



transform scotland briefing

peak oil and transport

The potential implications of an Oil Crunch are far more wide-ranging than the economic crisis experienced after the Credit Crunch. Ninety-eight per cent of transport in the UK is fuelled by oil. In economic terms, it is an unacceptable risk for one of our key industry sectors to be almost totally reliant on one source of energy.

The Grangemouth refinery oil strike in April 2008 and the oil price spike of summer 2008 demonstrated just how exposed Scottish society is to security of oil supplies – and we need only look back to the so-called “fuel crisis” of September 2000 to observe the political upheaval resulting from even a short-term threat to oil supplies.

“Neither the government, nor the public, nor many companies, seem to be aware of the dangers the UK economy faces from imminent peak oil. Big as our current economic problems are, peak oil means a very high probability of worse problems to come. The risks to UK society from peak oil are far greater than those that tend to occupy the government’s risk thinking, including terrorism.”

Industry Task Force on Peak Oil and Energy Security (ITPOES), 2008:5¹

1. Introduction

There is a growing consensus amongst energy industry bodies that the world is approaching Peak Oil, when global oil supply will reach its maximum level. After this point, the depletion of existing reserves will no longer be replaced with new capacity. In 2008, the Industry Task Force on Peak Oil and Energy Security (ITPOES) published its report *The Oil Crunch: Securing the World's Energy Future*. This report warned that a peak in cheap, easily available oil production is likely to be reached by 2013, posing a grave risk to the UK and world economy. Their concerns have more recently been echoed by reports from the UK Energy Research Centre² and the International Energy Agency,³ while international campaign groups like Global Witness have drawn attention to how governments have failed to acknowledge or prepare for an oil crunch.⁴

Indeed, there are few signs that the UK or Scottish governments are facing up to the need to rapidly deliver the shift to a low-carbon transport system. We should be seeing massive investment into measures to reduce dependence on motor vehicles. We need a transformation of conditions for walking and cycling, a step-change in the quality of local public transport services, and the widespread take-up of travel-avoiding 'Smarter Choices' measures such as travel plans and conferencing technologies. But instead we see the continuation of a multi-billion pound road-building programme, the encouragement of airport expansion, and the introduction of new subsidies for road use (the abolition of bridge tolls and hospital parking charges). Yet all of these measures, by encouraging road use, are locking us into oil dependency.

Adapting to the decline in oil supply will inevitably involve major changes in our transport and lifestyles. We don't have to suffer, but it's vital for all of us to be well informed about what we face, and what will be

required to adapt our transport system to the new world of oil decline.

2. Predicting peak oil

In 1956, M. King Hubbert, a scientist working for Shell, predicted that oil production in the USA would peak around 1972.⁵ At the time he was widely ridiculed by the oil and business communities. However, time proved him right: USA oil production peaked in 1970.⁶

Because accurate oil data is difficult to obtain, we are unlikely to know exactly which year the global peak is reached until after the event. The ITPOES report features two opinions on the risks posed by oil depletion, the first from Peak Oil Consulting, the second from Royal Dutch Shell. The former argues that a demand/supply crunch will occur in the period 2011-13 (due to a peak in global oil production and increasing demand) and that the problem will worsen after that date. The latter argues that global production will peak in 2015, but can be sustained on a plateau for a decade after that. ITPOES characterise the former as the "descent scenario" and the latter as the "plateau scenario". ITPOES conclude that the "descent scenario" is more likely, and that there is a significant risk that a third scenario, "collapse", could result (should there be a swifter than expected collapse in production from super-giant oil fields).

What we do know is that UK North Sea oil and gas production peaked in 1999, and by 2006 had fallen by 36%. As noted by the Financial Times,⁷ production is expected to be 10% lower over the next few years than previously thought, with old wells effectively running dry and new wells generally very small by world standards.

The ITPOES report argues that while global oil supplies may currently be sufficient, the long-term growth in demand for energy will mean that at some point, perhaps very soon,

demand will outstrip supply. ITPOES highlight that: the easily-available oil has already been found and exploited; that no new giant fields are being discovered (the peak of discovery of oil giants was in the 1960s); that the remaining oil is often in extreme environments; that there are industry capacity issues (underskilling and underinvestment); and that there is in any case a long lead time to bring new discoveries to production. ITPOES further highlight global political dimensions: falling production from the five major international oil companies means that control over oil is increasingly concentrated in national governments, giving rise to concerns over resource nationalism; that many of the oil producing states suffer civil unrest; and that some of the oil producing states (in particular OPEC governments) may have exaggerated the scale of their remaining reserves.

Any new finds, such as BP's recent discoveries in the Gulf of Mexico, may be welcome, but the IEA estimates that current projections of demand would need new production capacity the equivalent of six Saudi Arabias to be brought onstream by 2030.⁸ No-one is saying that this is likely.

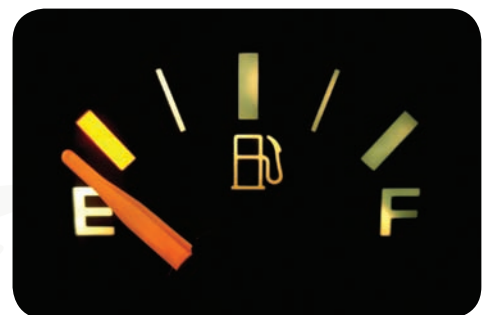
3. Production declining – demand soaring

The real problems will be seen when demand exceeds supply. It appears that this may be happening already, as oil demand is already close to outstripping supply.⁸ Soaring demand in China and India, not least from rapid increases in car ownership and use, will place massive pressure on declining supplies.

Faced with this threatening phenomenon, governments appear to be in denial – presumably because they feel the electorate isn't ready for such an unpalatable message. However, the longer action is put off, the worse the difficulties of adjustment are likely to be.



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Other countries have been more forward thinking in adapting to the end of the oil age. In 2006, the Swedish government's *Commission on Oil Independence* set out how that country could substantially reduce its reliance on oil by 2020. The Commission recommended a 40-50% reduction in oil use for transport.⁹

There is no easy technical fix, as no alternative energy sources can match oil for low cost and availability. The Scottish Government's Climate Change Delivery Plan largely places its trust in technology to solve emissions from the transport sector, with the hope that Low Carbon Vehicles (powered by electricity, hydrogen or biofuels) will replace fossil-fuelled cars. However, there remain concerns with this agenda. These include the speed with which electric vehicles can obtain sufficient market share, the question of whether continuing traffic growth in petrol/diesel-driven vehicles will crowd out the emissions benefits of electric vehicles, and questions over electricity generation capacity.¹⁰ Certainly, switching from one type of car to another will not resolve existing problems caused by motorised transport (such as congestion, inefficient land use patterns, crashes or noise pollution), nor will they do anything to improve levels of public health through greater use of walking and cycling.

4. Transport is heavily oil dependent

The UK transport sector is particularly vulnerable to oil depletion as it is so heavily dependent on oil as its power source: 74% of oil consumption is used for transport, while 98% of the fuel used for transport is oil.¹¹ Of course, some transport modes are much more oil-dependent than others. Air transport is 100% dependent on oil, with no alternative fuel in prospect, and virtually all cars and trucks are powered by oil.

Scottish life is heavily dependent on cars and lorries, which in turn are dependent on cheap and plentiful oil supplies. Out-of-town shopping centres, business parks and low-density suburban housing are difficult to operate without cars. Most of our food and other goods are supplied via road haulage, often from distant warehouses, or by plane from other parts of the world.¹² Railways, if electrified, offer scope for alternative power sources, but at present just 23% of Scotland's rail network is electrified – one of the lowest proportions in Europe – and Edinburgh's electric tram system will not be running until 2012. Buses and trains can be much more efficient users of energy than cars or planes, while walking and cycling are the most sustainable modes of transport, but have been neglected during the decades of car priority.

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5. Recommendations

Peak Oil doesn't have to mean doom and gloom if we plan for change. Less motoring implies that a cut in traffic congestion can be expected. Less traffic will have positive benefits in terms of reduced air pollution and traffic noise. Town centres will be revitalised and development pressure on areas around towns and cities will fall as demand for commuter housing, roads and new airports declines. Much of the action government needs to take to prepare for Peak Oil is the same as it must do to tackle climate change. But there is no silver bullet to tackle the twin crises of oil depletion and climate change, and while a Low Carbon Vehicles strategy will undoubtedly play a key role, we must also do the following:

1. Mount a widespread **public information campaign** so that people understand the issues around oil depletion and the need for action. Only a few years ago, the threats from climate change had very low public consciousness – we now need to do the same for the challenge of Peak Oil.
2. Put in place **contingency planning** for which sectors of the transport sector should have priority in the event of fuel scarcity (e.g. emergency services, food supply, public utilities, and public transport).
3. Make **'localisation'** the centre of our land use planning policies – promote community-supported agriculture; protect local schools, shops and post offices; and prevent the construction of out-of-town shopping centres, business parks and education campuses.
4. **Re-prioritise transport investment.** Scrap proposals for expensive traffic-generating new roads (in particular, proposals for the Aberdeen western bypass and a Second Forth Road Bridge). Instead: invest in the active travel modes to bring us up to continental European levels of walking and cycling; invest in Smarter Choices – a range of small-scale, low-cost interventions (e.g. school and workplace travel plans, car clubs, conferencing technology); and invest in the forms of motorised transport that needs less, or no, oil input – e.g. hybrid buses, trams, electrified railways, and the movement of freight by rail or water.
5. Establish Scotland as a centre of excellence in **sustainable automotive technology for the public transport sector.** Scotland no longer makes cars – *the Hillman Imp is not going to make a comeback!* – but we are home to Britain's largest bus manufacturer in Alexander Dennis, and two of the world's largest public transport operators in FirstGroup and Stagecoach. We want Scotland to build on this home-grown experience and take the lead in developing sustainable automotive technology for all forms of public transport: buses, trams, trains and ferries. We need to see the development and commercialisation of all forms of sustainable transport technologies that have a chance of helping us reduce the transport sector's oil dependence (e.g. hybrid engines, electric vehicles, and hydrogen technology).

6. References

¹ UK Industry Taskforce on Peak Oil & Energy Security (2008) *The Oil Crunch: Securing the UK's Energy Future* – <http://peakoiltaskforce.net/>.

² UK Energy Research Centre (2009) *The Global Oil Depletion Report* – <http://www.ukerc.ac.uk/support/Global%20Oil%20Depletion>.

³ Global Witness (2009) *Heads in the Sand* – http://www.globalwitness.org/media_library_detail.php/853/en/government_failure_to_acknowledge_oil_supply_crunch_risks_conflict_and_threatens_the_climate.

⁴ The Independent (03/08/09) 'Warning: Oil supplies are running out fast' – See <http://www.independent.co.uk/news/science/warning-oil-supplies-are-running-out-fast-176585.html>.

⁵ Kenneth S. Deffeyes (2001) *Hubberts Peak - The Impending World Oil Shortage*.

⁶ See US Government statistics at <http://www.eia.doe.gov/emeu/aer/txt/ptb0502.html>.

⁷ Financial Times (13/02/07), 'Fears for North Sea output grow'.

⁸ Goldman Sachs issued a report predicting an oil "super-spike" – <http://news.bbc.co.uk/2/hi/business/4399537.stm>.

⁹ Swedish Commission on Oil Independence (2006) *Making Sweden an OIL-FREE Society* – <http://www.sweden.gov.se/sb/d/2031/a/67096>.

¹⁰ See, e.g., Oswald, Andrew (2005) *Energy and Travel in the Future* – <http://www.andrewoswald.com/>.

¹¹ Performance and Innovation Unit paper – http://www.cabinetoffice.gov.uk/strategy/downloads/work_areas/energy/oil.pdf.

¹² Richard Heinberg article 'Threats of Peak Oil to the Global Food Supply'.



Conclusion

Peak Oil will mean big changes in where and how we live. Fortunately, Scotland has phenomenal potential for renewable energy and sustainable transport. In our cities there is a continuing tradition of tenement living with walkable communities. Many Scots would benefit from additional exercise provided by regular walking and cycling, and investment in the active travel modes has the potential to provide a major contribution towards meeting physical activity and public health targets. Scotland also has a strong core rail network that could be used to replace long-haul trucking, and much of the Scottish population lives beside the coast so there is potential for low energy transport by water.

We will have to find ways to live with much lower levels of private car use as the cost of motoring increases. The days of trying to cater for ever more growth of car, truck and air transport will soon be over. Instead of the 'just in time' transport so favoured by the freight industry in recent years, we will have to get used to 'just enough' transport for people and goods.

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