

Living with Less Oil and Gas

How Ireland can face up to the reality of fossil fuel depletion
by Colin Campbell

Ireland's Evolution

The island of Ireland covers 84,000 square kilometres on the western limit of Europe. It has been settled since Neolithic times, later to be subject to Viking and Norman invasions. The population grew gradually, passing from 2 million in 1740 to reach as much as 8 million over the ensuing century, with the potato being the staple diet. It was then decimated in the Great Famine of 1845-51, when the potato was affected by a pathogen imported from the Americas. More than 1 million people died, and as many were forced to emigrate. The combined population of Northern Ireland and the Republic did not exceed 5 million again until the 1980's.

After Ireland gained independence from Britain, economic conditions remained difficult until around 1990, when the Republic enjoyed a remark-

able chapter of prosperity, known as the Celtic Tiger. Foreign companies moved in to avail themselves of low corporate taxes and a well-educated English-speaking work force. A profitable international financial centre was also developed in Dublin. As a result, the traditional rural and agricultural life of the country was transformed. The roads became choked with traffic, and suburbs were built around once charming villages. Dublin became a thriving metropolis and immigration took the place of emigration.

This remarkable transformation poses the question of whether it has set a pattern for the future or whether it is to be seen as an anomalous chapter before people revert to sustainable life styles. To try to answer this question it is necessary to evaluate the status of the world in a wider sense.

A Global Perspective

The Stone Age had ended over a thousand years before the birth of Christ as people turned to bronze and iron for better tools and weapons. This opened

the age of technology, which required external energy. Firewood had long been used as a fuel, but eventually began to be replaced by coal, and this ushered in the Industrial Revolution. Pits and mines were dug when the outcropping seams were exhausted, but they were subject to flooding.

That led to a remarkable technological progression: the bucket became the hand pump, which led to the invention of the steam pump, which in turn led to the development of the steam engine. The steam engine was used both to power mills, previously driven by waterwheels, while the emergence of rail travel expanded trade. Sail gave way to steam, and ocean travel entered a new era.

Eventually, the steam engine evolved into the internal combustion engine, with the fuel being injected directly into the cylinder, making it much more efficient. At first, it relied on benzene distilled from coal before turning to petroleum refined from crude oil. The first car took to the road in 1880, and the first tractor ploughed its furrow in



1907, changing the world in unimaginable ways.

The Industrial Revolution, fuelled by these new energy sources, led to the rapid growth of industry, transport, trade and agriculture allowing the world's population to rise ten-fold in parallel. Economic expansion was driven by the rapid growth of financial capital. In earlier days, trade was substantially a matter of barter, but then gold and silver, having a scarcity value, became a medium of exchange.

Later, receipts for deposits of gold and silver became a form of currency assuming the value of the underlying assets, and the phenomena of debt and usury made an appearance. Banks found that they could lend more than they had on deposit, confident that tomorrow's economic expansion was collateral for today's debt. They failed to recognise that it was the underlying energy supply that made the expansion possible.

Energy Supply and Demand

This leads into issue of the world's energy supply, and particularly its oil and gas supply as being the most critical

sources. The first oil wells were drilled in Pennsylvania and on the shores of the Caspian in the 1850s. Since then the world has been thoroughly explored from end to end with ever-more sophisticated technology and geological knowledge. Not surprisingly, the most promising provinces and the larger fields within them were found first. World production has grown steadily to reach some 80 million barrels a day.

Many people assume that this flow can continue indefinitely, forgetting that oil and gas are finite resources subject to depletion. The water well is replenished by the rains that fall, but the oil well eventually runs dry.

It is time therefore to ask how much is left. It sounds a simple question, but actually isn't. Most oil produced to date is what is called 'Regular Conventional'. While there are also other categories, including heavy oils and tar sands, deepwater and polar oils, and liquids from gas, meaningful production of these oils is both economically and practically unfeasible. Regular Conventional, therefore, is what will dominate all supply in the future. The task of determining current oil levels is complicated by the unreliable and misunderstood nature of publicly available data.

The international oil companies traditionally under-reported discovery to provide a comforting image of steady growth by progressive upward revision. In the 1980s, the Organisation of Petroleum Exporting Countries (OPEC) exaggerated their reserves when they found themselves competing for production quota based on what they reported. It is noteworthy in this connection that the Kuwait oil minister has recently confessed to proven reserves of 24 Gb (billion barrels) – a steep shortfall compared with the official number of 101.5 Gb, as reported in the BP Statistical Review.

Using the skills of a detective to unravel all this, we find that the peak of oil discovery was in the 1960s and that the world started using more than was found in new fields in 1981. The gap has since widened. We now use more than three barrels for every one we find. Since oil has to be found before it can be produced, the peak of discovery 40 years ago must deliver an imminent corresponding peak of production.

Much debate surrounds the precise date of peak, but rather misses the

point. It matters little if the actual peak was last year or will be in five years' time. What matters – and matters greatly – is the vision of the long downward production slope that comes into sight on the other side of it.

Official institutions have obfuscated this reality and its grave financial implications. It is evident that the economic expansion that marked the first half of the Oil Age, which was largely

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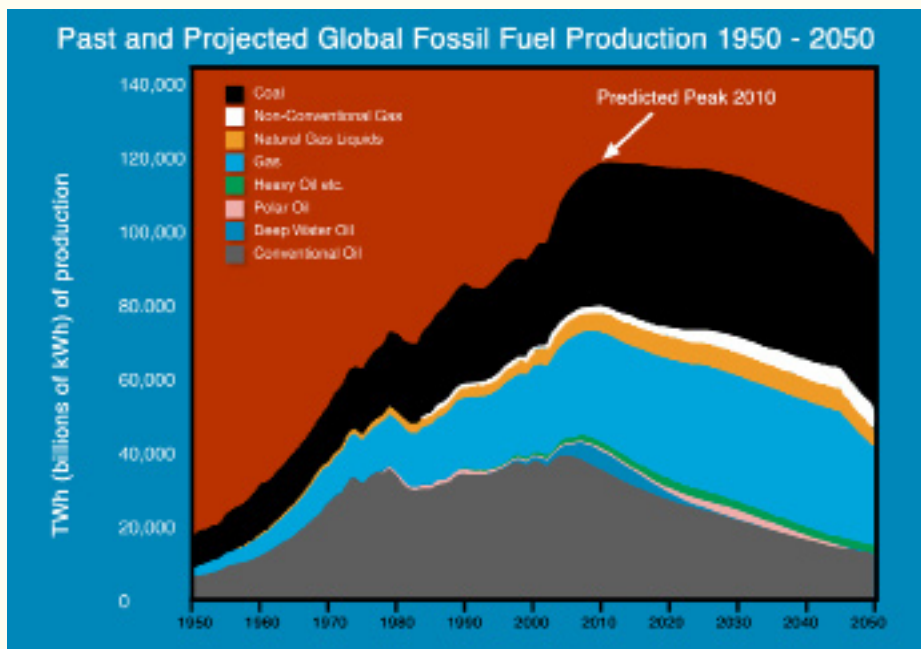


driven by cheap oil-based energy, has to be matched by the contraction of the second half. The economic system, and especially world debt, is simply not prepared for such a fundamental transition. It may herald a stock market crash, or even a second Great Depression, possibly triggered by rampant inflation.

But now, at last, there is a new awakening prompted by soaring oil prices and the breaching of capacity limits. The International Energy Agency, which advises the OECD countries, and which had access to accurate industry data, was already fully aware of Peak Oil in the 1990s. However, the agency has only now started to speak directly on the subject, warning the world of dire consequences if demand is not cut. The European Union has published an explicit statement accepting an imminent peak of oil production on its website, while the National Petroleum Council in Washington has recently issued a major report acknowledging Peak Oil and urging new policies to cut demand.

Implications for Ireland

So what does all this mean for Ireland? In one sense, the country is blessed: it is an island with green fields



While global oil production may already have peaked, world production of all fossil fuels combined may peak as soon as 2010. Source: Zero Carbon Britain, p28 CAT see www.zerocarbonbritain.com

and a modest population. However, it is facing an exceptional period of adjustment, as its recent brief chapter of extreme prosperity comes to an end.

Strategies for dealing with the unfolding situation must be developed and implemented. First, the public needs to be thoroughly informed of the reality of energy supply by applying the full resources of the media to this task and using the skills of the advertising industry to change mindsets and behaviour.

Second, energy efficiency must be improved. This should not be too difficult, given the monumental level of current waste. For example, removing corporate energy costs as a charge against taxable income, which in effect is a form of subsidy, would concentrate the mind wonderfully. Electricity supply is most at risk, with 60 percent being generated from natural gas obtained from ever more distant sources.

Ireland is very much at the end of the line with a growing number of increasingly hungry transit countries in between. Energy audits and graduated tariffs should be implemented to penalise excessive consumption.

Third, the full spectrum of alternative energy needs to be tapped. In the meantime, the search for oil and gas on Ireland's own continental shelf should continue. However, given that the 150 exploration boreholes drilled over the past 40 years on the biggest and best prospects have failed to yield more than a few minor deposits, a positive outcome should not be assumed.

The appointment of a new Minister of Energy, who is well informed on the reality of the position, is a positive and encouraging step, suggesting that the Government is planning to move in the right direction.

Facing the longer-term calls for a return to more sustainable living by communities living equitably within their own environments. Local markets can provide local produce, and local skills can be captured. At the end of the day, it is largely a matter of mindset. Happiness and fulfilment are largely set by what is attainable within the norms of daily life. In one epoch, a large car or a Mediterranean holiday could make a person feel happy and fulfilled; in another, the joy of reaping a successful harvest in the vegetable garden to the song of the lark in the hedgerow may mean as much or more.



Colin Campbell is a former petroleum geologist and executive who became aware of the nature of depletion in his professional career, and subsequently founded ASPO to address the issue. He is author of six books on the subject, as well as many scientific and other publications.