

Peak Oil Drives Urgent Energy Alternatives

BY IAN DUNLOP

With the world's oil supply nearing its peak we must prepare for a future fuelled by alternative supplies of energy.

In the furore over increasing oil prices, the two words our leaders seem determined not to mention are “Peak Oil”. Having built our prosperity on cheap energy from fossil fuels, particularly oil, it is perhaps understandable that they cannot bring themselves to admit that business-as-usual is over as cheap energy disappears – first due to the need to address global warming, and second due to the peaking of global oil supply, which will probably have an even greater impact than global warming in the short term.

Peak Oil takes its name from the bell-shaped curve that typifies the production profile of any oilfield. Once an oilfield is discovered, oil wells are drilled and production rises until drilling saturation is reached, whereupon production levels off at the peak. It then drops along the declining segment of the bell shape until

the reservoir is exhausted. This profile applies to an individual oilfield, to all oilfields in a region and now to the globe, although it may become distorted along the way by geopolitics, for example.

Oil does not run out at the peak, as roughly half of the ultimately available oil remains to be produced. However, it is the point at which further expansion of global oil production becomes impossible because production from new oilfields is more than offset by the decline of production from existing fields.

It may be a sharp peak if, for example, some of the giant fields start to decline rapidly, or it may be an undulating plateau spread over a number of years if, for example, oil demand is destroyed as a result of recession or if developing countries are no longer able to afford high oil prices. Once demand begins to exceed

supply, oil prices rise – as they have been doing over the last few years. The bigger the gap, the higher the price.

The “official view”, until recently, from organisations like the International Energy Agency (IEA) – the energy watchdog of the developed world – was that we had abundant oil resources available from both conventional and unconventional sources, and these would meet rapidly expanding global demand as China and subsequently India became large consumers. The economists took comfort as the oil price rose on the grounds that higher prices would stimulate additional production so that supply eventually balanced demand and forced the price down. As an eminent Australian economist colourfully put it: “If the price of eggs is high enough, even the roosters will start laying!”



PEAK APPROACHING

Maybe so, but it's one thing to have oil resources in the ground and it's quite another to convert those resources into oil flows to the market. It now seems there are unexpected problems in so doing, to the extent that we are probably approaching the peak of global supply. We may have already passed the peak, or it may be some years ahead, but the exact date is less important than accepting the principle and taking action to prepare for it.

The "official view" is now scrambling to catch up with reality. As the Chief Economist of the IEA recently commented: "Putting these two things together, the short- and medium-term security of our oil markets, plus the climate change consequences of this energy use, my message is that if we don't do anything very quickly, and in a bold manner, the wheels may fall off. Our energy system's wheels may fall off." In urging OECD governments to rapidly change policy from "business-as-usual" he commented: "We must leave oil before it leaves us".

The reasons that supply is not expanding are:

- we are not discovering new oilfields quickly enough;
- data on existing fields is suspect, particularly in the Middle East, so we may not have as much oil as we thought;
- production from many existing oilfields is declining as part of the natural process, often more quickly than admitted officially;
- unconventional oil resources, such as deep water and tar sands, are proving more difficult to develop, technically

and economically, even with higher prices. They also have major environmental problems, such as high carbon emissions and high demand for water and energy, to the point where in some cases almost as much energy is needed to produce the oil as is ultimately recovered; and

- oil-producing countries are using more oil domestically and are less prepared to export it.

PRICE HIKES AND SHORTAGES

Given the absolute dependence of modern societies on oil and gas, price hikes and supply shortages will be traumatic, as is already evidenced by current unrest in Europe and protests in the Middle East and Asia as oil subsidies are withdrawn. Australia is particularly vulnerable, but the issue was ignored by the previous Federal government and is barely acknowledged by the new government. Peak Oil is arguably the biggest issue Australia will have to contend with in the next decade. Strange it did not even rate a mention at the 2020 Summit.

Oil prices may well drop temporarily if we move into recession, or if increased oil discoveries do result from the exploration triggered by current high prices, but the general price trend is probably upwards and it is misleading to pretend otherwise. We should be preparing for that eventuality now, not playing King Canute in futile attempts to turn back the global tide with 5¢ fuel excise or GST reductions.

We actually need higher oil prices to wean us off the use of oil and to encourage

alternatives. This may seem hard, but the problem will become far worse unless we face up to this reality quickly. There is certainly a case for assisting those most exposed to ease the transition to a world of expensive energy, but it should be via specific targeted measures, not with across-the-board attempts to drop petrol prices that are miniscule in relation to the size of the problem.

Passing the peak raises the question of who will get the available oil. Several solutions have been proposed.

The first of these involves letting the market take its course – the preferred route of most economists. However, this conveniently skirts around the traumatic societal impact of recession or depression arising from high energy prices, and the potential for the creation of failed states as developing countries, and possibly even some developed countries, are increasingly forced out of the market.

The second solution is the "Washington Consensus" of sending in the Marines to secure supply. Recent experience in Iraq suggests that this is hardly a sustainable alternative.

Third is a global mechanism for equitable sharing of available oil, such as an Oil Depletion Protocol akin to the Kyoto Protocol for carbon emissions. Indeed, the IEA was created in 1973 for exactly this purpose – to assist the OECD countries in allocating oil during the first oil shock. This time the problem is far greater, but we have handled similar situations in the past and we will probably have to resort to allocation mechanisms

again, despite the protests of the market economists.

GLOBAL WARMING

But if Peak Oil was not enough, there is another problem: global warming and the need to radically reduce our carbon emissions from fossil fuel use – probably to completely decarbonise the economy by 2050. This will itself raise fossil fuel prices as carbon becomes properly priced, via mechanisms such as emissions trading, to reflect its environmental cost.

There are solutions to these converging issues, but they take time to implement, and we should have been planning for this years ago. We did not do so and we are now facing the consequences.

Some obvious responses, such as increasing coal consumption or converting coal to liquids, are carbon emission-intensive and, in the absence of carbon capture and storage (which is still unproven for large-scale application), would be extremely detrimental to solving global warming. The two issues are inextricably linked and need to be treated with consistent and holistic policy. So what would that policy look like?

First, we need an honest, public acknowledgment by the government and business leaders of the real challenges we now face.

Second, we need urgent education campaigns to inform the community and gain support for the hard decisions ahead.

Third, we must establish an emergency, nation-building response plan to place the economy on a low-carbon footing, minimising the consumption of oil. Such a task would be akin to a 21st century

version of the 1950s Snowy Hydro Scheme, but much bigger and broader, or the Marshall Plan, which reconstructed Europe after World War II.

The components would begin with:

- a major focus on energy conservation and energy efficiency;
- large-scale conversion to renewable energy;
- major investment in efficient public transport, rail, bus, cycling etc. and an immediate halt to investment in freeway and airport expansion;
- rapid phase-out of high carbon emission facilities such as coal-fired power stations unless safe carbon capture and storage can be introduced within 10 years;
- urgent introduction of high-speed broadband to minimise travel and improve communication efficiency;
- continued investment in low emission technology; and
- rapid reform of the tax system to remove the perverse incentives that encourage oil use and carbon emissions.

LIFESTYLE CHALLENGES

We face major changes to our lifestyle. It is not just high oil prices and global warming but the very question of the sustainability of humanity on the planet as the global population rises from 6.5 billion people today to nine billion in 2050, all aspiring to an improved quality of life. New technology will undoubtedly come to our aid but that will not be enough. Our values must also change. Conventional economic growth in the developed world will have to be set aside in favour of a steady-state economy

where the emphasis is on non-consumption and quality of life rather than the quantity of things.

There will be far more focus on local food production, opening up new opportunities for rural areas. Cities will be redesigned using high-density sustainability principles to avoid urban sprawl, and properly integrated with public transport to minimise energy consumption. Work centres will be decentralised. Rail, powered by renewable energy, will become a major transport mode for both freight and high-speed passenger traffic.

Air travel will reduce unless new technology develops jet fuel from, for example, bio sources, and even then emission constraints may limit its use. The internal combustion engine will disappear in favour of electric vehicles for many applications. Cycling and walking will become major activities for both work and pleasure – obesity and diabetes will decline!

The challenge is enormous, but it is the greatest opportunity we have ever had to place the world on a sustainable footing, for what we are doing currently is not sustainable. We must not waste this opportunity, but it needs far bolder and broader thinking than we are seeing at present.

This raises the question of the ability of our democratic system of government to implement such change. It will require statesmanship of the highest order, a quality sadly lacking in both national and global debate. Different forms of government will be needed, but that is a discussion for another day.

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