



The Sustainable Energy Forum Inc.

December 2006

Peak Oil – A Major Issue for New Zealand

Introduction

Life in New Zealand is heavily reliant on abundant and cheap energy, much of which we get from oil and gas. Yet oil is a finite resource, and one that the world is rapidly using up.

At present, world conventional light crude oil production is barely keeping up with rising demand. At some point, conventional light crude oil production will peak, and then decline - a phenomenon commonly known as “Peak Oil”. Once this readily available source of oil can no longer meet world demand, the world will have entered the post-cheap-oil age, and there is likely to be a sharp and sustained rise in the price of oil. There may also be physical shortages of oil. The Government is already considering contingency plans to cope with temporary shortages, but has not yet considered how to deal with long-term shortages.

The peak in the production of conventional oil is likely to encourage the use of smaller, more remote, harder to extract, heavier and dirtier fossil fuel resources, such as tar sands, oil shales, deepwater and polar oil, and oil produced by liquefying coal. However, there will come a point at which the amount of energy that can be produced from these resources is less than the amount needed to extract them, and the greenhouse gas emissions from many of them are far worse than the already severe emissions from conventional oil.

There are potential alternatives to fossil fuels for transport, some of which (e.g. biofuels) are already used on a small scale. There are a variety of difficulties with exploiting these resources on a larger scale, and these are discussed in the SEF paper “New Zealand’s Response to Peak Oil: Land Transport”.¹ The critical point is that these alternatives are far from ready to replace the world's massive dependence on conventional oil. Expansion of biofuel production on the scale required, even if it were feasible, would severely intensify the pressure on scarce resources of land and water.

Because the implications of Peak Oil are so serious for New Zealand, SEF recommends that the Government, and individuals, start planning for Peak Oil now.

Why Peak Oil Should Be an Urgent Priority

Until recently, most official estimates were that Peak Oil would not occur for some decades. In recent years, a number of reputable bodies have predicted that Peak Oil may occur much earlier than previously expected. The International Energy Agency² predicts that Peak Oil will occur some time between 2013 and 2037. The Association

¹ Available at http://www.sef.org.nz/papers/peak_oil_land_transport.pdf

² IEA web site: <http://www.iea.org>

for the Study of Peak Oil (ASPO)³, comprising experienced petroleum geologists, has recently predicted that the peak will occur in 2010. The more that world oil demand increases, the nearer the peak is likely to be.

It is difficult if not impossible to identify the date of the peak in advance. Oil prices rise and fall in response to a number of factors, including geopolitical factors, seasonal fluctuations in demand, economic growth levels, decisions by oil producers on production levels, and market psychology. An oil price rise does not prove that the peak is imminent; a fall in the oil price does not prove that it isn't. And "peak" production may turn out to be a bumpy plateau rather than a sharp point. We may only know the date of the peak after it has occurred.

But whatever the date, action is needed now. If the peak is imminent, then we need urgent action to mitigate the worst of its effects. If the peak is still a decade or more away, then there is much that can be done to prepare for it, provided we do not wait too long. It is reasonable and prudent to include in our national contingency planning a range of future oil supply possibilities, including a scenario where the production of oil follows the pattern established throughout the history of oil exploration and development on the national scale (e.g. in the USA): that is, it peaks and then declines.

The plan adopted would need to encompass a difficult transitional process, marked by increased price turbulence and periodic shortages of supply in a small and remote market such as New Zealand.

Implications for New Zealand

In 2004, oil made up 48% of our national energy consumption. Whenever the oil production peak occurs, the effect on an unprepared economy and society will be severe. The most obvious sector that will be affected is transport, but almost every aspect of our economy and society has developed on the back of cheap oil and cheap plastic:

- Tourism to and from New Zealand is dependent upon cheap aviation fuel.
- International trade depends upon cheap aviation and shipping.
- Manufacturing and electricity generation depend upon imported components.
- Crucially, much of our current agricultural production depends on machinery, pesticides, and the application of fertiliser, all of which are dependent on oil - as is the distribution of the food our farms produce.
- Our banking and financial systems depends on the stability of all these sectors.
- Our cities, towns, and transport systems have all been designed around cheap oil and private transport, none more so than Auckland. Many things which we currently take for granted, such as driving to the supermarket to buy food, or driving the children to and from school, will become much more problematic in the post-cheap-oil age.

What the Government is Doing

During the last few years, lobbying and letter-writing from concerned groups and citizens has made politicians and officials aware of Peak Oil. At her post-Cabinet

³ ASPO web site: <http://www.peakoil.net>.

press conference on 18 April 2006, Prime Minister Helen Clark observed that the world was at or near Peak Oil production.⁴ And, primarily under the guise of combating climate change, the Government is taking some small steps to attempt to reduce our dependence on fossil fuels – such as the establishment of a modest target for biofuel sales. Some political parties, such as the Green Party and the Maori Party, have been campaigning for more serious and far-reaching action to be taken.

But, as the section on Peak Oil in the draft *New Zealand Energy Strategy* shows, there’s still a complacent belief in Government and financial circles that the market will take care of Peak Oil. Their expectation is that, as oil prices rise, alternatives to oil will become economically viable, and our economy and society will be able to make a seamless transition. Of course, there’s some truth in this view – as shown by the recent rise in demand for public transport and smaller cars. But such a viewpoint ignores two key factors;

- a) the central role of oil in our society, the fact that no currently available alternative can rival the energy density of oil, and the inability of market signals to provide a consistent and accurate picture of the future of oil, and
- b) The very high proportion of investment in equipment (e.g. heating in large buildings, vehicles, industrial plant, etc.) that will continue to need oil for two decades and beyond.

That’s why SEF recommends that Government adopt the following agenda to help New Zealand meet the challenge of Peak Oil.⁵

Policy and planning agenda

1. Establish a high-level task force, to work in conjunction with civil society groups, business interests and other stakeholders, to assess the effects of the coming peak in world oil production. Its terms of reference should ensure it reviews all aspects of New Zealand economic and social life, including but not limited to transport, agriculture, international and domestic trade, the financial system, tourism, foreign policy, and the environment. It should be mandated to make institutional and policy change recommendations for Government and community implementation. It should build on the work that is already being done at regional and local level, e.g. in Otago. It should consider the infrastructure changes that are needed to make New Zealand more resilient in the face of the need to reduce dependence on oil and other fossil fuels.
2. Direct Treasury to review its methods for forecasting oil prices in the short and medium term, submit these methods to public scrutiny, and model a range of oil price and supply scenarios to provide advice to the Government on oil price trend risks. (SEF is pleased to see that the Ministry of Economic Development has taken this scenario-based approach in its latest *New Zealand Energy Outlook*.)

⁴ From <http://www.scoop.co.nz/stories/HL0604/S00206.htm>, April 2006.

⁵ These are high-level policy proposals. Other SEF documents on Peak Oil and climate change go into these measures in more detail.

3. Investigate the introduction of a reducing quota of oil consumption, whether as a direct quota or by means of tradeable oil consumption permits, so that the amount of oil consumed in New Zealand reduces by a set amount each year once the scheme commences. It may be possible to link this scheme with a more general scheme of tradeable greenhouse gas emission permits.
4. Investigate increasing New Zealand's on-shore stock of products derived from oil for which substitutes cannot readily be found.

Research agenda

5. University-based research into the physical, policy, and societal implications of Peak Oil for New Zealand, and into ways of mitigating these effects, is already underway. As part of its wider agenda, the Government should ensure that such research is adequately funded, and that a pathway is provided to have the results of the research incorporated in policy and planning decisions, and commercialised where appropriate.

Mitigation agenda

This focuses on actions which can be taken now, while the broader policy and research agendas are being developed.

6. Introduce demand-side management measures to discourage inefficient and unnecessary use of fossil fuels.
7. Implement changes to the road user charging, vehicle licensing and importing, and fuel tax regimes to reward efficient vehicular selection and fuel use and to penalise inefficient use.
8. Commence a programme of major investment in urban public transport, and ensure that public transport receives priority in urban design and in urban transport funding.
9. Commence a programme of investment, and, where necessary, policy changes to ensure that rail and sea transport networks are able to transport critical goods, such as food, in the event of a substantial decline in the availability of oil.
10. Declare a moratorium on all new roading projects unless and until it can be shown that they meet a stringent set of national environmental, health and safety, and energy efficiency improvement criteria.

International agenda

11. Join, and if necessary initiate, international efforts to manage a peaceful transition to the post-cheap-oil era. The first step could be to link up with the studies and

strategic thinking already initiated by the Federal authorities in Australia.⁶ Without wider international cooperation, SEF is concerned that a new era of resource wars could become a reality.

12. Integrate New Zealand's response to Peak Oil with its response to human-induced climate change, and in particular New Zealand's commitments under the Kyoto Protocol and any successor (or complementary) international agreements.

What You Can Do

- Research the situation yourself.
- Investigate lifestyle changes you can make to help yourself, and the nation, prepare for life without cheap oil, and make those changes that are feasible for you.
- Discuss Peak Oil with your neighbours, friends, workmates, and local organisations.
- Find out whether your local council and local MP are preparing for Peak Oil. If they aren't, educate them about the issue and make proposals for change.
- Follow the lead of such communities as Hampden-Moeraki (in North Otago) and Dunedin, and set up a local or regional initiative to make your community more resilient in the face of Peak Oil and climate change. (SEF can provide you with more information and contacts if you are interested in doing this.)

About the Sustainable Energy Forum

The objective of SEF is to “facilitate the use of energy for economic, environmental and social sustainability”. SEF is a group of individuals and companies interested in promoting information and supporting action which will help move New Zealand toward a sustainable energy future. SEF has a membership around 150 ranging from staff in major energy companies to students and retired people. Many members are active in small-scale sustainable energy supply and energy efficiency businesses. See <http://www.sef.org.nz> for further information and membership.

⁶ For information on the Australian Senate Inquiry into Australia's future oil supply and alternative transport fuels, see http://www.aph.gov.au/SENATE/committee/rrat_ctte/oil_supply/