaire because they recognized the value of the publication. Local BP offices were told to request the data from the relevant ministries. In this respect things were different from the early years, when most of the numbers came from oil companies on the basis, as Scanlan recalls, of "I'll show you mine, if you show me yours!"

The central point here was that while BP collected the data, whether on reserves, production or consumption, it was not in the business of changing it. The economics team had enough experience to notice if a number suddenly increased exponentially from the previous year and could query it at source, but if a government somewhere insisted that it really was the case, then in went the data. Coal continued its nuisance role in this regard.

As Peter Davies, by now BP chief economist, recalls, the whole production process was a kind of highly influential 'pro bono' exercise for the world's policy makers and energy producers: "My job was to tell the story." To emphasize the objectivity of the Review, it was firmly his responsibility and came from his office and not from public affairs or the press office. As the 20th century faded away and the 21st began, Davies gradually started on a series of journeys that would take him all over the world. The analysis of the data was now an increasingly large part of the work of his office and demand for it was growing fast, as would be his air miles.

Oil movements map

Reproduced from the 1998 Review



Pro bono

The Review had always made a point of thanking those who had provided the data. Now those who provided that data wanted to know what it meant. While the Review had been launched with a road show since the early 1990s, this now went into overdrive. In 1998, it first launched in New York as well as London, but the chief economist and his staff were soon airborne at the invitation of governments from Abu Dhabi to Russia and the Far East.

The internet and its programmes enabled the numbers to be analysed in many different ways. If the gathering of the data was a kind of 'pro bono' exercise, it did provide a potential mountain of presentation slides for BP conference speakers around the world. "Want to provide a comparison between Chinese and US primary energy growth to make a point?" "Here it is!" It could reduce the complexity of varying demand for oil products into a series of simple graphs or columns. In that sense the Review moulded the arguments and clarified the discussion of BP's own policies as much as anyone's.

The Review and its internet sections provided a useful way for BP executives to explain the energy world to a global audience, but they were also open to anyone

with a laptop connection. Economics professors, journalists, government ministers and executives from other companies could use it for free. There was nothing exclusive about it.

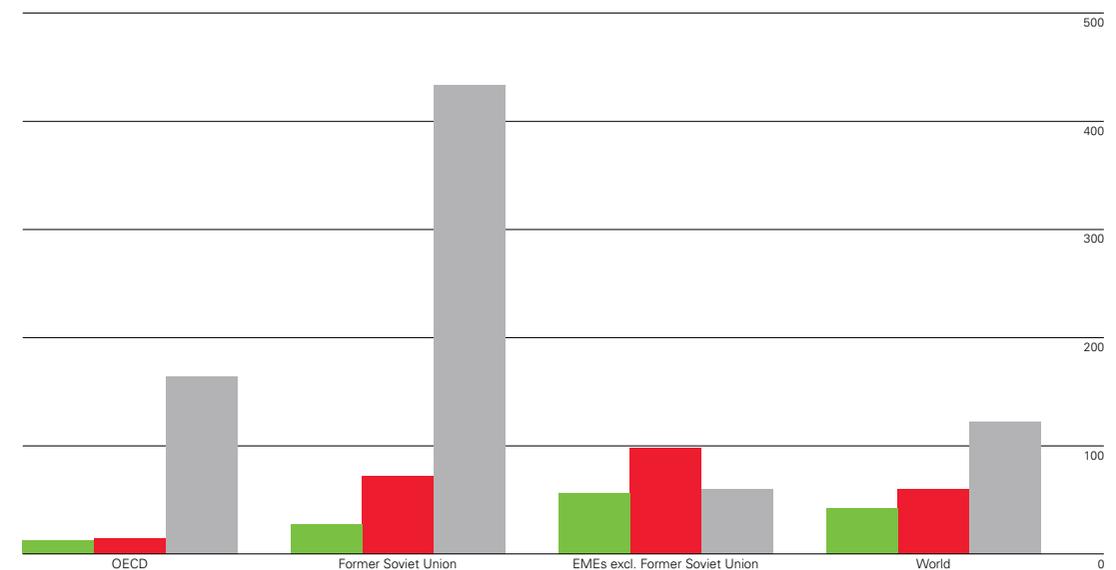
Furthermore, there was now so much data, which far outstripped the printed version, that it created an opportunity for much wider discussions. In 2002, the company held a major press conference to reveal the numbers. This gave the press access to the interpretive views of both the chief executive and the chief economist. Yet the presentations as well as the Review remained strictly the responsibility of BP's economists. They still let the numbers do the talking, whatever the outcome.

BP's Statistical Review plays an important role in separating fact from fiction in the energy debate.

Fatih Birol
Chief Economist, International Energy Agency

Fossil fuel reserves-to-production

Reproduced from the 2009 Review



Coal remains the world's most abundant fuel, with a global R/P ratio of more than 120 years. Among fossil fuels, coal reserves remain the most closely co-located with key consuming centres in Asia Pacific and North America. Oil's global R/P ratio has tended to rise over time, and has remained above 40 years since 1998.

Into the future

In 2007, Christof Rühl replaced Peter Davies as chief economist and, if anything, expanded the process of analysing the data and explaining it in speeches. One such was a 33-page document, which introduced analysis of carbon emissions, the EU emission-trading scheme, the growth of ethanol production and a picture of inter-fuel substitution in the US. The following year, another presentation drew on the impact of synchronized commodity cycles, the relationship between GDP and energy consumption, the financial investment in energy and even the impact of renewable energy on German electricity production.

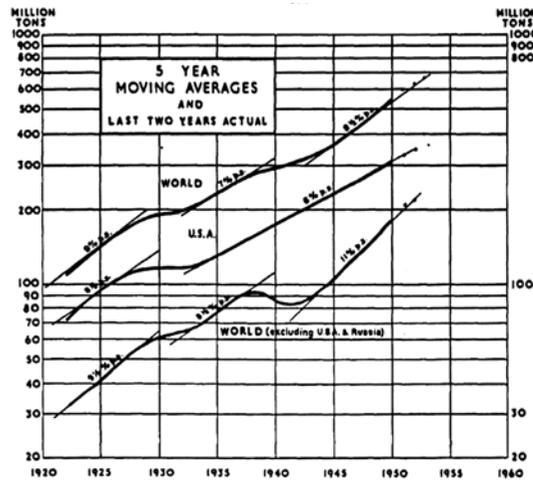
Three years later, maybe the ghost of the statistician Dusty Miller was tapping his slide rule on a window of BP's St James's Square office. He had, after all, started to calculate the trend lines of oil production way back in 1953. According to his graphs, the 8.5% rising line pointed to a demand for more than one billion tonnes by 1959 and he was short by just 15 million tonnes. Either way, it was thought that if the database could tell us where we were now, it might also help us to project into the future. In January 2011, new BP chief executive, Bob Dudley, wrote a foreword to a new project called *BP Energy Outlook 2030*. As he pointed out, it reflected "a 'to the best of our knowledge' assessment of the world's likely path from today's vantage point".

Jamie Jamieson would have been interested. After all, way back in 1952, he calculated that out of a grand total of 629 million long tons (12.6Mb/d) of global consumption, 458 million (9.5Mb/d), or 73%, was used in what became the OECD. Beyond those regions, data was harder to come by, although Jamieson reckoned that the demand for oil in Africa was around 385,700 barrels per day (by 2010, it had grown to 3.291Mb/d). Today, OECD demand is believed to have peaked, while all the growth now comes from those parts of the world where Jamieson could find little data.

Collecting and correcting that data was and remains a huge task. Jamieson himself revised his own 1951 production figures downward in 1952 and, as the Review got bigger, so did the task. By 1992, the sheer volume of information was so large that outside help

Miller's oil consumption graph

Reproduced from the 1952 Review



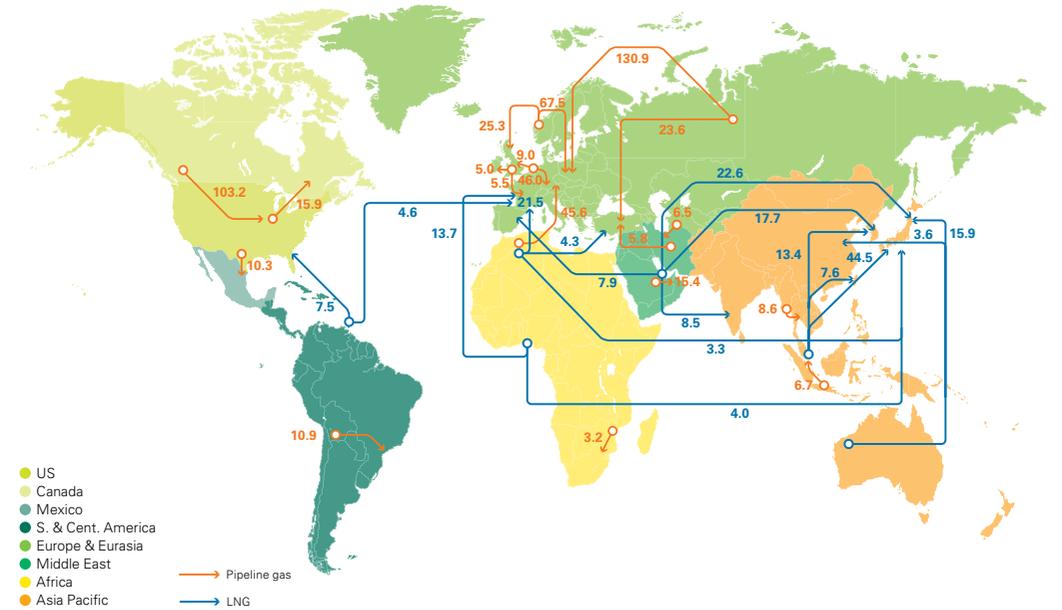
was needed. Alan and Judy Clarke started to help in the compilation. Had they known it, they might have thought twice about the deal: the USSR had broken up and Yugoslavia disintegrated in the previous year, so 15 more countries were added to the list. They started with 700 'time series' and ended up with 1,100.

Furthermore, digging for the data required knowledge of some pretty obscure phrases in a multitude of languages, not to mention Arabic numerals. Refinery throughput is not an obvious term in Thai. Equally, some government bureaucracies are not as efficient as they like to think. One country once added the date of the year to the numbers for its oil consumption so that its demand appeared to go through the roof. In addition, some countries persisted, and still persist, in translating their numbers into the thermal equivalent of fuel oil. Others number natural gas in kilowatt hours.

In 2007, after 14 years of the task, of which they are justifiable proud, the Clarkes handed over to Mark Schaffer, professor of economics at Heriot-Watt University in Edinburgh. Heriot-Watt was a good choice, partly because of its close relationship with the oil industry. But Schaffer could add computer fire power, not least a visualization tool specifically designed to analyse complex statistics. Schaffer is, in his own words, "good at ferreting about in spreadsheets", a talent increasingly needed to spot anomalies in the numbers. Yet even with 10 graduate students involved

World gas trade

Reproduced from the 2009 Review



in the process, they still hit some of the problems familiar to the Clarkes: the team has to face some 95 different units, with a few out there still using Jamieson's imperial tonne, while Japan loves the kilolitre. The words 'net' and 'gross' need interpretation in many places.

His staff has become more specialized over the years but, as Schaffer puts it, "it is not just about collecting the data, it is managing it as well". There are now many duplicate sources for comparison and the database now contains even more raw data than can possibly be put on the internet. There are some 290,000 entries at last count and this does not include the Review's unique collection of trading figures down the years. And each year, of course, it grows still bigger.

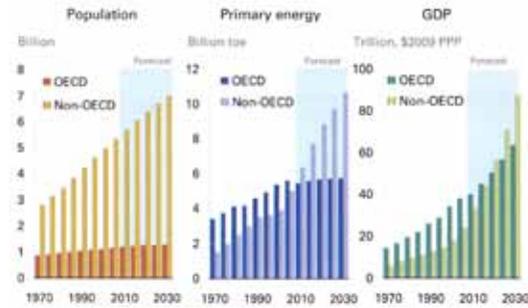
If you work on anything related to the economics of energy, keep this on your desk. It is the authoritative source, and it has all the numbers.

Olivier Blanchard
Chief Economist, International Monetary Fund

Then and now

Projections to 2030

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It is hardly surprising that Bethan Thomas at the BP Archive at Warwick University gets regular demands for copies of the early Review. What began as a simple seven pages about crude oil and oil products has become a compendium of statistics about natural gas, nuclear energy, hydropower, coal, biofuels and, more recently, solar power and wind. As such, it has become an analytical tool of vast importance to current debates about energy scarcity and the environment.

Yet energy supply and demand is never static. The world economy has evolved in ways quite beyond the perceptions of those in the old Britannic House who started looking at numbers as a way to understand the implications of lost Iranian crude. The average very large crude carrier can now ship around 20 of the cargoes carried in tankers in their day.

Back in 1952, Jamieson and Miller would have cooked their suppers on 'town gas' manufactured by the local municipal utility. Natural gas was not seen as an international business at all and staggering amounts were being flared in Saudi Arabia. Even by 1981, when the Review first produced its gas trade map of the world, the amount flowing across borders was a mere 116 million tonnes of oil equivalent (mtoe). In 2010 it was 803 mtoe, adjusted for trade within the former Soviet Union to be comparable. The early statisticians might also have been surprised to find that coal now supplies 29.6% of global primary energy, the highest proportion since 1970.

Although the Review remains objective and independent, both its contents and the analysis that goes with it, naturally grew with the preoccupations of

BP itself. The previous fascination with tankers and the Middle East show this but, as the company grew truly global through mergers with Amoco and Arco, the data collection has grown with it. Places about which we formerly knew nothing have been added. Azerbaijan is an example, for despite its illustrious oil history, little was known about it in the West.

Yet if the Review reflects the preoccupations of oil companies down six decades, it also charts issues that have little to do with those companies except in the widest sense. That China has expanded its hydropower capacity threefold since 1999 comes to mind, as does the stuttering growth of nuclear power. Also, as the Review makes plain, our primary energy consumption has almost doubled since 1980. In that sense alone the Review is truly 'for the public good'. For this energy writer, who was just one day short of a year old when it first appeared, it has been quite invaluable. Long may it continue.

Chris Cragg

Chris Cragg is a correspondent for *European Energy Review* and a regular contributor to Platts. He edited *FT Energy Economist* for 14 years and was BP editor-in-chief shortly after the merger with Amoco.

The clear and concise maps, charts and tables provide an excellent guide through a complex subject.

The Economist

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