

To the Senate Rural and Regional Affairs and Transport Committee

Inquiry into the investment of Commonwealth and State funds in public passenger transport infrastructure and services

Statement for Committee Hearing in Darwin, 22 July 2009

Introduction

I am the principal of FAQ Consulting. I thank the Committee for your invitation to address you today. I am reminded that I last gave evidence to a Senate hearing in 1979 to an Inquiry into Alternative Sources of Energy. I developed that submission as a member of the Central Western Regional Advisory Council based in Bathurst NSW. Looking back a lot of the issues have not changed. The context of that inquiry was the global impact of Sheikh Yamani and OPEC oil price hikes in the seventies. Today the context is more complex and more urgent but the directions for change are much the same.

My opening statement, like my submission, addresses two of the six terms of reference of your current inquiry:

- d. measures by which the Commonwealth Government could facilitate improvement in public passenger transport services and infrastructure; and
- e. the role of the Commonwealth Government legislation, taxation, subsidies, policies and other mechanisms that either discourage or encourage public passenger transport.

Regarding d, measures to facilitate improvement in public passenger transport services and infrastructure I will focus on two matters:

- expanding the generation of clean electricity to fuel Australia's transport requirements;
- ensuring that new urban development is undertaken in concert with public transit and transport facilities; and
- the urgent need to provide transport services: including school buses community transport and inter-urban services in Indigenous areas of the Northern Territory; and in particular to support development of twenty new towns.

I am asking the Committee to consider the following measures in its recommendations:

- A national response to the international demand and supply of oil/petroleum to establish a super-grid to provide clean electricity to fuel transport; and
- National leadership in planning guidelines for land use and urban design to ensure that expansion of cities overcomes transport disadvantage.

My comments on e, the role of the Commonwealth instruments to encourage public passenger transport focuses on economic issues – firstly, the impact of petroleum imports on our balance of payments, and the importance of our high levels of excise, consumer tax and GST on crude oil and fuels in instilling some discipline in demand and in providing revenue streams for public expenditure. In my view a larger proportion of that expenditure should be used for the large capital investments necessary to make Australia an advanced solar energy economy.

Secondly I recommend you consider recommending the use of border adjustment to level the field for imports into Australia from those countries that do not impose a carbon tax.

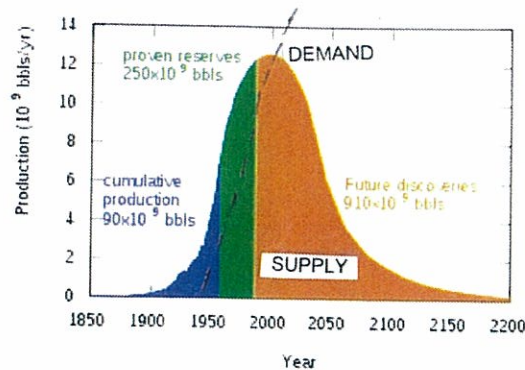
Lastly I would like to add some comments to my submission dealing with community bus options for the Territorians.

Demand and supply of oil/petroleum

The first thing to consider when making predictions about transport is to consider the energy source: this is both critical and urgent and needs to recognise both availability, and the environmental impact of carbon emission and climate change.

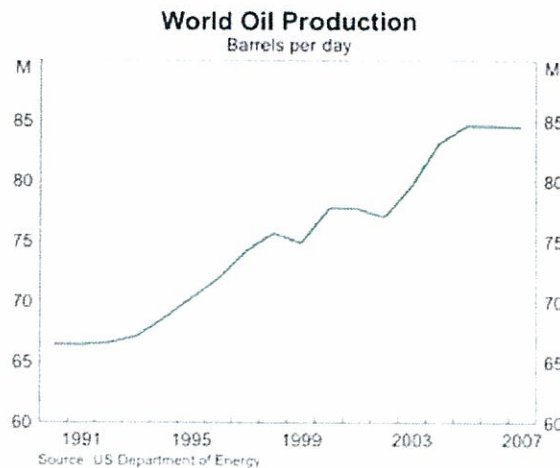
Oil has been the ubiquitous ingredient behind all our endeavours, not only transport but also manufacture, agriculture and our mining. Oil ultimately underpins our standard of living, and our leisure.

Petroleum is a finite resource. In 1956, Hubbert drew a graph of peak oil based on a statistical bell curve as the production possibility curve, which illustrated the rapid rate of exploration, and exploitation, and then the rapid depletion.

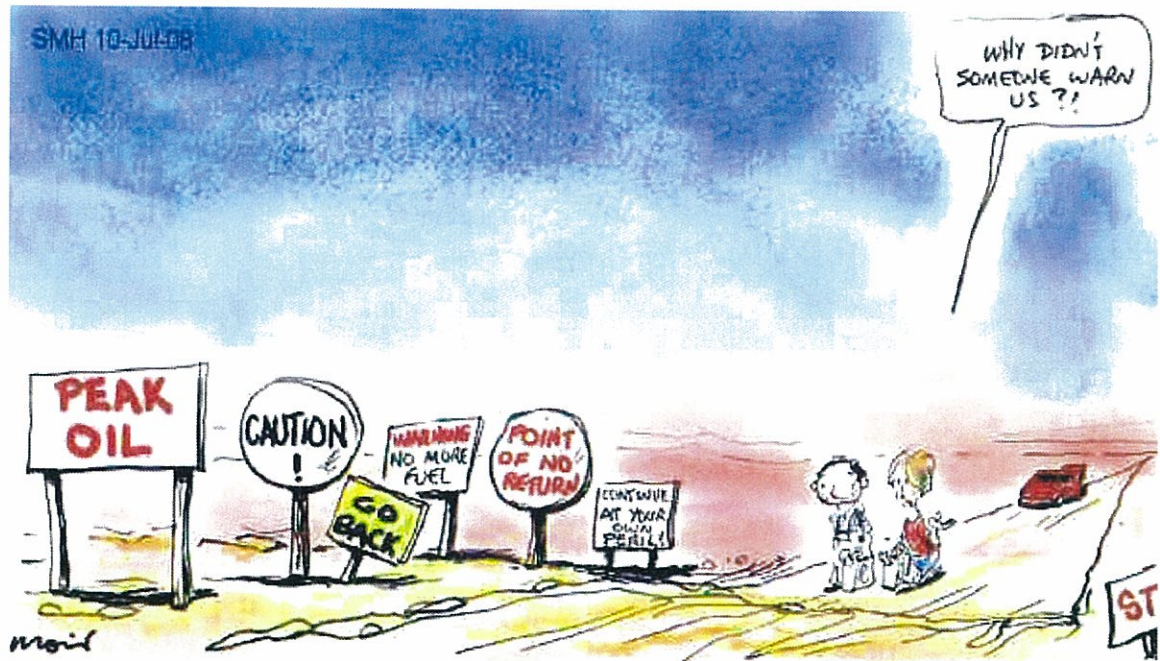


A bell-shaped production curve, as originally suggested by M. King Hubbert in 1956.

By way of explanation, this is not Hubbert's original, but a revised graph uplifted from Wikipedia; but Hubbert's principles are universally accepted. I have called this bell curve the supply line, and have superimposed a demand line on this graph to illustrate the problem of demand overtaking supply.



Looking at the two graphs above, it can clearly be seen that after the peak point, there is no possibility that the demand will be satisfied. Beyond that point those who are willing to pay the most will get oil; those who cannot will miss out. What price will we have to pay? What we do know is that each and every oil price spike causes recession.



ARE WE THERE YET?

This peak point is imminent, and according to some oil economists may have occurred in 2007-2008, and this has been masked by the sub-prime mortgage crisis which in turn caused a contraction in demand for oil.

In January, 2009, when oil prices went above \$140 per barrel, the demand had clearly been greater than supply. It was not due solely to OPEC, rogue traders or hedge funds.

We need to make a rapid transition from our dependence on oil, and the best route is the renewable electricity option. Gas will play an enormous role in this transition from oil to electricity, but it's ever increasing price as a substitute for oil, together with ever increasing carbon emission restrictions will mean it will be only a short run substitute.

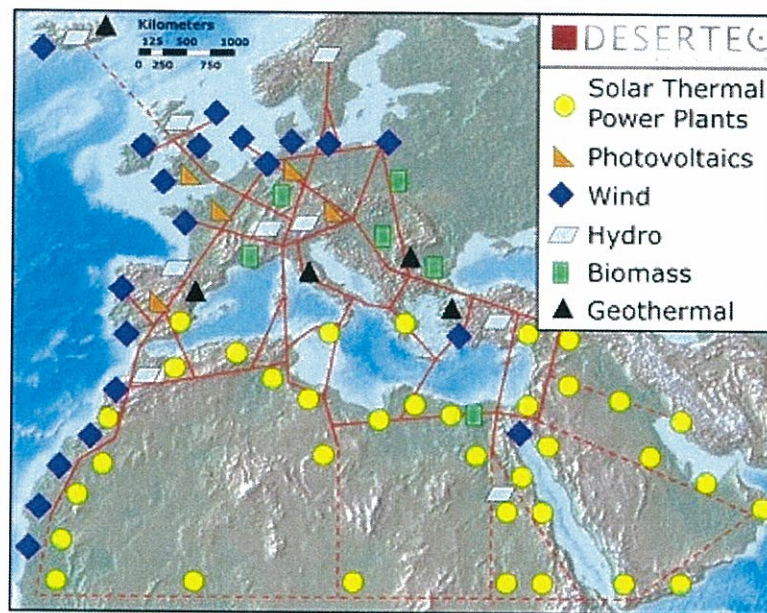
Electricity will replace oil for transport

For transport some oil will be replaced with gas, and some with electricity. The car companies are now underway making hybrid, plug-in electric and battery cars. The new plug-in electric cars are clean, but they too need to be supplied with clean electricity. Where will this clean electricity come from?

The electricity used will need to be solar or wind generated, as we will be obliged to phase out carbon emitting coal/gas/oil fired power stations. Nuclear reactors have not been considered because of their long construction and

commissioning, and are not needed. We can achieve a better and quicker outcome using renewables such as wind, photovoltaics and concentrated solar power [CSP], also known as solar thermal.

On 13 July 2009, Munich Re and several European companies underwrote DESERTEC, for 400 billion Euros to build a network of concentrated solar power plants through North Africa to supply 15% of Europe's total electricity demand, through high voltage direct current [HVDC] submarine power cables from North Africa to Europe. The scale of this and the confidence must be a challenge to the rest of the world.



Graphic courtesy of DESERTEC Foundation

Establishing a super-grid to provide clean electricity to fuel transport

A similar smaller scheme of HVDC linked concentrated solar power plants would be suitable for our desert areas. The reason for HVDC linkage is to create a supergrid where electricity can be moved long distances and where electricity energy losses are minimised (3% per 1000 km). The rationale for CSP is that big quantities of dispatchable electricity are produced, and the power is produced at the time that it is needed, i.e. during daylight hours.

This month's G8 meeting on climate change foreshadowed the possibility of a worldwide supergrid using only renewable energy as a global strategy!

By linking the individual State grids Australia wide, it is possible for the east coast to be generating usable power for the west coast for 2 or 3 hours before the sun rises in the west, and vice versa, i.e. the west coast could dispatch power to the east coast for 2 to 3 hours after the east coast sunset.

The early morning and late night gaps could be filled from conventional power stations, wind power, or existing hydro electricity schemes

Alternately, some CSP systems are capable of generating power from heat stored in salt for up to 6 hours after sunset, and one Australian company is now using graphite blocks to prolong the storage up to 24 hours and longer; and to provide power on demand.

There are three basic CSP systems, namely;-Tower, Trough and Dish systems, including the Stirling engine. Each has specific attributes for different applications which are of particular interest to Australia, i.e. Tower systems can provide good storage of heat to prolong electricity production. Trough systems can be used to hybridise existing power stations. Sterling engines require no water supply for cooling.

Photovoltaic generation should also be encouraged, because in the long run it may turn out to be the cheapest route in providing a large part of the base load. However, like CSP it would require access to dedicated tracts of land for photovoltaic power stations, in order to provide a big percentage of base load; as there is inadequate roof area in Australia to generate sufficient power from photovoltaic cells.

Solar energy also makes good sense for desalination of water and for many industrial uses, and will be vital in providing the extra electricity demand to meet increasing energy demand of motor vehicles.

Gas will provide a path way from our dependence on oil. Initially, car owners will convert their existing petrol vehicles. However, governments will need to ensure the new cars coming on the roads are either hybrid or electric, to meet tighter emission standards

Heavier duty applications such as haulage, agriculture and public buses can now replace diesel with gas, eg. high pressure direct injection LNG, and these engines reduce green house emissions by up to 20-25%.

Land use, urban design and transport

One vital area of neglect since the oil crises of the '70s has been the lack of focus on urban development; no one wanted to think that we might one day face a situation without oil! All levels of governments put their heads in the sand! Have we now created millions of transport disadvantaged people by spreading our cities endlessly with poor urban design? Have we created a big

social problem? It is again time for serious government intervention. The problem is twofold:

- urban sprawl and
- lack of public transport infrastructure.

By example, the NT has announced a new city of Weddell to accommodate 40,000 people. This planning decision has been made not recognising the new oil crisis! Again it is an example of urban sprawl resulting in lack of access to existing services and transport disadvantage for residents. There are preferable alternatives within Darwin, such as urban consolidation, rezoning and/or relocation of Darwin Airport. It does not now make sense to push people further away from existing schools, hospital services and jobs.

In capital cities, change will involve using existing corridors for electric and gas buses, trolley buses and/or light rail. It is possibly too late and too expensive to undertake construction of heavy rail though much of the established urban areas.

For all our rail line we should consider electrification. In NSW attempts to get haulage operators to use electric locomotives on the sections of electrified lines failed, partly because the operators did not want to contribute to catenary overhead power supply installations and partly because they needed to change locomotives and drivers. These locomotives were abandoned. Thus, one attempt to reduce our dependence on imported oil failed; our balance of payments suffered! Now in NSW no freight haulage is done using electrification, whereas Queensland has electrified many of its freight lines.

Economic issues – balance of payments, excise, consumer tax and GST

Governments have not given enough consideration to the extremely adverse impact of imported oil on our balance of payment, and the problem is worsening. The production of Australian crude has fallen dramatically, while our ever growing dependence on a car based lifestyle has dramatically increased our need for imported fuel. 30 % of our import bill is for petroleum products. If we are unable to satisfy our demand from overseas it will be necessary for the Rudd Government to introduce rationing and controls on who uses our scant locally produced oil resource!

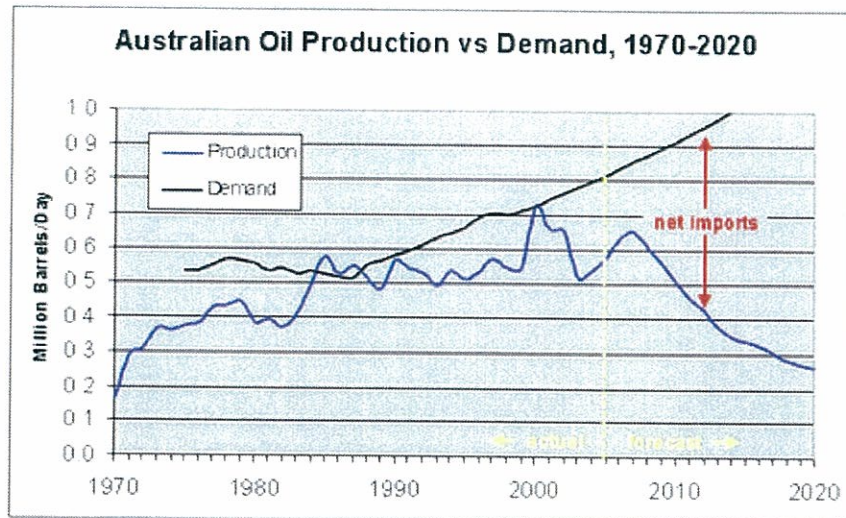


Figure 6. Australian Oil Production (Geoscience Australia, actual and P50 forecast) vs Demand (ABARE), 1970-2030.

It is expected that by 2015 the import gap, or the petroleum trade deficit could grow from \$12 billion in 2005, to \$40 billion in 2015! It makes better sense to invest \$40 billion annually in solar generation, rather than as a recurrent annual expenditure on imported oil. [If there is any around in 2015!]

Some credit is due to the foresight of both State and Federal governments for maintaining high levels of tax, excise and GST on crude oil and fuels for motor vehicles. This policy has given both State and Federal government revenue streams so that they have funds for schools, hospitals and social services, etc. as well as roads. They should not weaken their resolve. One can only feel that at least part of the problem in the U.S. has been the inability to get the motorist to make sufficient financial contribution and has caused a great waste of a scarce resource.

The rationale for continuing high taxes and excise, and the implementation of greenhouse emissions control legislation clearly must be to reduce consumption of oil, and increase the price to the end consumer. These measures must clearly act as a disincentive.

Carbon emissions and border adjustment

One element of the carbon control initiative legislation should be a provision for border adjustment. This would make an additional charge on imports from countries where goods from the exporting country have been excluded from a carbon tax, in the exporting country. This would mean these goods are not landed in Australia with an unfair advantage over goods produced locally in Australia. This principle has been adopted in the US.

Many economists believe that globalisation is now going in reverse. This is because of the rising cost of oil driving up the cost of sea and air transport. This, they see is removing the low wage advantages of Asian producers.

These, together with the border adjustment, will improve employment prospects in Australia. If we do not apply border adjustment we will lose all our manufacturing to Asia!

Some Americans are now predicting a renewal of manufacturing for the rust belt of the USA! For Australian industry, these should again open up opportunities for domestic producers. They may provide a real financial opportunity to produce an all Australian electric plug-in car!

It is estimated that the global electricity market will be forced to spend over \$10 trillion over the next three decades to expand supply capacity in a bid to meet demand.

It would seem that this impending energy crisis should be given funding preference above the national broadband network and the enormous capital expenditure for defence procurement. It is my humble belief that this is Australia's most pressing need!

We are now in an historic period of scarcity of capital. The Federal government should set aside low interest funding for companies interested in making the large capital investments necessary to change Australia to generate electricity from clean renewable sources. This would be a more effective way to get investment, rather than a strategy of offering grant incentives.

Traditionally transmission and distribution have been more profitable than generation of electricity. For this reason, if Governments want to ensure investment in new forms of electricity generation, they need to guarantee a "feed-in tariff" to producers which is sufficiently high to ensure a satisfactory return on investment for their large scale capital investments.

Improving transport for Territorians in remote areas

On 20 May 2009, the Chief Minister announced that 20 new towns will be developed in Indigenous areas of the Territory. If the communities agree to changes in land holding arrangements, these new towns will provide central locations for schools, medical services, businesses, jobs and new opportunities for indigenous Territorians.

Over 40 000 people or approximately 20% of the Northern Territory population reside in remote or very remote townships and communities. To make the potential of these new towns a reality, they will need transport for school children, regular transport services to move people to and from homelands and outstations into town, and interurban services.

Free bus services are available for school children in Darwin and environs but in much of the Territory they are not available. The ABC reported in January this year Yipirinya school in Alice Springs, that educates children from the town camps, was spending \$400,000 per annum, a quarter of its Commonwealth education funding, on provision of school transport.

If the Territory is to realise Mick Dodson's call for every Aboriginal child to be enrolled and attending school by Australia Day 2010, we will have to act now to design and put in place a Territory-wide school transport program.

To enable residents in the catchments of these new towns to come in to shop or do business they will need reliable bus services. In my view regular community bus services, ie bus services designed to meet the needs of local communities. For Indigenous communities this could include travel for social occasions, for cultural, health, funeral needs, to attend sporting fixtures, etc

In 1980, in Bathurst a community bus service started with the goal of helping elderly people stay in their homes in small outlying centres. Community buses from the surrounding villages terminated at the Bathurst community information centre. Supermarkets delivered shopping there to be loaded on the bus home, the centre was a contact point for people coming in who had made medical and other appointments to fit with their day in town. When the drought in villages like Sofala dried up water supplies, the information centre installed a washing machine and dryer and people could bring their washing down to town. These are examples of tailoring community transport services to the needs of communities.

NSW transport authorities responded to the Bathurst Community Bus model and has recognised that there is a need to ensure effective community transport services are available, especially in rural and regional communities. Transport NSW has minimised impediments to community transport volunteers and addressed road safety needs by requiring particular classes of driver's licence for particular types of vehicle categories, that included size and weight of vehicles.

In the mid 1990's Transport NSW developed and implemented operator accreditation standards for community transport buses. Accreditation standards for community transport operators are less stringent than those for

bus operators and could provide a model for training and accrediting Aboriginal community bus drivers in the Territory.

Accreditation should also include a school service operator category to enable community members to be licensed, contracted and subsidised to drive children to and from school. Australian Government leadership and expertise can plan and develop effective small scale transport services to support and develop Aboriginal schools and communities.

I recommend that your inquiry look at measures by which the Commonwealth can facilitate community transport services for transport disadvantaged Territorians, in particular to support the development of our twenty new towns and to get our Indigenous children to school and settled in by Australia day next year.

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