

# **“Securing Australia’s Energy Future”**

## **Comments on Energy White Paper**

**David Kilsby, Member 1445790**  
**Chairman, National Committee on Transport**

### **Introduction**

The Policy Unit of Engineers Australia has asked for comment on the Federal Government’s White Paper on Energy, released in June 2004.

The transport sector accounts for 41 per cent of total Australian final energy consumption (White Paper, P83). Hence feedback from the transport sector is virtually unavoidable. The transport sector is heavily reliant on petroleum-based fuels, which meet more than 97 per cent of Australia’s total transport needs (P83).

Because of time constraints - I am about to go overseas until the end of September - there is no time to develop a response from the National Committee on Transport (NCTR) and I submit this as a personal response. Nevertheless I have circulated it to other NCTR members and asked them to prepare their own individual responses if appropriate. The price and availability of energy represents perhaps the biggest single challenge facing the transport sector in the near future and is something NCTR is very concerned about.

In my comments on the White Paper I will focus on transport issues, as broader concerns are beyond my area of expertise. Please note that the Victorian Transport Panel mounted a well-attended seminar on Sustainable Transport on July 21 2004 in Melbourne, and for that seminar I contributed a review of the international and national transport energy scene. An expanded version of my presentation can be found on my corporate website (text at <http://www.kilsby.com.au/archive/p0704.pdf> , with graphics in a separate file <http://www.kilsby.com.au/archive/p0704graphics.pdf> ).

### **EA draft RD&D Policy**

NCTR previously (in April 2004) submitted a response to the Policy Unit on the draft Fuel & Energy Research, Development and Demonstration (RD&D) policy that was circulated for comment by the National Committee on Fuel & Energy. We have had no feedback on that submission, which raised a number of significant issues, including:

- The draft policy was mostly about supply-side technology, with little recognition of demand management options.
- The draft policy related mostly to coal technology, whereas oil is the more relevant fuel for transport.

- The draft policy document was strong on recommendations but weak on information, which made it difficult for those who were not specialists in energy to assess its conclusions.

It is disappointing to note that the first two criticisms can also be directed at the White Paper. However the White Paper is to be commended for its presentation of much information (though not always for its interpretation of it).

### **Energy White Paper – comments**

The only “major new actions” proposed that might affect transport are :

- *“a complete overhaul of the fuel excise system to remove 1.5 billion in excise liability from businesses and households in the period to 2012-13”*: however this will be accompanied by the introduction of a road user charge so there will be winners and losers from the process. To the extent that this reduces the price of transport, it will exacerbate transport’s problems. It is already too cheap and transport prices do not reflect the cost of externalities.
- *“incentives for petroleum exploration in frontier offshore areas ...”* The White Paper later observes *“Encouraging further exploration in these areas could see the discovery and development of resources the size of those in the Bass Strait or Australia’s major gas fields”*. Or, it might not. As a strategy this seems to amount to keeping your fingers crossed that something will turn up. (And see later comments about energy security).

The fact that Australian fuel prices are *amongst the lowest in the OECD ... due in large part to our low fuel taxes* is not necessarily something to be proud of. Low prices encourage high consumption and the present taxation regime is partly responsible for fostering an unsustainable dependence on oil for transport.

*This dominance [of petrol and diesel for transport] will continue until alternative fuels provide the same advantages in price and functionality ... or until the price advantage of petrol and diesel disappears.*

The White Paper notes that Australia is *on track to meet its Kyoto target of 108% of 1990 emission levels by 2008-2012*, despite not having ratified the Kyoto Protocol and being unwilling to do so. It is difficult to reconcile this with the statement at the top of P25, that *Australia will continue to deliver a prosperous economy with a lower greenhouse signature*. Presumably this means a lower unit signature, because an 8% increase is a higher signature not a lower one.

The rationale behind the Government’s refusal to ratify the Kyoto Protocol is repeated, namely that *action in advance of an effective global response to climate change would harm Australia’s competitiveness*. Presumably if the

“effective global response” were to include economic sanctions against any country violating the Kyoto protocol or a much stronger future version of it, then logic would suggest that Australia’s government would then become a signatory to the Protocol. This would presumably happen even if the generous inclusion of Australia along with Iceland and New Zealand (with significant renewable energy used for power generation) as the only developed countries not required to reduce their emissions were to cease.

The data on P139 on potential reductions from greenhouse gas abatement programs are difficult to relate to the scale of the requirements. I note that in total they amount to 38.3 Mt of abatement, while in the period 1990 to 2002 emissions from the energy sector rose by 85 Mt.

The proposed development of low emissions technology is aimed at electricity generation, not transport. Transport is already a lower emitter than power generation. Combining the data on P60 and P83 I find that while transport accounts for 41% of final energy use in Australia it accounts for only 21% of energy sector emissions. This suggests that the stationary energy sector should be targeted more strongly than the transport sector for reductions in emissions.

I note that the statement *at the end of this process* [of progressively tightening fuel standards] *Australian fuel will be amongst the cleanest in the world* is only likely to be true if world standards do not further change until Australia completes its process.

Persuading the automotive industry to produce more fuel-efficient vehicles may not be all that the government hopes if consumers are free to react by using bigger vehicles (such as big 4WD’s) or driving further with their more fuel-efficient engines.

Hydrogen is mentioned several times as a potential alternative fuel. My understanding is that hydrogen is not an energy source but an energy carrier, like electricity, and that you have to expend fuel to create hydrogen in the first place. Its advantage is that unlike electricity it can be stored, but there are huge technological and economic problems militating against its use at present. Transport is seen as one of the prime potential applications for hydrogen in the long term. If Australia were serious about promoting a “hydrogen economy”, it should set up a large scale pilot somewhere relatively self-contained with good access to renewable energy. (Burning fossil fuels to produce a quantity of hydrogen with lower energy content does not seem a good idea). The island of Tasmania suggests itself.

Surely then hydrogen technology should be in the second priority category rather than the third in the Table on P32. From a transport point of view, it is appropriate that *Intelligent Transport Systems* be included in the second priority. The other two transport related technologies (*Advanced conventional vehicles* and *Hybrid electric vehicles*) may be less effective. A low-cost area where Australia does have the potential to play a leading role in international

R&D efforts is in *Voluntary Travel Behaviour Change* programs, and this could perhaps feature in the first column.

## **Cheap Oil**

The White Paper seems oblivious to the nature of the problem with which the transport sector will have to grapple very soon. It is not a question of running out of oil, hence the bland conclusion (P119) that the world has 38 years-worth of proven oil reserves is not very reassuring.

Apart from the peaking issue which I am about to outline, I note that IEA is just one “authoritative” source of estimates of oil reserves, and it tends to favour the very optimistic end of the range.

Further, if one accepts the IEA figure for the sake of argument, it would only last for 38 years if the global rate of consumption remained static at the current 27-28 gigabarrels per year. A 2% annual increase in the consumption rate would, by my calculation, exhaust existing reserves in 28 years rather than 38. The present rate of consumption is about four times higher than the rate of discovery of fresh reserves, and the former is rising while the latter is falling.

But the issues transport faces will hit long before the oil runs out. For the last 100 years or so, growth in global production of oil has kept pace with growth in global demand. However oil is a finite resource and sooner or later growth in its production will level off and eventually decline. When production peaks, there will be major global consequences if demand continues to increase.

- The price of oil will rise
- Oil production will be unable to meet demand
- A greater proportion of the world’s energy will have to be devoted to extracting the remaining energy in the oil that remains

If the price rises there will be an economic incentive to (a) produce more – but it is not an infinite resource and this would presumably accelerate its eventual exhaustion and (b) encourage alternative forms of energy to become commercial – but there is no comparably useful alternative to oil on the horizon yet, and in any case this option would take time to unfold: time we probably do not have.

It is curious that the White Paper does not recognize this issue of “Peak Oil”, when others are very aware of it. For instance the Chartered Institute of Transport issued an “Outcomes Statement” after a national symposium on transport energy in 1998, which among other things said:

*The unlimited use of cheap oil that has characterized this century will end and we will be faced with one of the greatest transformations of human affairs*

*Our present path is leading us into potentially serious economic, social and environmental problems*

*“More of the same” in our current transport plans and ways of thinking is no longer tenable ...*

The Federal Transport Minister himself was quoted as saying, on 13 August 2004 when the market price of oil hit yet another high. “It may very well be that the era of cheap oil production has ended”. And at the populist end of the spectrum, the cover story of the June 2004 issue of *National Geographic* magazine was “The End of Cheap Oil”. The Government has little excuse for pleading ignorance of the issue.

There is considerable professional disagreement about when this peaking will occur, but much less about whether it will. It will not be an issue at the next federal election (later this year), nor probably by the one after that ... but by the turn of the decade it is likely to be very prominent.

## **AusLink**

In June 2004 the Federal Government issued not one White Paper but two. At more or less the same time as the energy White Paper, the Transport Minister released the *AusLink* White Paper (subtitled “Building Our National Transport Future”). Both together give a clear picture of the Federal Government's expectations for transport and transport energy. Engineers Australia had previously made submissions to DOTARS after the *AusLink* Green Paper was released, and although the promise of additional expenditure on transport infrastructure in the White Paper was welcome it was disappointing that few of the suggestions from Engineers Australia had been acted on. Some of these related to energy. In particular the recommendation for incorporation of energy profiles in project assessment was not taken up.

The *AusLink* White Paper seemed to be “more of the same”, which made it an appropriate companion to the energy White Paper. The *AusLink* White Paper is supposed to herald a new process and the next update may therefore be a considerable improvement, but it may also be five years away.

## **Energy Security**

The energy White Paper emphasizes that *past disruptions in Middle Eastern oil supplies have had a relatively small impact on global oil flows and almost no impact on Australia's ability to source oil and refined transport fuels*. This is true, but past disruptions have been due to political crises while the peak of global oil production brings physical issues into play. There is no feasible “top-up” source of additional oil once the global production peak has passed.

It also makes the point that *Australia has access to potentially large reserves of alternative fuels, such as biofuels, or conventional fuels from new sources such as shale or natural gas*, but that these are currently too expensive to develop. If that situation were to change, how large are those “potentially

large reserves”? Without knowing that it is difficult to accept the White Paper’s assertion that we should take comfort from having such reserves. On P122, for instance, it is said that converting the total national oilseed crop to biodiesel would only produce 6 per cent of Australia’s current diesel needs.

Australia’s petroleum refining industry can supply nearly all (80 to 85 per cent) our transport fuel needs – but it doesn’t, it exports much of its output and *some 60% of refinery feedstock is imported, relying on Australia’s good access to world markets* (P118). Access to open world markets is thus a critical part of Australia’s oil security policy. How will Australia fare, as a minor player, when world markets cannot physically produce enough oil to meet the demand?

The White Paper makes the statement that. “playing close heed to overseas experience and the lessons of the past”, *another lesson is that major energy problems in Australia have generally come from accidents at key supply infrastructure rather than underlying problems in accessing resources of intentional disruptions*. This statement may be disproved by events very soon if it has not been already. The Transport Minister’s comment on 13 August 2004 was quoted earlier.

Discussion of possible national fuel emergencies and the Government’s response (PP124-126) show that potential disruptions to supply, rather than permanent structural change, are seen as the main threat to Australia’s energy security. Again, this fails to recognize the nature of the “Peak Oil” issue.

### **Policy Implications for Engineers Australia**

From a transport perspective any Engineers Australia policy response should recognize the following points.

- Transport currently accounts for 41% of Australia’s final energy consumption, and is forecast to grow (provided fuel is available) by 2.4 per cent per annum over the next 20 years.
- Complacency because Australia has plenty of coal is inappropriate. Transport does not run on coal.
- The peak of global oil production will soon be passed. Although the world will not run out of oil, the age of cheap oil will soon be only a memory.
- Although the price and availability of fuel is a long-term transport problem, there is short-term urgency in addressing it.
- There is no easy solution. The policy response from Government should cover all available measures, including :

- Application of conventional planning and regulatory measures to a greater extent than has been thought politically feasible so far
- Development of technological improvements to vehicles, fuels, infrastructure, system management etc.
- Use of economic measures including pricing. The market is the most appropriate mechanism for this, but where the market fails to respond government should intervene.
- Pursuit of demand management options and behaviour change programs. A prerequisite for this is public acceptance of the problem. Government should take a lead in developing public awareness.