

Senate Inquiry into Australia's future oil supply and alternative transport fuels

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1) Understanding fossil fuels

Before I comment on the terms of reference of this inquiry please allow me to convey an important basic premise about fossil fuels which is vitally important when considering any possible solutions to the problem of peak oil:

Without the existence of fossil fuels this planet would be too hot for humans and most other life forms. Life on earth has kept temperatures on the planet fairly constant over the last 1-2 billion years despite the amount of solar radiation reaching earth increasing by about 1/3 over the same period of time.

This has been possible through biological processes (mainly by the algae which produce oxygen) of transforming solar energy into hydrocarbons and locking them away below ground into what we know today as fossil fuels.

This means that burning these fuels would return at least some of that energy back to the surface of the earth, the atmosphere and the weather engine.

This is a fundamental argument for leaving fossil fuels in the ground or at least to use them as little as possible. It is why shifting to shale oil with its reduced return and increased CO2 release is the wrong way to go. We need to ensure that any solutions for peak oil will not worsen global warming.

A recent study by Tim Lenton of the Tyndall Centre for Climate Change Research in Norwich, UK (New Scientist 18th February) shows that burning all remaining fossil fuels would lead to a 12-13 degree warming over the next few hundred years.

So we clearly have to find other solutions than shale oil and coal.

There is a related argument for using renewable sources as much as possible at least in the medium term rather than nuclear or geothermal. This is because solar, wind and wave energy production actually removes energy from the atmosphere and the weather engine, something which is going to be beneficial in view of more and more extreme weather events.

In the long term (beyond 200-500 years) humanity might need to switch to geothermal and/or nuclear in order to prevent a cooling of the planet through excessive use of solar, wind and wave.

2) Demand and reserves of oil

The world is using a Sydney harbor full of oil every six weeks.

Existing world oil reserves - estimated at 162,155.2 million tons

(http://www.geohive.com/charts/charts.php?xml=en_oilres&xsl=en_res) - would be used to the very last drop in 23 years at current consumption - estimated as 3,767.1 million tons

(http://www.geohive.com/charts/charts.php?xml=en_oilcons&xsl=en_res)

Australia's proven reserves are 4 billion barrels which at current yearly usage of 284 million barrels will last 14 years.

What needs to be understood is that the remaining oil will be more and more expensive to recover; we have nearly used all of the cheap high quality oil and energy input vs return has

already diminished from 1:100 down to between 1:30 and 1:10.
High time to look at alternatives!

3) Potential new energy sources

Gas - Australia's reserves are about 2.5 trillion cubic meters, usage is about 24.5 billion cubic meters which would be about 100 years supply at current usage.
In the short term (next 50 years) there is an argument to encourage cars and trucks to be converted to gas by shifting subsidies and taxes. This could have a significant positive impact in softening the impact of peak oil. However these measures need to be immediate and significant in order to have the desired effect. I note that gas also has a lesser impact on global warming than oil.

Shale Oil - Shale oil deposits in Australia are vast and could potentially continue to power our economy. However the intense processing required results in an energy input vs return of only 1:3, so it is a very poor source of energy. At the same time CO₂ production is 4 times higher than crude oil resulting in a 12 times higher CO₂ production for the same amount of energy an unacceptably high price to pay in the view of global warming that urgently needs to be reduced and not increased. Use of shale oil would likely result in uncontrollable global warming - not an option.

Alternative energies - alternative energies can be used in transport only indirectly by producing electricity and then using hydrogen, batteries or flywheels as storage units in vehicles. There are many technological advances in all these three storage systems . As flywheels are the least known but show great promise here a couple of links:

http://www.doc.ic.ac.uk/~mpj01/ise2grp/energystorage_report/node4.html and

<http://www.abc.net.au/science/k2/moments/gmis9733.htm>

As you can see flywheels already can return 4-6 times as much energy as batteries.

Subsidies for research and pilot projects and production for these storage systems will help to fast track them and I ask the inquiry to suggest them.

Australia is in the fortunate position of having lots of land and high solar radiation.

About 2500 square kilometers of solar panels of existing (fairly poor) efficiency would be enough to cover all of Australia's energy needs. This sounds like a very large area but we are talking only about a 50 km square area of land. Incidentally the required area would be roughly comparable with the total area of all roofs in the country. Advances in technology could significantly reduce this figure.

Since most of Australia's solar companies have been bought up by the major oil companies it is vitally important that the Australian government uses legislation to force those companies to use, develop and release solar energy and products. Presently there seems to be a lot of available technology languishing, eg solar panels are made manually rather than by assembly line, there are very cheap plastic panels without expensive silicon etc. These strategies by the oil companies keep solar un-competitive.

A subsidy to a solar panel assembly line would be a much better investment into Australia's future than a similar sized subsidy into shale oil (as the Queensland government has made).

4) Subsidies and Taxes

The obvious and only way to effect change is through taxes and subsidies

The current huge dependency on oil is a direct result of the fact that Australia is currently subsidizing the fossil fuel industry directly or indirectly with about nine billion of dollars each year (Riedy, C., University of Technology Sydney, Institute for Sustainable Futures, working paper CR2003/01). It is imperative that Australian governments stop acting in the interests of oil companies and starts acting in the interest of Australian citizens and their children and grand children. Our future is surely more important than the profits of oil companies no matter how

strong they lobby or how much they finance political parties.

These subsidies need to be totally removed within 5-10 years and similar amounts shall be spent on subsidizing energy efficient products and alternative energy production and storage as well as rail infrastructure.

The same level of funding for renewable energies over the last ten years would have assured us of reliable, renewable and cheap energy from sun, wind and wave powers by now, energy which does not run out nor threaten the future of humanity, energy which would even contribute to reducing global warming. It is high time to change and you can initiate these changes now.

Removal of or much lower taxes on cars which are fuel efficiency and/or use gas, fuel cell and specially hybrid or electric power are an important tool. Cars using petrol or diesel should be increasingly taxed relative to their consumption.

Similarly trucks running on gas should be subsidized, train transport needs to be encouraged and subsidized while all subsidies on diesel trucks need to be phased out. Such taxes shall be used to increase rail infrastructure.

Even billion dollar investments into our rail system are justified as this will allow transport to survive the end of cheap oil. To ease the changeover rail with drive on/off carriages can be built so trucks can still be used for final delivery. Our present large budget surplus is a unique opportunity and that money should be used for future proofing of transport infrastructure and energy production.

Considerable reduction in consumption can also fairly easily be achieved by forcing manufacturers to phase out implements who use energy when switched off.

The introduction of a warranty tax will further reduce energy and resource usage. The longer the warranty given on any product (maybe relative to average plus 30%), the lower the tax - the shorter the warranty the higher the tax. This will lead to better quality products which do not require frequent replacement leading to less waste, less resources used and less energy used in production and transport. Please be aware that peak oil is only the first symptom of a world that lives beyond its means and that it is prudent to dramatically reduce the use of all nonrenewable resources.

5) Planning major infrastructure

This is an important area as planning can result in major savings. Encouraging (possibly with taxation or imposing of development conditions) a move away from the presently typical suburban and rural residential developments to village type nodes with walkable amenities, shops and offices is a very important factor in reducing transport energy use.

Similarly considering rising fuel prices and overall energy use in transport options is presently overlooked but an important tool in reducing fuel demand.

The planned 4-lane highway from Smithfield to Kuranda is a typical example of the need for a radical change in planning policy. By the time this planned highway is completed (in ~15-20 years) users could have to pay in excess of \$50.- in petrol to go from Cairns to the tablelands which most people will not be able to afford anyway. The highly biased approval process does not account for this nor for the obviously required widening of feeder roads in its 500 million dollar budget.

For about 750 million dollars we could instead build a high-speed train tunneling under World Heritage (instead of bulldozing over the top) with drive on/off carriages (even for B-doubles) which reduced the distance by 15-23 km. That shorter distance alone represents a saving of about

The Queensland government is currently not even interested to explore this seemingly much better solution with its many added advantages.

I give this example to show the existing bias of government decisions towards roads and truck freight. I ask the senate to require all planning decisions to allow for the effect of rapidly diminishing oil supplies and to fast track any projects that help to reduce its impacts (like the PNG to FNQ gas pipeline).

6) Closing

With the end of cheap oil in plain sight Australia should be aware that those countries that first develop alternative strategies and technologies will have a huge economic advantage in the future.

Australia will also need to urgently review its defense strategy. Our current heavy reliance on US help in any possible conflict or invasion cannot be relied upon once oil becomes scarce and our US allies would think twice about using huge amounts of oil to defend any other country. We also should look at acquiring strategic oil reserves.

For Australian federal and state governments to give billions of dollars to shale oil, carbon sequestration and other fossil fuel research while almost ignoring alternative energy research is at best gambling with our children's future and condemning our grand children to a life in a hostile environment (tornados, heat, severe and extended droughts, rising sea levels and fire storms).

While it can be debated what the flow-on economic and social impacts could or would be, it is abundantly clear that a 'business as usual' approach will lead to total collapse of our economy and society within the next twenty years. Due to the extensive lead times of changes decisive action is needed within 12 month.

It is possible that introducing too many measures too soon might lead to a recession, but please realize that doing too little right now will undoubtedly lead not just to a recession but to a total crash of our economy with all its horrible consequences, so it is prudent to err on the side of tough measures. The longer you wait and the weaker the measures you call for, the harder the landing will be.

Regrettably the oil companies have kept us in the dark for many years and have carelessly jeopardized our future in pursuit of bigger profits and regrettably our politicians have so far done their bidding. I very much welcome this inquiry as a sign of change and encourage you to speak up for sanity and common sense and abstain from window dessioning.

Please resist the lobbying of oil companies and other corporations with a short term interest in the present oil culture and remember your duty to the Australian people. The required decisions are not easy to make and some might not be pleasant in the short term. But we have no time to lose! Our future is in your hands!

Thank you for listening

PS: This submission was written very hastily and I apologise for not having more references - should you have any futher questions or require references for any statements, please feel free to contact me.