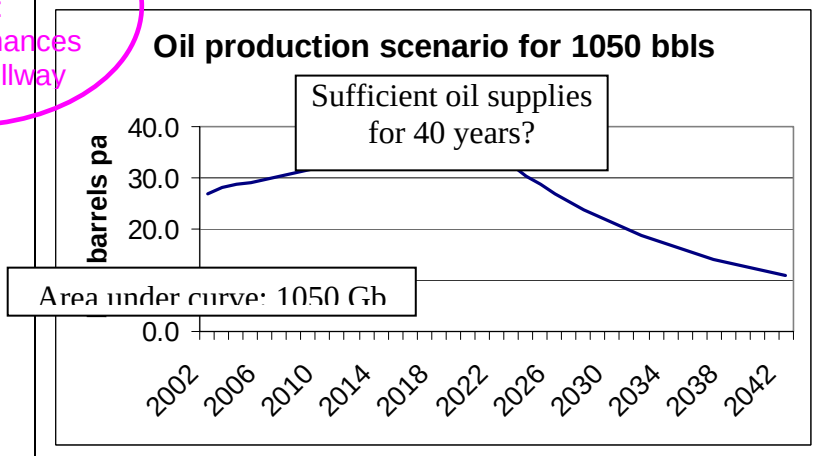
Critique on

"Securing Australia's Energy Future" (June 2004)

Focus: Oil & Gas Depletion

2nd victim of energy white paper: MacBank finances Mitcham tollway

Future oil supply completely misjudged



"…there are sufficient reserves to supply world demand for around 40 years" (page 119)

1st victim of energy policy: NSW State Transit purchases new diesel buses

Transition task oil->gas->renewables not seen

"…there is currently no case for the government to accelerate the uptake of these [alternative transport] fuels on energy security grounds" (page 124)

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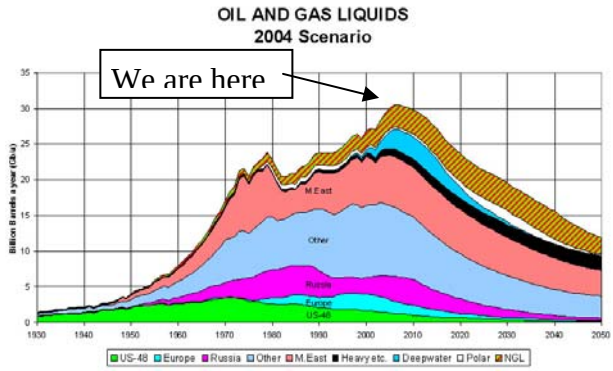
EXECUTIVE SUMMARY

No awareness of peak oil

(1) The government seems neither to be aware of the existence nor the proximity of global peak oil. There is now a consensus forming among many oil geologists that this epoch changing event may happen before 2010 (see Appendix 5). The energy white paper mirrors the focus of the International Energy Agency (IEA) which emphasizes on short term interruptions of oil supplies but ignores the realities of oil depletion (see Appendix 6).



The white paper's statement that there are sufficient global oil supplies for another 40 years and that annual production will increase from 75 million bpd in 2000 to 104 million bpd in 2020 are inconsistent as this would require production to decline by 6% pa after 2020 in order to match the total reserves of 1050 billion barrels.
The Association for the Study of Peak Oil and Gas (ASPO) predicts a peak already before 2010 (left; http://www.peakoil.net/)

Worsening oil import dependency

(2) The government's assessment of oil import dependency is equally incorrect as it **does not reflect the dramatic structural changes resulting from declining local oil production** to be expected in the next years (see Appendix 1)

Urgency of fuel transition task not seen

(3) Following the erroneous assessment under (1) and (2) the government has **neither identified the necessity to initiate the transition process oil-> gas-> next fuel mix nor realized its urgency.** Assuming there are 4 long decades of sufficient oil supplies including oil production growth up to 2020, the government believes that market forces will handle automatically and in time all changes. Such a blind faith in market economies is ill-placed and risky as it will be the first time in post WWII history that a **permanent oil crisis** is approaching. There is a complete lack of calculating quantitative transition requirements and determining **conversion milestones which lie along the critical fuel transition path**. There is also no appreciation of the huge inertia inherent in our vehicle fleet, other oil dependent processes, physical urban structures, transport systems, agricultural input supplies etc all of which will be subject to ever increasing oil prices. Long lead times are required to prepare for peak oil and the period thereafter.

Misleading Graphs

(4) The white paper contains misleading graphs showing linear past trend projections without having checked the depletion of underlying reserves. It also appears as if resources and reserves – which are quite different - are not always clearly distinguished. A false sense of security emanates from charts showing the lifespan of reserves expressed in years of current production. Production curves are rarely flat.

Inconsistencies within the paper

(5) Confusion reigns about Australia's future oil production. Under "Developing our resources" declining oil production is mentioned but then shown to increase by 2% in an accompanying growth oriented graph.

No coordination of energy and transport policy
(6) The **energy implications of peak oil on the transport sector are huge**. Energy and transport policies must be coordinated. The energy white paper recognizes the limitations of bio-fuels but **has not identified the frightening vulnerability resulting from 100% imported diesel fuel**. In **AusLink,** priorities in terms of $ spent are still on new freeways while Australia's increasing oil imports would demand a full electrification of all main rail lines and moving long distance road traffic – both passenger and freight – onto rail.

Oil for gas a no-win game
(6) The government has apparently embarked on a strategy to export gas in order to finance oil imports. This is an energy game Australia cannot win. Oil prices from spot markets – especially after peak oil - will always outpace gas prices which are set in long term contracts.

Open oil markets require military interventions
(7) The government's current policy heavily relies on continuing and increasing oil imports requiring open markets and easy access to them. It has become self-evident in the past years that in future this will not be possible without military interventions in the ME and along oil supply corridors. Australia is a peace-loving nation. Therefore, **it should follow that we have to reduce our exposure to the global oil market as much as possible and build our energy policy on locally available resources, in particular renewable sources as these are the only sustainable ones.**

Microeconomic protection not necessarily a macroeconomic optimization
(8) It is legitimate for the government to look after the interests of business. However, the sum of present microeconomic support & protection measures does not necessarily lead to a macroeconomic optimization in the future. The government tries to avoid burdening business now with the higher cost of alternative fuels thereby hindering business to prepare for peak oil and adapt to the inevitable future changes, a process which should happen now while the economy is still in good shape. This short-sighted approach will damage our economy in the long run.

Economic theories assume no physical supply limits
(9) Economists think that higher oil prices will automatically lead to more oil. Geologists tell us that oil was created by nature over millions of years and that the speed of its production is limited by source rock features. This problem can only partially be overcome by technology but not be changed in principle. Huge investments financed from higher oil prices may temporarily increase oil production – if geologically possible – but will not stop the depletion as such. Often the decline rate after the short boost is steeper than before. Economists should better get used to this boundary condition. Oil we consume now cannot be consumed later. After peak oil we'll have **both increasing prices and declining oil production, on a permanent basis.** Our economies have no experience with this.

Australia's fossil fuel dilemma
(10) As long as there is the mindset of "vast coal and gas reserves" resulting in highly competitive (=cheap) energy, efficiency measures and development of alternative and renewable energies and fuels will remain symbolic and commercially hardly viable. While European countries are bringing their economies to adapt to higher energy prices and thus enforce higher energy efficiencies, the Australian government rather tries to protect local industries from the future trend of increasing energy prices and thus acts against long term market forces, a concept actually alien to the government's own philosophy.

OUTLOOK

Australian car industry to manufacture hybrid cars

(11) Monitoring and controlling fuel consumption of all motor vehicles will become an important national task in peak oil years. It does not appear the Australian car industry is aware of peak oil and continues to manufacture cars which will only be of limited use in oil crisis years. It will be the duty of the government to produce reliable oil depletion data, present these to the car manufacturers and make continuing government support to the automotive industry conditional on them manufacturing hybrid cars (or any other cars in the 5l/100 km consumption range)

Energy accountancy required

(12) It is quite conceivable that international action on climate change, possibly triggered by pressure from the insurance industry, will force Australia in the not too distant future to limit coal production – not a comfortable position, contrary to what is claimed in the white paper. Natural gas is our last clean fossil fuel which we will need for our own fuel transition phase, for building up a renewable energy industry (e.g. the energy intensive production of solar panels and their massive export) and last not least for agricultural inputs like fertilizer. Governments, authorized by Parliamentary approval, need to make plans how to allocate proven and probable gas reserves over the whole of the likely production period otherwise we'll one day be in the same situation as we are now with oil. While oil peaks at 50% of reserves, gas does so at 75% leaving a much shorter time to prepare for the transition to renewables.

Net energy balance to be greater than zero

(13) Large parts of our economy consist of turning fossil fuels into an ever growing suburbia requiring ever growing amounts of fossil fuels to run them. Past energy inefficiencies have been patched up by pulling more oil out of the ground. This will be no longer an option after peak oil. Our energy consumptive economy will have to become energy productive on a sustainable basis with a positive net energy balance.

Consumer education

(14) **We are all energy illiterate**. It is the job of the education system, the media, professional associations and MPs on all levels of Government to prepare the general public for the fundamental changes in our life styles ahead of us. Curricula need to be changed.

RECOMMENDATION

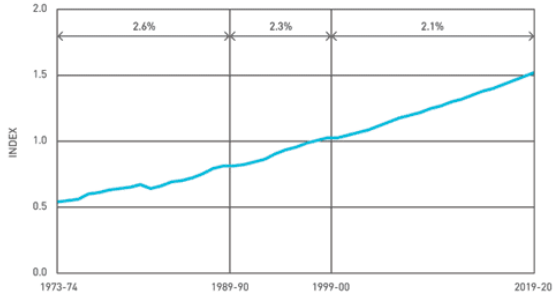
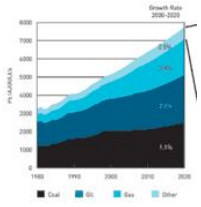
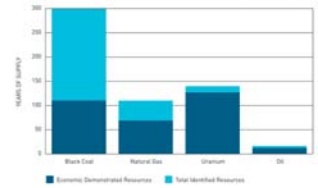
The energy white paper **should be immediately withdrawn from circulation** before its misleading information is spread and before it starts to inflict long term damage to our economy. It will have to be completely re-written by a genuinely independent team of scientists, oil-geologists, energy consultants and engineers who:

(a) can withstand ministerial pressure for pre-defined report outcomes
(b) have no links to the fossil fuel industry
(c) can work without career anxieties
(d) understand resource depletion (in particular peak oil) and green house gas issues
(e) have developed renewable energy projects
(f) know how to design the fuel transition process
(g) bring commitment and dedication to change BAU mindsets in government and the private sector

The main objective of the revised energy paper would be (a) a phased and prioritized allocation plan for oil and gas until their respective end points of depletion and (b) a pro-active, strategic plan how to prepare for the event of peak oil. Peak oil task force teams should be created in order to get the support from participating departments.

DETAILED CRITIQUE (Focus: peak oil)

Foreword	
Quotes from energy white paper	Comments
"Australia must grasp this opportunity while improving the sustainability of energy production and use. Energy is a major contributor to global greenhouse gas emissions…."	According to the 1st law of thermodynamics, energy cannot be created as such or its amount increased. Energy is only transformed from one form to another, providing variable amounts of usable energy for humans and whereby the amount of waste heat is increased with every transformation (2nd law). An energy transformation can only be called sustainable if it is genuinely renewable, that is forming part of a cyclic process which can be repeated indefinitely without depleting resources and disturbing natural equilibriums. **Energy policy which tries to ignore the laws of thermodynamics, resource depletion and environment is at our peril.**

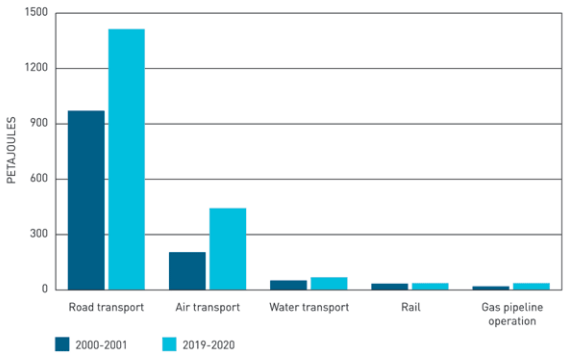
Chapter 1 Energy in Australia	
Quotes from energy white paper	Comments
Figure 1 Primary energy projection; page 36 	The past trend projection will become invalid with the arrival of peak oil before 2010. The following recession resulting from increasing oil prices will reduce demand for raw materials and processing energy. On the other hand, oil shortages will increase demand for other forms of energy pushing up prices. It is almost impossible to quantify the effects of peak oil as the world will enter uncharted waters.
 Figure 1 Composition of Australian energy supply; page 38  Figure 2 Depletable Resources at current production levels; page 5	Australian oil production is past its peak and declining. However, the graph in figure 1 shows increasing oil supply. This also contradicts figure 2 where "Australian oil resources" are depicted at around 20 years of current production. Graphs showing the reach of reserves at current production levels can be very misleading. It is also interesting to note that the authors of the report seem to mix up resources and reserves. Figure 2 in all likelihood refers to reserves, not resources
"Transport use is expected to grow quickly to 2019-20, especially air transport which is projected to grow by 120 per cent on the	International mass tourism, based on cheap oil, will be one of the first victims of peak oil.

back of continuing strong tourism growth"; page 39	

Chapter 1 Energy in Australia (ctd)	
Quotes from energy white paper	Comments
"Australia is a small global player. This nation's environmental actions have little direct impact on global greenhouse gas emissions"; page 43	This is a myth. Australia's per capita GHG emissions are so high that our green house gas footprint is as big as that from a medium sized European country. And add coal exports to the equation. Moreover, with this line of argument everyone is excused from GHG abatement.
"Australia's energy use is emissions-intensive"; page 43	Nowhere does the white paper attempt to calculate the amount of coal which we can still burn or export in future so that a stabilization target of 500 ppm CO_2 in 2050 can be achieved (as adopted by the EU and UK). Read: http://www.house.gov/lantos/pew_0307_climate.pdf.

Chapter 2 Developing Energy Resources	
Quotes from energy white paper	Comments
"Staying Competitive"; page 51	All objectives are business oriented and will result in fast resource depletion. Resource conservation as objective does not exist for this government.
"Government regulation will seek to avoid direct regulatory intervention to impose non-commercial development outcomes, such as requirements to bring gas onshore for domestic consumption, for reasons other than environment, safety or good resource management"; page 60	This sentence reveals the government's bias for gas exports, completely ignoring domestic transition requirements and the building up of a local manufacturing base for renewable energies and fuels.
"Export controls have been removed on all mineral and petroleum commodities, and developers are free to find the most rewarding markets for their products."; page 61	The downside of this iberalized market is an increased dependency on world market trends and events. The government has also lost control over the environmentally responsible use of Australia's resources once exported. Gas to China, for example, should only be exported under the condition that coal production is reduced accordingly otherwise there will be no net benefit to GHG abatement. Better even, that gas should be used in the energy intensive manufacture of PV panels for export. Uncontrolled gas exports to China can even have a counterproductive effect on the Australian economy. Stimulated growth in China now leads to higher oil demand on the Singapore oil market where Australia has to compete, thereby driving up prices.
"The [resource] taxes are designed to compensate the community for allowing the	These taxes should be both designed and used to build up renewable energy capacities to such

private extraction of Australia's depletable resources"; page 62	an extent that they will replace the depleted resource (energy equivalence principle). Any other tax regime will leave us worse off at the end of the depletion period.

Chapter 4 Transport Fuel needs	
Quotes from energy white paper	Comments
"A generous policy framework is in place for alternative fuels. This framework allows time for this sector to develop and compete with traditional petroleum-based fuels." page 81	Time is very short before peak oil. The transition from oil to other fuels is an urgent, serious job. The government thinks to have the luxury to set up a free market match where alternative fuels compete with petroleum and then to see who wins.
Figure 1, page 82 "Demand for transport energy is projected to grow at about 2.4 per cent per annum. At this rate of growth, the  demand for transport energy will increase by about 50 per cent by 2019-20"	The white paper's wrong assumption on increasing oil production in chapter 7 has entered many sections and chapters. Australia's heavy reliance on petroleum fuels and the inertia of existing fuel supply systems and car stocks is rightly seen in this chapter but no action proposed to diversify. Example: In order to compensate for the expected decline in oil production of –2% pa. after peak oil, it would be necessary to mandate that 50% of all new cars be hybrid cars (50% x 8% new cars pa x 50% fuel reduction = 2% pa) or any other cars consuming half of the current average. This transition to fuel efficient cars would take 25 years! If this percentage cannot be achieved (e.g. due to lack of purchasing power during a recession) the only other way is to reduce traffic volumes.
"The market for petroleum fuels in Australia has been highly competitive and consumers have benefited by receiving relatively low prices"; page 83	The downside of low fuel prices is that physical structures (urban densities, spatial distribution of city functions, road infrastructure, tourist facilities, agricultural production/processing systems, mining towns, industrial parks etc.) have been created over several decades which rely on continuing low oil prices. It will be very painful to adjust these systems, and in particular traffic volumes, to declining oil production and later to reduce consumption to levels commensurate with the availability of renewable fuels. The low tax rate also means that future oil price increases will have a higher impact on end prices at the bowser.
"The Australian Government prefers a light-handed but appropriate approach to regulation that recognises market forces as the most effective mechanism for determining resource allocation and prices"; page 88	Market forces in the coming oil crisis years mean that prices will go up until demand comes down to supply levels. This may work for the first stage of the crisis but will later create social injustice among consumers with differing purchasing power. As alternative fuels are not being developed now, the government of the

	day will have to take some very unpopular decisions like introducing quotas, driving restrictions etc.

Quotes from energy white paper	Comments
"….. measures to bolster confidence in the use of ethanol petrol blends"; page 90	The example of the botched introduction of ethanol shows that its is necessary to educate the general public about the coming oil crisis so that a positive mind set towards alternative fuels is created.
"….that all fuels need to be able to compete on their commercial merits in the longer term…"; page 91	After peak oil the problem will be the physical availability of fuels rather than their commercial merits.
"…and the government will not mandate the use of alternative transport fuels"; page91	Wait till the first oil import bills roll in after peak oil. OPEC will like this one.
"Effective excise will then be introduced in five equal annual steps to a final rate on 1 July 2015."; page 91	These dates are all academic as peak oil is expected before or around 2010.

Chapter 5 Fuel Excise Reform	
Quotes from energy white paper	Comments
"….with alternative fuels receiving a 50 per cent discount on energy content excise rates" and table 1, page 96	Renewable fuels (a subset of alternative fuels) should get a higher discount, depending on the fossil fuel input needed to produce the fuel. The first victim of the recent diesel rebate is Sydney's State Transit which now considers to buy more diesel buses instead of natural gas buses. If there were to be an oil import crisis, bus services, which would be very important to accommodate modal shift from car traffic, would then also be hit hard.
"The relative burden of excise will continue to fall because of the government's decision in 2001 to remove indexation of excise rates"; page 94	This will not work for very long. Without indexation, prices are kept artificially low and the adaptation process to higher world oil prices will be more difficult. With such low excise rates in good economic times the government will later have no room to lower rates if need be.
"The reforms will not affect arrangements for aviation fuels"; page 95	Air travel is thus subsidized and rail disadvantaged. It should be the other way round. In oil crisis years, domestic flights up to 1000 kms will have to be replaced by night train services on straightened and improved track.

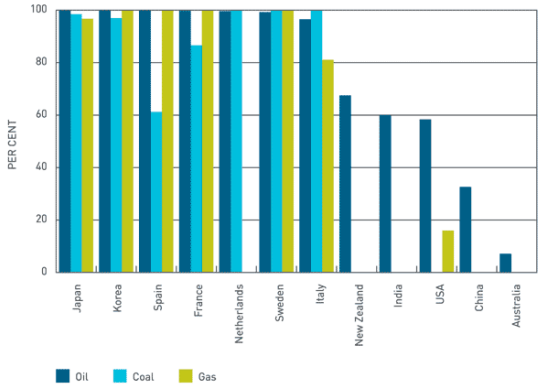
Chapter 6 Energy Efficiency	
Quotes from energy white paper	Comments
Key Points ; page 105	No quantitative targets are set to counter declining Australian oil production (around 4% pa)
Business benefits from improved energy efficiency; page 110	
"Transport accounts for 41 per cent of final	The paper sees energy efficiency only at vehicle

energy use in Australia, and energy efficiency gains could have significant impacts"; page 110	level but not at land use and transport planning level. The government continues to subsidize energy inefficient urban sprawl by a myriad of tax advantages and funding of urban freeways (not a national task).

Quotes from energy white paper	Comments
	Government should scan through its own programmes and weed those out which directly or indirectly subsidize the use of fossil fuels
National Average Fuel Consumption; page 112	The current NAFC targets for 2005 and 2010 were set in 1999. The energy white paper should have reported here preliminary results in how far these targets were being met in the meantime. With peak oil approaching, monitoring and controlling fuel consumption levels will really have to get very serious. In the coming years oil prices will be highly volatile, not sending out consistent price signals. This will have confusing effects on both car manufacturers and consumers deciding to purchase a new car. Yet, once oil production has started its terminal decline, oil prices will go up continuously and fuel efficient cars will be high in demand. The government must now initiate the production of Australian made hybrid cars. At the same time consumers must be made aware that fuel efficiency, not comfort and size will be the dominant factor when purchasing a car. The time of choice will be over with peak oil. The government must also ensure that engine efficiency gains are not eaten up by energy consuming accessories like power windows, air-conditioners etc.

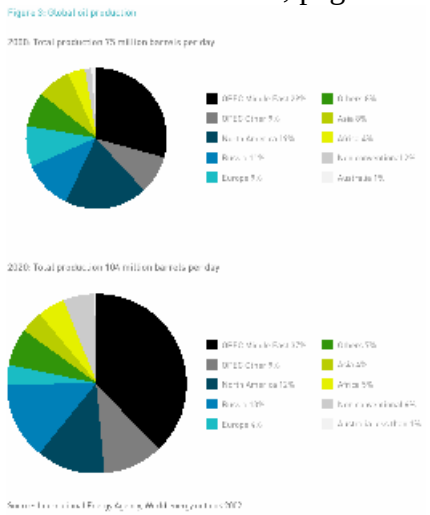
Chapter 7 Energy Security	
Quotes from energy white paper	Comments
Key Points; page 115 "high level of energy security" due to:	This is a static, unquantified statement which fails to address the future problem of oil & gas depletion
"natural endowment of crude oil"	There are proved and probable reserves of 5.3 Gb oil and condensate. Cumulative production up to date was 6 Gb which means **more than half of the reserves originally in place has been consumed.** Current oil consumption is 0.31 Gb giving an R/P ratio of 5.3/0.31=17 years. However, this does not mean that oil production will remain flat for this period and then drop to zero. **Rather, Australia now faces ever declining oil production over the next 30 years** (see Appendix 1)
"vast gas reserves"	Another dangerous misconception. According

	to the CSIRO report “Future Dilemmas”, page 172, gas production may peak as early as 2030 if an oil to gas transition is simulated.

Quotes from energy white paper	Comments
Key Points; page 115 ctd.	This may well have to happen as world oil production is expected to peak between now and 2010, driving up oil prices and forcing Australia to use its natural gas as a transport fuel.
“extensive infrastructure”	Natural gas reserves along the west coast and population centers along the east coast need to be connected by pipelines. There is no infrastructure for CNG powered cars.
“The main short-term threat to national energy security involves short-term disruptions to energy production and distribution.”	The report apparently cannot imagine long term disruptions which may happen after peak oil
“transport fuel not currently under threat”	Australia imports 100% of its diesel requirements and is therefore highly vulnerable to any kind of diesel supply disruptions or long term shortages after peak oil. And that situation will not change as natural gas does not contain the heavy elements required to produce diesel based fuels.
“government will review the energy security outlook at least every 2 years”; page 115	As peak oil is approaching, the oil supply situation should be monitored continuously
Energy Security Position; page 118  “In value terms, Australia produces enough oil to meet around 80 to 85 % of its domestic fuel needs”; page 118	This was correct in the past. However, in the next 6 years this situation will dramatically change (see Appendix 1). By 2010, this rate will have dropped to just 40%. Figure 1 (left) shows a net import dependency of less than 10% (does not match with 80-85% given in the text) in the most favourable year 2000 (peak oil in Australia) and is therefore not representative for future assessments.
“Hence some 60% or more of refinery feedstock is imported, relying on Australia’s good access to world oil markets”; page 118	This dependency will increase in future. Australia is now competing with China, a new entrant to the world oil market with an insatiable demand for oil on the Singapore market. It should be noted that Australian gas exports to China will fuel economic growth there and hence demand for oil, thereby worsening Australia’s competitive position in Singapore’s

	oil market.

Quotes from energy white paper	Comments
"World oil reserves increased from about 680 billion barrels in 1982 to about 1050 billion barrels in 2002"; page 119	This sentence suggests a very positive reserve growth outlook while: (a) some of this reserve growth is attributable to revisions of previous discoveries, that is they were not really new discoveries. (b) 300 billion barrels may have been spurious reserve revisions resulting from the OPEC internal quota war in the 1980s. (App. 10.3) (c) new discoveries are declining
"Despite increasing demand for oil, there are sufficient reserves to supply world demand for around 40 years"; page 119	**This sentence is the most misleading statement in the whole paper.** Oil data reliability is not high enough to support such an unqualified conclusion as it suggests a degree of certainty which actually does not exist. It is not on the safe side on which to base an energy policy. Many oil geologists and engineers with extensive exploration and production experience are warning for years now that oil production cannot grow forever and will peak. Reserve estimates and peak year vary depending on the forecast methodology and data used but a consensus is forming that peak oil may happen in the first decade of this century, much earlier than generally assumed. (see Appendix 2)
"In the longer term, concerns also exist about the longevity of oil supplies"; page 119	A single sentence warning is all there is to be found on future oil & gas depletion. **The main weakness of the energy paper is its failure to go into details on this very statement**. It should have studied e.g. following publications: • "Hubbert's Peak" by K.S. Deffeyes (Prof. at Princeton University; see Appendix 5.1); ISBN 0-691-11625-3 updated 2003 • Matthew Simmon's (investment banker) studies of giant oil fields (Hubbert Center Newsletter 2002/1; Colorado School) at: http://hubbert.mines.edu/news/Simmons_02-1.pdf and his analysis of Saudi oil production available at: http://www.simmonsco-intl.com/ (see Appendix 2.4) leading him to the conclusion that Saudi Arabia has much less oil than we think. • CSIRO's "Future Dilemmas" report published in Oct. 2002; see Appendix 1.1 • Samsam Bakhtiari's (senior expert in National Iranian Oil Co) WOCAP model with results published in the Oil & Gas Journal (Appendix

	2.6) http://www.stcwa.org.au/BO2/Bakhtiari-O&GJ-April%202004.doc Since the energy white paper was released in June 2004, more articles have appeared which raise serious, immediately concerning issues in relation to future oil supplies, not surprising for those
Quotes from energy white paper	Comments
	aware of peak oil: • Dr M. G. Salameh's article in the Petroleum Review (8/2004) "How realistic are OPEC's proven oil reserves" in which he sheds more light on OPEC's spurious reserve additions in the 80s, concluding that a massive 300 Gb would have to be deducted from world reserves of 1050 Gb. (note: ASPO has made provisions for these anomalies) http://www.odac-info.org/bulletin/documents/DepletionAnalysis.pdf • Klaus Rehaag from the IEA, editor of the monthly Oil Market Report, presented a slide show during a workshop in Rio de Janeiro in July 2004, entitled "Is the World facing a 3rd Oil Shock?". This seems to be the first time that a department from within the IEA starts to ask some serious questions. See http://www.iea.org/dbtw-wpd/Textbase/speech/2004/kr_rio.pdf
Figure 3: global oil production to increase from 75 million barrels per day in 2000 to 104 million barrels in 2020; page 120 	This forecast has been adopted from the World Energy Outlook 2002 (International Energy Agency, Paris). However, the estimates of this outlook should have been independently cross checked against conflicting assessments from other sources available on the public domain. This would have been especially important as this issue has far reaching implications for the energy policy design. The Association for the Study of Peak Oil & Gas criticizes the IEA for using political and not industry data. In reply to the IEA's Energy Outlook 2002, ASPO estimated, in Nov 2002, for conventional and non-conventional oil a maximum of 85 mb/day in 2010, to fall back to 75 mb/d in 2020 (see details in appendix 6). In the meantime, as per 8/2004, ASPO has revised the 2020 figure downwards to 65 mb/d on the basis of new data.
Figure 4: world oil supply disruptions; page 121	Only short term supply disruptions are seen. Peak oil followed by permanently declining oil production which is likely to cause physical shortages on the world oil market is not on the Government's radar.
"multilateral efforts to ensure that world markets remain open ….. remain Australia's best path to provide for the	In view of the fact that military action now seems to be needed to keep world oil markets open it would be better to start a self reliant energy supply

continuity of oil supplies"; page 121	strategy based on domestic sources.
Alternative Sources of Transport Fuels; page 123-124	
Potential for: (1) convert coal and gas to conventional transport fuels	Alternative fuels 1-6 are seen as having a lot of technical problems, being too costly at present and little helpful in solving short term disruptions.

Quotes from energy white paper	Comments
(2) process shale to petrol and diesel; "technical and cost issues are proving barriers to widespread exploitation" (3) LPG (4) CNG (5) biofuels (ethanol and biodiesel) "Supplying a substantial proportion of fuel requirements from biofuels would be difficult and require the transfer of land use from other productive purposes"; "lower energy content"; "higher production cost" (6) hydrogen "All these fuels have received significant government support through excise exemption"	They merely provide comfort as potential resources in the event of a substantial rise in oil prices. No thought is given as to how these "substantial oil price" increases might develop in future and whether they would automatically induce the widespread use of alternative fuels. For example, price increases for oil could come so fast that little time is left to build up alternative fuel supply capacities, resulting in physical supply gaps. We also know that oil price fluctuations will not create a continuous, one-directional market signal on which long term investments must be based. Oil geologists tell us that the world has entered a bumpy oil production plateau characterized by a sequence of alternating demand and price increases each followed by recessions with reduced demand and prices. It is only after peak oil that prices will go in one direction. Then it will be too late.
"The above factors mean that there is currently no case for the government to accelerate the uptake of these fuels on energy security grounds. To do so would involve additional costs for consumers, with few energy security benefits"	**<u>This is the 2nd most questionable statement in the energy white paper</u>**. The assumption that markets alone (which are quite chaotic in oil crisis years) will bring about a change to the use of alternative fuels is both untested and risky. The oil decline rate is predicted to be 2-3% pa and will dictate the speed of the transition process to other fuels. Ultimately, when fossil fuels like oil and gas start to decline, we have to bring our fuel consumption down to levels which are commensurate with the availability of genuinely renewable fuels. Deregulated, liberalized markets can only work properly when there are no physical limitations to resources.
Long-Term Security of gas supplies; page 128	
"Australia's gas reserves are sufficient for more than 100 years at current production levels…."; page 128	With all gas export deals in the pipeline, current production levels will be increased significantly. An R/P value of 100 years is therefore grossly misleading and results in a false sense for the longevity of gas supplies. Moreover, there is gas from fields under shallow and deep water with different levels of cost and risk. Current and planned gas exports are from

	easy, shallow waters and these are sold off at rather low prices compared to the prices achievable later.
"Furthermore, prospects for finding and proving up more gas are good…"	Only proven and probable reserves should be considered. Even existing proven reserves in deep water have never seen a drill bit.

Quotes from energy white paper	Comments
	This way of thinking would be similar to a treasurer preparing a budget on the basis of taxes which do not exist yet.
"…new discoveries …. Such as in the Otway Basin…"	According to the Victorian Supplement 2004, http://www.pesa.com.au/vic_supp/vicsupp_12.htm the offshore gas in place there is 3.2 Tcf, approximately 4 years of Australian gas end use consumption
"Rather, the government's focus will be on continued market reform, so that competitive energy markets can determine the timing, size and placement of gas supply infrastructure, and so that impediments to new pipeline investment with adequate capacity are removed"	Markets, normally acting in favour of share-holders and investors, do not necessarily act in the long-term national interest which includes preservation of resources, priorities for different end uses, energy accountancy, trade balance, abatement of greenhouse gases and other environ-mental concerns, security of supplies, safe-guarding requirements for essential services etc. The government, apparently scared to take decisions, must provide guidance on which alternative fuel mix should fill the growing oil gap. This can be done by creating a proper tax regime, providing regulatory frameworks, planning an alternative supply infrastructure and establishing an administrative environment all timely coordinated and adequately budgeted for. As time is short now it is possible that only one critical path is left to organise the fuel transition in the required quantities.

References:

(a) "The truth about oil", Colin J Campbell, Eagle Print Ireland, 2004, Booklet and Power Point presentation

(b) "Public subsidies and incentives to fossil fuel production and consumption in Australia"; Chris Riedy, UTS, 2001; table "Tax benefits for cars provided by employers"

Appendices:

1 Australia's declining oil production
1.1 CSIRO: Australian oil production & gas transition
2 The general depletion picture by ASPO
2.4 Matt Simmons on peak oil and Saudi Arabia
2.6 AS Bakhtiari's WOCAP model
3 Australian Gas Reserves and Consumption Pattern
4 CSIRO's global oil production scenarios
5 Comparison EURs

5.1 Hubbert's Peak by K.S.Deffeyes
6 Peak oil analysis of chapter 7 – Energy Security
7 Ethanol
8 More questions than answers
10.3 OPEC Reserve Additions in the 1980s
11 Web link list

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