

## Supplementary Submission by Eriks Velins: Senate Select Committee on Fuel and Energy

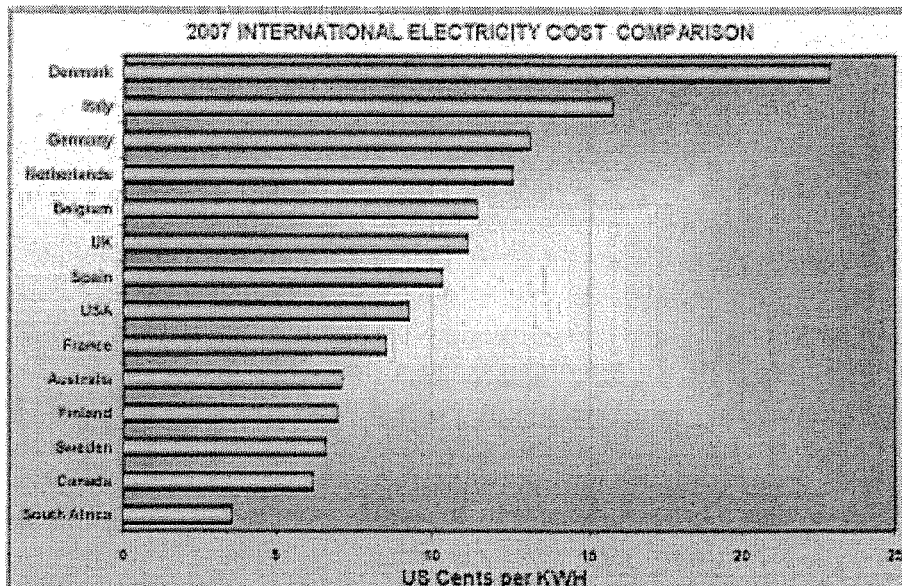
### Introduction

'Energy' tends to be defined as the capability for doing work. Energy can neither be created nor destroyed; it can only be transformed from one kind to another. Primary energy comprises traded fuels: oil, natural gas, coal, nuclear and hydro, and renewables: biomass, wind, geothermal and solar. Australia has ample reserves of all primary fuels with the exception of oil. 97% of its primary energy requirements of 118 mtoe in 2008 were met by oil, natural gas and coal.

Oil was addressed by the Senate Standing Committee on Rural and Regional Affairs and Transport in February 2007 and reported as 'Australia's future oil supply and alternative transport fuels'. That excellent report did not investigate the geopolitics of oil, (see my attached submission to the Energy White Paper, Discussion Paper, International Energy on that subject), fuel taxation and Australia's obligations to the IEA. Australia is the only member of the IEA which does not abide by its membership requirements, namely the provision of strategic stocks of oil, which even the USA has always done. It therefore has no options other than rationing for managing short term interruptions to oil supply, for it is most unlikely that countries which do comply will assist a country which does not.

Derived energy comprises electricity, process heat and commercial/domestic heat. As the last two form a minor part of the derived energy mix, I shall not discuss them, confining my comments to energy (electricity).

Economics drives electricity. The table below provides a comparison of international electricity prices:



Ref: Power Engineering International, NUS Consulting Group's International Electricity Report and Cost Survey 2006-2007.

Australia has some of the world's cheapest electricity due to its cheap coal, hence the creation of our globally competitive energy intensive industries.

Denmark relies almost totally on wind power and its connections to the Nordic and German coal/nuclear electricity grids. Hence it has high electricity costs and a different economic structure.

### **Question**

**h. domestic energy supply and domestic oil/gas exploration and refinement (ie refining) industry, with particular reference to:**

**IV. securing Australia's future domestic energy supply;**

### **Answer**

It is the role of Government to ensure that Australia has a secure supply of energy. That security is expressed as a National Energy Policy which has five elements:

- Energy should be affordable and its price be globally competitive,
- Energy should be environmentally benign,
- Energy should be secure in its supply,
- Energy should be reliable in its delivery to the consumer and
- Energy should be safe to use.

Failure to meet any one criterion can be seen as failure to meet the Policy as a whole. All Australian Governments have met that objective to date, but there are now disturbing developments which are undermining that Policy.

I would like to respond to the Question in terms of energy (electricity) and the criteria set out above.

- **Affordability**

Electricity demand continues to grow, partly due to the underlying growth of the economy, partly due to the growth of the population. The most effective and efficient way of meeting demand for electricity would be via a free national market, relying upon price as the key driver. Australia has taken some steps towards setting up East Coast and West Coast electricity (and gas) markets, the effectiveness of which should be reviewed in a few years as they settle down. There are issues of access to the grids and profitability.

Direct and indirect subsidies, the cost of which is not published but which could well be in the hundreds of millions of dollars range, tend to increase electricity consumption at a time when other government policies are trying to reduce it. The relatively few generators and wholesale customers, and political pressures to manage 'competition', as well as the different economic criteria employed by the public and private sector generators will ensure that we continue to need to

employ a 'Regulator'. So at best, Australia has, and will have, a 'managed' electricity market.

That market is now being severely distorted by MRET, the regulated imposition of non-commercial electricity supply in order to reduce emissions of greenhouse gases from the industry. Unfortunately, renewable electricity, in this case wind and solar, costs anywhere between 2-10 times as much as conventional electricity. The cost of MRET, annually and to date, which could well be in the billions of dollars range, has not been made public. That cost penalty was able to be absorbed when the mandated level was 2%. Now, at 20%, it will cause a substantial increase in price. Despite that, we do not have an emerging renewables design and production industry, one of the purported benefits of MRET. (BP recently transferred its Sydney PV cell plant overseas and Victoria quietly dismantled an obsolete windmill plant purchased from Denmark),

Unfortunately, the real distortion will occur when the conceptually more market based ETS is implemented, as both share the same objective, the reduction in emissions of greenhouse gases, partly by restructuring the economy, partly by forcing the construction of zero emission generators via a 'market' based price of carbon. Uncertainty as to the possible outcome from this conflict in approach has seriously inhibited capital investment in low emission state-of-the-art commercial coal base load power stations.

Clearly Australia can not afford both approaches and hence MRET should be stopped and subsumed within the ETS asap. Even so, electricity price increase will accelerate, calling into question Australia's competitive advantage in energy intensive manufacturing industry, with its implications for the rest of the economy. All sectors of the economy should now bear equally the total cost, so as to bring home to everyone the cost of the Government's emissions' reduction measures vis a vis its benefits.

- Environment

The key electricity environmental issue remains the reduction of the emissions of greenhouse gases from fossil fuel power stations, even in the absence of an Environmental Impact Statement as to the effects of such reductions upon Australia's climate. But the Government is now promulgating an unusual implementation strategy based on MRET and ETS, pushing for zero emissions' wind and solar generators but no more coal generators, whilst rejecting the zero emissions nuclear option and commercial state-of-the-art coal fired power stations, which, even without CCS, could reduce emissions by, say, one half.

Clearly such a strategy will not achieve the desired emissions objective whilst maintaining a 21<sup>st</sup> century economy.

The nuclear option was examined by the Department of the Prime Minister and Cabinet in 2006, and reported as 'Uranium mining, Processing and Nuclear

Energy Review'. However, the nuclear industry is having problems. Of the 45 reactors currently being built, 22 have encountered construction delays, with 9 not yet announcing an official start-up date. The 1600 mW European Pressurised Reactor design in Olkiluoto Finland, the first of a new generation design, is now several years behind schedule, with an estimated to cost some \$US 8 billion. (New York Times, 28<sup>th</sup> May, 2009)

Australia lacks the skills to operate and maintain, let alone to design and construct, a nuclear power station. Such skills could be developed over time and with the right incentives. But that is no reason why the nuclear option can not be considered in Australia too, for ultimately economics will need to play a role again in containing Australia's increasing electricity costs, as well as reducing emissions of greenhouse gases.

Of more immediate concern is the ongoing use by the generators, particularly in Victoria, of drinking water for cooling turbine exhaust. Drought has affected water supply and hence generator capacity, as it has of hydro. A policy requiring generators to produce their own cooling water from sea water, artesian water or brackish water, or conversion to air cooling, is required, so that this drinking water could be used for the larger cities as a low cost water policy option, given the present lack of alternatives.

- Security of supply

Security of supply is provided by use of adequate modern base and peak load generating capacity operated in a professional manner. However, two different electricity markets are emerging, a market to serve the economy as a whole using large power generators and a market serving individual consumers using distributed small generators such as solar PV cells, wind generators or natural gas ceramic fuel cells. Clearly the latter has different security requirements, though they often remain connected to the grid.

Coal, gas and nuclear based power stations use proven technologies, confirmed over time. Wind and solar generators, though appearing in growing numbers, can not yet be seen as technologically proven. Furthermore, whilst availability of the sun can be predicted with some accuracy, I am not aware of any work done on wind patterns in a period of climate change. It is therefore quite possible that some of the present and proposed wind farms may be in the wrong locations, just as some of our dams have been in the past.

Effectively managed R&D should play an important role in enhancing energy security. For Australia, CCS is critical, for that technology, particularly the 'capture element', will ensure ongoing use of coal and therefore maintain Australia's competitive advantage in electricity, as well as maintain its coal exports. Hot rocks geothermal energy could also offer unique advantages and should be actively pursued, as should the technology for long distance transmission of electricity. But conventional electricity generation, nuclear, wind

and solar technology will continue to be sourced overseas. Water based electricity from waves, currents and tides is in its infancy. It is not evident that the effectiveness of publicly funded R&D and demonstration projects could not be improved.

Due to lack of investment in base load generating capacity, electricity supply in Victoria and, possibly, NSW, is less secure than has been the case in the past. Given the very long lead times now required for any construction, a period of insecure supply appears inevitable.

- Reliability of supply

Reliability is assured by our distribution networks. A period of underinvestment has resulted in these becoming less reliable, as was shown by recent blackouts in Victoria and Sydney. The emergence of the national managed market has reduced the possibility of such failure. Upgrading these networks using 'smart grid' technology and some redundancy is the obvious solution, though budget priorities by the Federal and State governments have placed little emphasis on electricity, as it does not appear to be recognised as an issue.

Electricity really needs massive private and State public investment. Removing the uncertainty surrounding the rules of such investment is one aspect, securing the necessary funds is another, as governments have crowded out the private sector by their debt binge. The cost of money for Australian banks is rising, which implies that such investment will now have to be more profitable than in the past to recover the cost of capital, ie electricity prices will have to rise also on this account.

This situation will be exacerbated by MRET, partly by the ad hoc availability of wind, some 20-30% of the time, partly by some of the remote locations of wind and sun generators, the need to expand the grid and to manage the intermittent supply. In other words, MRET will reduce reliability of supply and impose a very high technological and commercial risk.

- Safety

Safety is a function of implementation of sound design and operating standards and adequate training to apply those standards. I am not aware of any issues in this area, other than the inability to find an acceptable location in Australia for storage of the different levels of radioactive wastes.

## **Conclusion**

Energy security has been severely undermined by an uncertain capital investment framework, resulting in underinvestment and potential insecurity and unreliability of supply. The present approach based on a very high technological and commercial risk emissions reduction strategy will fail to meet the Government's emissions' targets.

21<sup>st</sup> June, 2009



## KEY QUESTIONS ON INTERNATIONAL ENERGY

### Question 1.

What are the key factors likely to affect global energy development to 2030?

- **Demand growth, including the role of developing economies such as China and India**

### Answer

Demand for primary energy is closely correlated with economic growth, though the factor changes over time as developing economies become developed economies, ie developed economies are much more energy efficient. Economies are driven by population growth, technology, economics and society. There are no indications of any changes to those fundamental drivers in the near future, though there may always be some unforeseen event. Hence there remains a strong underlying demand for energy, as many people still want to get out of poverty.

There have been a number of countries which have demonstrated rapid economic growth following WW2: West Germany, Japan, South Korea and Taiwan. That growth eventually reached a plateau. China is now on such a path, to be followed by India. I would expect China to reach a plateau, possibly after recovery from the present recession, and at a similar level to that of other countries', even though large pockets of poverty may still remain. 'Peak oil' will be a contributing factor, as will price volatility and uncertainty.

Hence, whilst growth in demand will continue, it is likely to be at a lower level, and at a much lower level when 'peak oil' eventuates, than in the past.

- **Supply growth, including access to oil reserves and the growing concentration of oil reserves among less stable nations and regions**

### Answer

It is a matter of geology that some 80% of the oil reserves are in 'less stable nations', mostly in OPEC. We should be grateful that a number of such countries produce far more oil than is required to meet their own domestic budgetary needs. Many of their savings, having largely been invested in the USA, have now been lost, some hundreds of billions of dollars in recent years. A re-appraisal of such policies is taking place and will influence future supply.

OPEC's official oil reserves were almost doubled in the mid '80's without supporting evidence from exploration, in order to maintain 'market share' in the then prevailing production sharing formula. That leads to the possibility that global oil reserves might well be a third smaller than currently published, as no

independent audit has ever been carried out of the actual reserves of these national oil companies. This is an important aspect of 'peak oil'.

OPEC has been, and is, faced by a difficult balancing act. If supply is too restricted, prices will rise and trigger, or be a contributor to, an economic decline or recession, as was the case in 1973/4, 1978/9 and 2007/8. That is not in the interests of OPEC. High prices also stimulate substitution, conservation and development of alternatives, which is also not in its interests. A price collapse, as was the case in 1986 and 1998, leads to domestic economic hardship and social instability. That is also not in its interests. With declining reserves of non-OPEC oil, OPEC will again be able to exert a greater influence than in recent decades, either via supply shortfalls or via production management enabled by new capital investment and new technology,

The key player in this balancing act was, and still is, Saudi Arabia, with its special relationship with the USA, but Saudi Arabia appears to have lost the physical ability to vary production due to possibly declining reserves and under-investment, though that may be recovered for a temporary period, as several new fields are brought on-line in the next few years. Russia no longer has balancing capability either and has used oil and gas exports as a political weapon, shutting off pipelines to suit its political objectives of the time. Iran is rapidly emerging as an unpredictable regional (nuclear) superpower, despite, due to lack of investment and technology, having to ration its own consumption. This leaves Iraq or a Shiite Iraq/Iran as the next oil super power, and that might well be achieved within this time frame.

The oil industry and its customers, therefore, face some complex strategic issues. Effective management of higher prices must be the dominant response by Government.

- **The direct and indirect impacts of regulatory barriers to trade and investment, and uncertainty associated with global responses to reduce carbon pollution.**

#### **Answer**

There are few, if any, barriers to trade in oil, gas and thermal coal, but appropriate controls on uranium. Past oil embargoes to Rhodesia, Israel and South Africa did not work. Oil, after all, is the second most traded commodity after money.

Capital investment is quite another matter, as key OPEC members do not permit even exploration for oil by the publicly listed companies, some being more relaxed about developing already discovered gas resources. Operation is subject to Production or Risk Sharing Contracts. Iran is subject to sanctions by the USA. Restrictions also apply in Russia and Brazil. Investment elsewhere is subject to



operational requirements and normal evaluation processes and was optimised on a global basis during the recent period of high prices.

Measures to reduce emissions of carbon dioxide and nitrous oxide from vehicles include high excise, differential petrol/diesel excise and the use of mandated fleet fuel efficiency targets. (Should such measures be applied in Australia, fuel consumption could be reduced by up to half, as our ageing fleet is replaced with state-of-the-art vehicles, for Australia has the fourth cheapest petrol and sixth cheapest diesel in the OECD, with diesel, but not petrol, meeting EURO quality standards).

This has created great uncertainty in the refineries in the OECD, and new refineries have recently only been built only in China, India and the Middle East to meet growing domestic demand. Demand growth elsewhere was met by imports. A carbon price, if applied to refineries, will create more uncertainty, as energy consumption in recent decades has been halved, despite higher production to meet more stringent product specifications. Further reductions may not be technically possible and lead to shutdown.

There is no economic case to invest in Australia in the downstream, for volatile product prices and uncertain Government policies will remain a feature of the market. Instead, more closures are likely.

- **The role of financial markets and their ability to fund energy investments in the wake of the current global crisis and economic slowdown.**

#### **Answer**

Massive borrowings (and money printing) by governments have crowded out the private sector from such limited funds as are currently available. High borrowing costs, despite the low official interest rates, in a period of low product prices have ensured that many previously announced projects are cancelled or, at best, deferred by the private sector (and some national companies), and little new investment will now take place for some time. OPEC members, in particular, have used their oil cash for other government purposes, in the process also reducing maintenance of production facilities and thus ensuring even less supply for the time when oil demand will start to grow again. Volatility of crude prices will remain a feature, swinging between the floor and the ceiling, as discussed previously.

In such a world, the next recession will be only a few years after recovery from this one, now accelerated by even lower official interest rates and even greater government debt, and be of greater impact than this one, due to the emergence of 'peak oil', followed some years later by any impact from emissions' targets.

- **Geopolitical issues.**

#### **Answer**

Some of the geopolitical issues and their possible evolution were discussed previously. The central issue remains the USA, the largest consumer of oil, having the cheapest fuel in the OECD, and with rapidly declining reserves and production but with no obvious inclination to change. Fortunately the present recession will restructure its vehicle manufacturing industry and hence contain fuel demand growth. Higher fuel prices in the future will ensure higher efficiency. And interfuel competition will ensure that the optimum fuel mix is used for the generation of electricity.

However, USA, China and Japan, the three major importers, will always place their national interests first, which will ensure access to adequate supplies. This will place stress upon the 'managed' oil market currently in operation, and on the smaller users which do not have such commercial or military influence.

#### **Question 2**

**What opportunities and challenges are these developments likely to present for the energy sector and economy?**

- **An energy export perspective, including relationship between exports and domestic energy security.**

#### **Answer**

Australia is fortunate that it has ample supplies of brown and black coal, natural gas, oil shale and uranium, as well as the renewables: wind, sun, water currents and hydro and these are reflected in its globally competitive electricity price and its energy intensive manufacturing industries. There should be no concern about securing future supplies of electricity and thermal/process heat.

Australia's energy security issue is related to transport, for Australia lacks crude oil. Government's policy formulation is based on wrong data, for ABARE, the source of such data, includes condensates (from the production of natural gas) and LPG (from the production of natural gas and crude oil) in its crude oil actuals and forecasts, in contrast with the internationally accepted definitions, for condensates and LPG are not appropriate refinery feedstocks. Its forecasts are based on econometric models. I use Geoscience Australia's geologic forecasts of P90 reserves and production, that being industry standard practice. These forecasts are roughly half of what ABARE forecasts. Hence Australia's oil supply security is far more vulnerable than currently recognised or accepted by the Government.

Australia is the only member of the IEA which does not comply with the requirements of its membership, namely the provision of 90 days strategic stock of crude oil. It is therefore vulnerable to short term global disruptions in supply, as it can not rely on other countries, such as Japan, which do have such stocks, to share in an emergency their stocks with a non-complying member.

The overall regional oil supply/demand position is optimised by the companies to ensure the lowest possible prices for their customers. Hence Australia exports crude oil, feedstocks, products, condensate and LPG (butane) just as it imports crude oil, feedstocks, products and LPG (propane). Such transactions also enhance supply security, by ensuring that Australia remains part of an operational regional network. Maintenance of this network will ensure that Australia continues to be supplied at the lowest possible cost.

- **An import perspective (including liquid fuels and technology).**

#### **Answer**

Crude oil imports will change over time, becoming of lower API gravity, ie have a higher proportion of higher sulphur fuel oil which will then require new thermal or hydro treating/cracking processes to manufacture the product and quality mix required by the market. Such investment may not be forthcoming for reasons discussed previously.

Technology is available to convert Australian natural gas or coal to naphtha, kerosene and diesel, and in variable proportions to meet demand. One such commercial plant using natural gas is being built in Qatar. But such plants are expensive and appear not to be commercially viable at present oil prices.

Two plants would be required to meet the Australia's diesel demand, triggering the shutdown of at least the equivalent crude oil refining capacity. Were the security provided by these plants seen as worthwhile by the Government, some funding of infrastructure and joint management of the commercial and sovereign risk with the private sector would be required. Such an investment might be necessary in any case, should 'peak oil' come earlier and be more severe than expected. However, given the very long lead times, planning for such a contingency should start now.

Technology is readily available, either from the companies which specialise in such products (design, construction, process, catalysts, process control etc) or from the major international companies from their proprietary R&D. The challenge is to justify commercially the application of state-of-the-art technology.

#### **Question 3**

**What strategies and policies should the government adopt to maximize the effectiveness of its international energy engagement to:**

- **Promote transparent and open access to overseas export markets, especially in the Asia-Pacific region, to maximise the return from resources development for the Australian community**

#### **Answer**

Australia has been, and will remain, an exporter of commodities. So the first action of any Government must be to ensure that it does not lose this global competitiveness, indeed, to strive for that elusive goal of the 'level playing field', particularly in agriculture. It would be good if Australia could export more semi processed commodities but our major customers are now so influential that Australia can have but little effect upon them. They always operate in their own national interest, which may also include the upgrading of that commodity. On the other hand, Australia must ensure that it can freely import the goods derived from those commodities and hence should ban 'buy Australia' campaigns, State preferences, protective tariffs, restrictive product specifications and all other restraints of free trade, as there is more to lose than gain, particularly during a global recession.

Production and trade in energy is carried out by expert publicly listed companies. Such companies should be protected by Government from involvement by enthusiastic Government Departments in their commercial negotiations, as such involvement in the past has resulted in poor outcomes for the companies and the Australian taxpayer.

Unfortunately, but not surprisingly, the minerals and agriculture sectors represent but a few percent of the economy. Should those sectors falter as a result of government policies, the services sector could perform a greater role in exports. But that requires the upgrading of our education standards and the education sector, a subject of numerous other studies but so far with negligible impact.

- **Encourage adequate and efficient investment to help maintain our energy exporters' international competitiveness and grow our share of energy export markets.**

#### **Answer**

Investment will only take place if certain conditions can be met. There must be a market or a market must be able to be created for the commodity, there must be proven technology and capability, it must be possible to manage the commercial, technological, environmental and sovereign risk, the price must be realistic, finance must be available and the investment must meet the targeted return or hurdle rate.

Australia suffers handicaps in the energy industry. Construction costs are high relative to those of competing countries', labour costs are high and productivity reported to be low (Productivity Commission). Many of the resources are in remote locations. Markets are often a long distance from supply. Governments

define the framework within which to operate. For a globally competitive industry, such terms must be globally competitive also, accepting that nothing can be done about the geology. Geoscience Australia's contribution in providing the initial geological data for frontier areas is therefore invaluable but that in itself can not justify investment.

There has been considerable rationalisation of the upstream and downstream oil sectors in recent years, with many of the upstream players now operating overseas and the smaller downstream players being taken over by the larger ones. Industry restructuring ie concentration, can be expected to continue.

- **Manage the risks and realise the opportunities associated with global responses to address climate change.**

### **Answer**

There are a number of market driven and regulatory responses to climate change, local and global, though it is not at all evident that a global response will be accepted by the major emitters of greenhouse gases and local responses by the minnows will not influence local climate. The Kyoto Protocol is unlikely to be met by more than one or two countries. The underlying problem is that energy is far too cheap and a surrogate must be found for higher price, as only price eventually changes consumer behaviour.

The price of carbon is the driver for an emissions trading system, conceptually the cheapest way of reducing emissions, but which in the EU has so far failed to have any impact after a number of years of operation and with different versions of the system. In order to have an effect, the resultant price of electricity must be at least double that from coal and oil, an outcome which will destroy Australia's globally competitive energy intensive metals industry. Higher electricity prices enable justification of nuclear power, the solution accepted by many developed and developing countries and a realistic option for Australia too. However, the imposition of an MRET has confused the situation by overriding the emissions trading scheme and has created an unwarranted electricity cost penalty. That should be terminated. A carbon tax has been touted as an alternative but that will not increase efficiency nor stimulate the development of alternatives and should be rejected.

But the net result of these contradictory approaches has been a reduction in investment in conventional energy, leading to blackouts.

Higher excise on transport fuels has been very successful in the OECD as a means of reducing those emissions in most member states. So has the mandated fleet fuel efficiency target in the past. The EURO fuel specifications for clean petrol and diesel have facilitated the development of high efficiency engines.

In the meantime, a subsidised non-commercial fuels and energy industry has been created by governments, with its volatility too, as governments frequently change the level of that subsidy. The 3-5% that it now represents has not been able to make an impact on Australia's emissions or climate. Future 'opportunities' too are likely to depend upon the whim of governments.

In the meantime, significant efficiencies have been obtained in petrol and diesel engines and in coal/gas fired and nuclear power stations. Advantage should be taken of these proven commercial technologies.

- **Promote the development of and investment in low-emissions technologies, with our major energy partners in the Asia-Pacific region.**

#### **Answer**

The best Government policy is to set some real examples for our trading partners:

1. by replacing our aged brown and black coal fired power stations with state-of-the-art ones, thereby reducing our emissions from those sources by roughly one half,
2. by building a demonstration commercial size 3<sup>rd</sup> generation nuclear fission power station powered by Australian uranium and with a long term radioactive waste storage facility,
3. by ensuring that the next high carbon dioxide feedstock LNG plant has a CCS facility and
4. by accelerating the construction of a commercial size hot rocks power station and developing a long distance low loss electricity grid.

- **Ensure access to global oil markets on fair and reasonable terms**

#### **Answer**

There is no evidence that Australia has ever been denied access to global oil markets on fair and reasonable terms. The best way to ensure this in future is to ensure that Australia continues to have viable upstream and downstream oil sectors, with returns which enable ongoing investment to meet changing markets and specifications and ensure that in the global ranking of Australia's (local) companies, shareholder expectations continue to be met.

- **Promote energy security by encouraging global investment in energy infrastructure**

#### **Answer**

All upstream publicly listed companies have an incentive to continue to invest, as on average they have 14 years P90 reserves left and it takes some 10-15 years to find and develop a new province, assuming some are still left to be found

outside OPEC. That is why all the larger Australian companies now operate overseas, particularly in countries which have more favourable fiscal regimes and geology.

Energy security can best be provided by using state-of-the-art power stations, fuel efficient vehicles and the cleanest fuels, thereby maximising efficiency. Conversion of natural gas to naphtha, kerosene and diesel is an excellent insurance policy for transport fuels, as is compliance with the IEA's strategic oil stocks requirement for managing short term disruptions. There are niche applications for automotive LPG, albeit now increasingly imported.

- **Help manage geopolitical exposure and risk associated with greater integration with regional and global energy markets, including those for liquid fuels.**

#### **Answer**

In the medium to longer term, Saudi Arabia, Iran and Iraq will become the dominant oil producers and exporters, courted by the USA, China and Japan, whilst in the short term Australia will continue to rely on a range of regional and the smaller Middle East suppliers. Geopolitical exposure and risk has been managed well since before Federation by the current majors operating in Australia and I can not see any Australian government doing it better, for those same majors can offer a producing country, technology, finance and expertise, something not available to an Australian government, resulting in a mutually beneficial commercial relationship, which has and can be so readily undermined by short term national or even party politics.

#### **Question 4**

**To what extent will the 2008 economic downturn affect Australia's levels of energy security? Will these have a temporary or structural impact?**

#### **Answer**

Australia's level of energy security will be affected by further under-investment in the upstream and downstream sectors, here and overseas. Oil prices will rise faster and further once the economy recovers, leading rapidly into the next recession, now enhanced by 'peak oil'. That impact could be modified by investment in facilities which would create security, such as a gas to liquids plant, a very fuel efficient vehicle fleet and strategic oil storage.

Volatile prices will continue around a higher price level and the effect will be structural.

#### **Question 5**

**Which international institutions are effective, and where should Australia focus its efforts in order to maximise the benefits of international energy engagement?**

**Answer**

The most effective international institution is the IEA and Australia should honour its commitment to it so that it could enjoy the benefits of its emergency response process. I would recommend strengthening that relationship, particularly now that its reviews reflect industry, rather than government, positions.

There is also merit in participating in the EU when it defines future fuel specifications which then drive engine designs and upgrading of refineries, so that Australia is not again left a decade or two behind the rest of the world as was the case with clean diesel (but not yet clean petrol), when it was the second country to introduce unleaded petrol in 1986, a good decade ahead of the rest of the world, after Japan led the world in 1975.

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15<sup>th</sup> May, 2009