

Peak Oil, Gas and Nuclear Power

The Rainbow 2000[®] Project is a doctoral research & corporate investment program analysing the relationship between planning and politics in Economic Development in Australia, and more particularly a case study of Albany & the Great Southern Region of Western Australia – thesis : Is planning the antithesis of politics?

As good as the Australian Planner (2006 Vol.43 #4) : Energy Planning special edition was : www.planning.org.au

Don't wait for oil drought – hope for best and prepare for worst : "Peak Oil is when the rate of global oil production changes from its increasing trend to the unavoidable downtrend as the world's oil fields start their overall decline phase. We will not run out of oil, but there will be less available each year in future. Many of the world's major oil regions are already in decline. The North Sea, Alaska, Kuwait's Burgan and Mexico's Cantarell supergiant fields are in clear decline. Australia's Bass Strait reached peak production in 1985, and has been declining since."

"Australia's oil production has been declining since 2000, and it is forecast to continue to decline quite quickly. New oil fields coming on-stream around the world are offsetting the declining old fields; but as the decline rates accelerate and new fields become smaller and scarcer, there will soon come the tipping point when overall global oil production will start to decline. It is not possible to forecast exactly when Peak Oil will occur. Much of the world's oil data are state secrets and published oil reserve figures are as much spin as substance."

"Many authoritative estimates suggest Peak Oil will arrive some time around 2010-2012. Of course, the concerned scientists may be proved wrong, and the business-as-usual economists may be right. But like climate change, we should hope for the best, but plan for the worst. Planning and Infrastructure Minister Alannah MacTiernan wisely said in 2005 : "The cost of preparing too early (for Peak Oil) is nowhere near the cost of not being ready in time." But it is very hard for governments to take the lead on Peak Oil until the community is well informed about the probabilities, risks and opportunities."

"We recommend a four-fold approach. Highest priority must be community awareness and engagement so people understand the problems and accept that serious precautions and countermeasures are needed. Second is frugality. We cannot afford to be as profligate with fuel and travel as we are now. Third is efficiency. There are lots of ways of doing things better or just as well with less fuel. Lowest priority should be alternative fuels. This is because it is not physically possible to grow enough biofuels nor to make enough coal into oil, for instance, soon enough and without enormous environmental damage."

Bruce Robinson, Australian Association for Study of Peak Oil & Gas Extract : West Australian (Page 19), 9 Feb 2007

2010-12 is now the five year planning horizon, and whether we choose to believe or not, Robinson provides a clear statement of the nature of the problem confronting Australia.

The Nuclear Energy debate boils down to eight questions :

- 1. Do you believe that fossils fuels, particularly Oil & Gas, are a finite resource? Yes.
- 2. Do you believe in the concept of Peak Oil & Gas production? Yes.
- 3. When do you estimate that Peak Oil & Gas will occur? 2010-12? How reliable is this data? What is potential variation in that date : next decade?
- 4. How well is Australia positioned to negotiate over price and supply of petroleum products for various energy applications? in particular transport and electricity generation.
- 5. How vulnerable are Australia's urban, rural and remote settlements and industries to restriction of energy supply Highly vulnerable.
- 6. What are the plausible energy solutions for the 'Electric City'? Base plants : Nuclear Power is only solution for population thresholds 500,000 plus unless Hydro-electric or Geo-Thermal available.
- 7. Which two countries have 51% of the known global deposits of Uranium Ore? Australia & Canada.
- 8. What is Australia's domestic and international policy position on the supply of Uranium Ore to world market? and how do we manage that future relationship?

Written & Authorised by Neil Smithson of 364 Middleton Road, Albany, Western Australia 6330

Peak Oil and Planning for Urban, Rural & Remote Australia

I appreciate Neil Smithson circulating my opinion piece on Peak Oil published in the West Australian last week. I am very happy to allow it to be considered as part of his letter to the Editor or to be reprinted elsewhere.

Last week also saw the release of the report of the Senate Inquiry into Australia's Future Oil Supplies (which did not receive much publicity in part due to a lot of coverage about Climate Change, carbon trading etc). Links are available on the ASPO-Australia website, <u>www.ASPO-Australia.org.au</u>. The report is an important step towards **Peak Oil** being recognised as a major problem facing Australia in the near future.

Peak Oil and Climate Change are the twin challenges, or "intersecting challenges" facing us. "Petrol droughts" may well have a bigger impact soon on ordinary Australians than the longer term and more serious environmental problems of climate change. However, it is also probably true that we have more control over the mitigation and adaptation strategies for Peak Oil than for Climate Change. The planning profession and individuals can prepare by evaluating and reducing oil vulnerability at individual, community and organisational levels. TravelSmart individualised marketing, as one example, has reduced existing car-kms by some 13% in the programmes in Perth and in suburbs of Melbourne and Brisbane, as well as overseas. The role of planning in reducing the need for car-travel is very well known, but these strategies have not been seen as high priorities in many areas.

The outer fringes of Australian cities have very high oil vulnerability, as outlined by Griffith University researchers, Dodson and Sipe (<u>http://www.aspo-australia.org.au/content/view/120/1/</u>). Dodson and Sipe mapped vulnerability to fuel prices rises, and to the mortgage interest rate rises which are likely to follow future oil shocks, as they did in the 1973 and 1979 oil shocks. Regional centres are to be included in future work. High levels of car-dependence, long trip distances, poor public transport, and often low economic resources combine to focus the oil vulnerability of our cities on many of the outer suburbs. Those with long established houses (and lower mortgages), and those areas close to railways and existing shops are much better off.

ASPO-Australia has been attempting to encourage local authorities and other organisations to undertake oil vulnerability assessment and risk management studies, as a first step towards local mitigation and adaptation strategies. We have active working groups in most state capitals and in Gippsland and many people available who can present seminars or briefings on Peak Oil and its implications. We also have a number of working groups in different sectors including Finance Sector, Health, Social Services, Active Transport and Urban Transport and Planning. The latter is headed by Dave Kilsby in Sydney. The submissions to the Senate Inquiry from our various working groups are listed on the front page of our website. We are keen to establish working groups in other areas, for instance a Local Government working group, and Regional Planning working groups. As a nationwide network of professionals we rely on interested people volunteering ideas, assistance and commitment. So far, we have been very heartened by the number and quality of professionals taking an interest in Peak Oil.

Please feel free to contact me and ASPO-Australia for more information, or with suggestions about what should be done to communicate the risks and opportunities of Peak Oil to professionals and the community.

Regards,

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Clean not so green – Myths about the Greenhouse Debate

Extract : Sunday Times Newspaper (Page 89), 9 September 2007

The term 'clean coal' has about as much credibility as the term 'safe cigarettes', according to research group The Australia Institute. A study released this week by the independent think-tank turns the spotlight on projects such as BP and Rio Tinto's planned \$2 billion Kwinana clean-coal power station. The proposed Kwinana power station would gasify coal to produce hydrogen and carbon dioxide, with the hydrogen used to fuel the power station and about 90% of the carbon dioxide to be captured and stored under the sea off the Perth coast, through the process called geo-sequestration.

George Wilkenden, principal author of the Australia Institute study Clean Coal and Other Greenhouse Myths, said most of the environmental good news was being attached to most clean-coal projects and was little more the myths, folklores and lies. There is no such thing as clean coal for climate change, he said. The term is a marketing triumph for the coal industry, like safe cigarettes was for the tobacco industry. Dr Wilkenfeld said that while the planned Kwinana power station was at least looking at new technology, the 2014 time-frame being promoted for the project was extremely ambitious and probably unrealistic given that geosequestration was largely unproven and had no immediate prospects of commercialisation.

Dr Wilkenfeld said it was now accepted in Australia that controlling climate change would require enormous changes to the global economy and to the global energy system. There would be winners and losers among industries and companies as a result of these changes. The potential losers are fighting to retain their advantages and privileges. Others are positioning themselves to profit, in some cases from ineffective or even counter-productive solutions. Part of the strategy of potential losers and winners is to influence public debate through myths and half-truths.

The study identifies a number of myths that the authors argue are dangerously skewing efforts to reduce emissions and combat global warming. Releasing the paper, institute director Clive Hamilton said Australia's emissions were continuing to rise inexorably, despite considerable sums of private and public money, much of which had been wasted. We urgently need a near-term policy that causes emissions to peak in the next few years, then fall over the next decade and beyond, he said.

- Coal can be part of the solution there is no such thing as clean coal at present and there is a chance there never will be.
- Carbon sequestration can be the centrepiece of policy this technology is unproven and expensive.
- Nuclear power can be the centrepiece of policy this technology is expensive and risky, and unlikely to have significant impact for 15-20 years.
- * Renewable energy is always benign not all renewables are completely clean.
- Renewable energy can support our current level of energy use we cannot make the transition to a renewable energy without first relying on natural gas and increasing the efficiency of energy use.
- Renewable energy cannot provide base-load power a system that uses a mix of renewable technologies, some gas-fired power and energy storage, could supply reliable base-load power.
- Voluntary green power schemes make a difference experience shows they have little effect.
- Buying carbon off-sets is the same as reducing emissions buying off-sets is too often a smokescreen for large emitters who intend to operate on a business-as-usual basis.
- We can plant enough trees to get us out of trouble we can't.
- We need to wait for new technology if the technology is not already available, it will be too late.
- The hydrogen economy will save the day energy is used to produce hydrogen, so hydrogen will only be as green as the energy system that supports it.
- Expanding public transport is the answer cars are here to stay and reducing their emissions must be the primary focus.
- It won't cost anything tackling climate change will mean the end of cheap energy.
- Australia will meet its Kyoto target it won't.

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Thinking long and nuclear -

Uranium mining is the way of the future as the world goes nuclear to combat climate change

Extract : West Australian Newspaper (Page 82), 8 December 2007

It may take a while, but uranium mining and nuclear power will come to Western Australia. The world faces a trilogy of threats to energy supply. Together these are forcing governments to change radically their fuel mix from coal and petroleum. The Chinese and Indians are choking in clouds of coal-generated pollution. Both countries are in the early, energy-intensive stages of economic development. Both countries rely on coal for 70% of electricity generation. While the resultant rapid growth in coal-fired power stations – 110 new stations built in China alone in 2006 – is helping these countries grow and eradicate poverty at an historic rate, it is causing massive harm to life and the environment. Neither country can continue to expand coal use at anywhere the current pace, nor can they afford a radical cut to growth in electricity production.

The world is also racked with concerns over energy security. Nature has not allocated energy sources evenly. Petroleum resources are concentrated in the Middle East and in countries of questionable reliability. The oil-rich countries through OPEC are restraining supply and keeping the oil price high. Many of these countries are using oil supply as a political or economic weapon. The flow of petrodollars is giving rise to a massive concentration of the world's wealth in hands of few, fragile states. This is a recipe for a global disaster. Then there is climate change. The world is moving towards a decision actually to do something serious about global warming. To date it has been largely talk, token gestures and one-off measures. If the world does adopt anything near what the scientists are demanding in Bali – 20% reduction in greenhouse gases by 2020 – then the world energy mix will need to be drastically altered starting now.

Nuclear power and natural gas are the only major alternatives to coal-based electricity generation on a broad scale. While natural gas will play a bigger role in the energy mix – to WA's great advantage – its contribution is limited by its costs and availability and by concerns over resource security. Natural gas production is already stagnating in the US and the UK. Russia and the Middle East have big reserves, but there are real concerns about their reliability. LNG supplies are growing in volume and diversity of sources. However, so is its cost. Clean coal and hot rocks are a possibility but these are still in the early stages of experimentation and might not work. We certainly cannot rely on them in the medium term. Because of their intermittent nature – they only work when the wind blows or the sun shines – as well as their high cost, at least three times coal generated power, wind and solar power will be restricted to small niche roles. Up until now many Western countries, including Australia, have been able to pretend that solar and wind are the solution. But once we stop pretending and start to act, the inherent flaws in wind and solar will be exposed.

Nuclear power is clean, carbon-free, secure and cost-effective. Nuclear generators emit no air pollution or greenhouse gases. They use very little fuel in price and volume terms and over 50% of the world's known stock of uranium is located in stable Western countries with the biggest reserves (24%) located in Australia. Nuclear power has had a poor commercial track record in many countries. However, there have been huge improvements in nuclear technology over the past 20 years making them safer, more efficient and less costly. Governments, particularly in the United States of America and Europe, have also improved the regulatory process thereby greatly reducing the threat of costly delays which is what in the end stopped the expansion of the industry in the 1980s. Indeed, in the US nuclear power is now the profitable segment of its electricity grid.

There is also a range of innovations coming to the market that eliminate the risk of meltdown, reduce waste, reduce the economic scale of the plant thus making them more feasible for Australia and allow the use of other fuel sources such as thorium. There are also solutions to storage of waste being developed. Governments outside Australia are reacting to these threats and opportunities and are embracing nuclear power. Indeed there is a new nuclear renaissance under way. There are 350 nuclear plants under construction or being planned around the world and the list grows by the week. These will more than double nuclear generating capacity. China is leading the way, with 121 nuclear plants. India is planning to build 25 additional nuclear plants.

The US – the world's biggest nuclear energy producer – has shaken off the Jane Fonda blues. There are 32 new nuclear plants being considered by regulators. These plants alone will increase US nuclear capacity 30% and the world's nuclear installed capacity by 10%. More plants are under consideration. Europe has also recommitted to nuclear power. Sweden and Germany have dropped their pledge to phase out nuclear plants. France and Finland are building plants and Russia has 35 plants on the drawing board. Canada, South Africa, Japan, South Korea, Taiwan and Egypt are also planning major expansion. This has led to a ninefold increase in the uranium price – from US\$9/lb in 2000 to US\$95/lb today.

The miner investors are ready and eager to get going in WA. However, the Carpenter Government continues to ban uranium mining in Western Australia. It has also recently pushed a Bill through the State Parliament aimed at preventing even the consideration of the possibility of nuclear power. This is not just commercially stupid, but environmentally and strategically negligent. Eventually change will come, via logic, the ballot box or from Canberra. So think long and nuclear.

Dr Mike Nahan, Liberal Party of Australia Former Executive Director, Institute of Public Affairs Consultant, Chamber of Commerce & Industry Western Australia Tel : + 61 8 9365 7555 Fax : +61 8 9365 7658 www.cciwa.org.au mike.nahan@cciwa.org.au

Refer : Smithson Planning's Rainbow 2000[©]10th Anniversary Project Evaluation, and comments pertaining to discussions on energy. www.smithsonplanning.com.au/R200010thAnniversary.pdf

The Nuclear Comeback

Extracts : SBS Television (Cutting Edge), Directed by Justin Pemberton, Produced TV Set Ltd, NZ. Broadcast 15 January 2008

Bruno Comby, Environmentalists for Nuclear Energy – I have been committed to nuclear power all my thirty years in the field of professional environmental lobbying no matter where that has taken me. I am doing this for my children and their children so that we can all have a planet that people can grow up to know, share and appreciate. It has been a difficult message for many years, but the tide is turning as people begin to comprehend the impact of greenhouse emissions and global warming on climate change. We have absolutely no choice. We need to turn to nuclear energy because it is clean, safe and abundant enough to ensure the survival of our civilisation.

Ian Hore-Lacy, World Nuclear Association – We're seeing nuclear – the 'N' word – is much more mentionable in high political places today than it was even two years ago. There is nothing in the world that is devoid of risk – you minimise the risk and get on with life. Nuclear power currently provides just 16% of the world's power.

Ian Smith, ANSTO – Australia currently delivers 80% of its power via conventional coal fired power stations. We are one of the two highest per-capita emitters of greenhouse emissions in the world. That scenario is unlikely to continue given international attention to the issue and the need to actually do something about it.

Rob Edwards, Nuclear Correspondent, New Scientist – The industry sees climate change as its saviour, as a way of making nuclear power look environmentally friendly, which to be frank, it never has done. It is relatively easy to change from a civil nuclear power program to a military nuclear weapons program. We just don't want to jump out of the carbon frying pan into a plutonium fire.

Ben Todd, British Nuclear Group – The Calder Hall Nuclear Power Station was shutdown in 2003 after 47 years continuous service. Final site clearance for decommissioning is anticipated to take 120 years and cost in excess of $\pounds 1.0$ billion.

Martina Kreuger, Swedish Environmentalist – Our nuclear power stations have paid for themselves after just 25 years. They are now money printing machines not taking into account decommissioning and site clearance.

Lars-Olov Nŏglund, Nuclear Engineer – If a nuclear power plant breaks down or is the target of terrorism, then you have a period of time afterwards where there is just no end to it. Nuclear power is really good when everything goes well – it's absolutely the worst hell that exists on earth ... probably even worse than war, when it goes wrong. If you don't accept that statement, you probably should not have anything to do with nuclear power.

Yuriy Tatarchuck, Chernobyl Tourist Board – Tourists look at abandoned ancient cities with wonder and awe, and think why? Pripyat (Ukraine) is an abandoned modern city that had 50,000 people, and was just two kilometres from Chernobyl. Today, you can see Pripyat from a distance, but you can't feel it, you can't hear it, and you can't taste the life that once was here. Breathing the air can still be dangerous depending how close you are and which way the wind is blowing. There is a 30 kilometre exclusion zone around it, and while there were officially 56 accredited deaths, over 600,000 Russians were affected.

Nathan Argent, Greenpeace Activist – We run a viral website that distributes e-Alerts highlighting the vulnerability of nuclear power stations and associated transport infrastructure to terrorist attack. We take that cause to the people by showing graphic images of simulated actions on video, and physically getting in front of them at times and places that don't always suit their contrived indifference. We are trying to tell Tony Blair we don't want any more nuclear power stations in Britain.

THE NUCLEAR COMEBACK

http://www.thetvset.co.nz/projects.php

Cultural Revolution – China's Energy Future

Extract : The Weekend Australian (Page 33), Saturday 15 March 2008 : Special Report with Rowan Callick

Cultural Revolution – China's Energy Future : "China's insatiable hunger for energy is among the biggest issues of our day. It intends to keep growing rapidly – at about 10% a year. But at the same time, its Government is also determined to cut pollution in the run-up to the Beijing Olympic Games, and reduce emissions that have made it the biggest international producer of greenhouse gases. Its prime answer is to change the way it produces power. It is increasing the contribution of nuclear and renewable sources, and cleaning up its core energy source – coal."

"Jing Ulrich, chairman of China Equities at JP Morgan, said recently that the severe winter storms that lashed the country over Chinese New Year had revealed a host of vulnerabilities in the transportation, power and agriculture industries. As a result, China will step up investments in power transmission, transportation and agriculture, even as it checks growth in manufacturing and real estate."

"Since a big shake-up of China's power industry in 2002, it has operated through two major grids and five big generating groups that report to the State-owned Assets Supervision and Administration Commission. The State Electricity Regulatory Commission exercises overall responsibility – and had to cop flak and supervise the restoration of power, when transmission lines collapsed recently *(under the weight of snow & ice)*."

The National Development and Reform Commission, China's top planning agency, wants to shut down smaller power plants, which are often responsible for heavy pollution and high accident rates, but tend to be protected by local officials – while encouraging investment in larger new plants. China Light and Power, of which the Kadoorie family holds a third *(Share)*, is the only international equity holder in the nuclear industry in China, owning 25% of the Daya Bay plant, with State-controlled Guangdong Nuclear Power Holding Company owning the rest. The \$5 billion plant, which uses mainly French technology, was first planned in 1980. The Chernobyl disaster took place in 1986, the year before construction started, and so by the time the plant began operating in 1994, it had incorporated the many safeguards internationally devised to ensure no repetition occurs."

"China has 11 nuclear power plants in operation, providing 2% of the country's energy needs. It plans to double this by 2020. During the process, Daya Bay's role is growing, as the core training institution for China's nuclear scientists and technicians. China National Nuclear Corporation, established 20 years ago, has a wide range of responsibilities in supervising the sector, including as the sole buyer of all uranium required by the country's generators. But the State Environmental Protection Authority and the Ministry of Land & Water Resources are playing increasing roles in approving and overseeing nuclear projects. Daya Bay's neighbours include the refinery where liquefied natural gas shipments from Australia's North West Shelf are landed."

"Safety is the top priority, says Steven Lau, Daya Bay's first deputy general manager. There have been no unplanned shutdowns of the plant in the past two years. The worldwide average, in the 439 reactors operating, is one or two such shutdowns per year. About 20 million people live within a 75km radius of Daya Bay – including all of Hong Kong. But within 5km, the population has been restricted to the 5,000 nuclear power community – the people who work and train there, their families and support staff. The 10km radius is ringed with radiation level detectors, with monitors sending continuous signals. Everyone who works there receives and annual medical check."

Lau says china is still examining several options for a permanent site for radioactive waste – the chief continuing challenge for the industry. The station has set up a reserve fund for decommissioning and for taking care of spent fuel – a requirement of the Government, which has a senior inspector permanently based on site. The plant also has its own quality assurance auditors from overseas, including from the US and France. The solid waste has been restricted to 12% of the original design capacity. The fuel for the power station comes from the Li Bing mine in southwestern Sichuan Province. Overall, China's plants source 70% of their uranium domestically and import the rest from Russia, Europe and elsewhere."

"The cost of fuel is a tiny proportion of the overall cost of Daya Bay and other nuclear plants, compared with the size of capital investment. Lau says that the keys to the success of the project include the use of proven technology, quality management, good corporate governance and strong government support. The operating costs of Daya Bay are confidential, but they would put it in the top performing 20% of US plants. Longer term he says, the economies of scale will make nuclear power more competitive. The Government has recently approved the construction of four nuclear units at the same time, at a plant in Liaoning Province in the north-east."

"Costs of the new series of nuclear plants are being cut by reducing the construction period, in part through localised fabrication, thus lowering the loan interest payable over this time. The first two units at Daya Bay took six years and nine months to build, by US giant Bechtel, the second two, five years. China National Nuclear Corporation is building the two new units, half of whose components are also being made in China. Chian is establishing its own national standard for plant design. Daya bay leant heavily on technology from French nuclear giant Areva, which in turn was derived substantially from US Company Westinghouse, now owned by Japan's Toshiba."

"The Daya Bay installation is guarded by soldiers installed in watchtowers, not only by private security guards. There are also police on site, armed with machine guns. A massive breakwater, 30m high at low tide, stands in front of the plant to protect it against tsunamis. The design criteria stipulated it would be able to withstand any event recorded in the last 2-300 years in the area. The boilers are made of reinforced concrete armed with steel a metre thick. The units are operated entirely separately, so they cannot 'inflect' each other. Spent fuel rods are held temporarily in two areas like swimming pools, and later transported secretly by road in a specially designed cask made in Spain under US licence, to a desert region in the remote north-west of China."

^{*}Lower and medium level waste is kept on site at Daya bay. A total of 130 cubic metres of waste is generated annually by the two units being operated by China Light and Power. Every six weeks, staff takes time off from their normal operational shifts to train, and every two years they must re-sit their exams to be licensed. They have to undergo security and psychometric checks before beginning to train for work there. Each nuclear unit has 20 operators per shift, with two extra staff training alongside them. Half work in the control room, half in the rest of the plant.

Smithson Planning – Organisational Management, Media, Town Planning & Environmental Assessment PO Box 5377 Albany WA 6332 Tel : (08) 9842 9841 Fax : (08) 9842 9843 Mob : 0428 556 444 They operate as a 'clean shift', with no physical contact allowed with outsiders. The initial requirement is a Bachelor of Science degree, but many also have a Master's."

"The chief bottleneck preventing China accelerating its nuclear power program is obtaining the vast, dome-like reactor vessels, which are stainless steel inside and carbon steel outside, forged in a high-tech process with a high pressure press. There is a long waiting list to obtain them from Japan, the main supplier. As *The Weekend Australian* visited Daya bay, one was parked on the ground beneath a vast crane waiting to be swung into position in the site's sixth reactor. Once it is complete, the six units will produce 6,000 megawatts of electricity."

"China is building plants in Shanghai, Sichuan, and Heiliong-jiang, which will soon start forging vessels at the rate of one a year at each plant. It will also begin to make the cooling pumps that operate between the reactors and the steam generators. Steadily, the technologies required to build as well as operate nuclear power plants are being transferred to China. The investment needed, requires a national program that guarantees future orders. The target is 40 nuclear units by 2020."

"Lau says : The Chinese culture is never to report a problem to your boss if you think you can fix it yourself. We have to report everything, even if we can genuinely fix it. Transparency is crucial. So we have also introduced a no-blame culture. The most important cultural change signalled by the commitment to building a strong nuclear component in China's energy mix, is a determination to produce cleaner power."

Steven Lau, 1st Deputy GM, Daya Bay Nuclear Plant, China Extract : Weekend Australian (Page 33), 15 Mar 2008



Daya Bay Nuclear Power Plant, Guangdong Province, People's Republic of China



Quotable Quotes in the Energy Debate

"The Albany Sandpatch site is, in Western Power's opinion, probably the best wind farm site in Australia. This is because it appears to have the crucial elements needed for a wind farm to be successful. Renewable energy systems face a tough future in Australia. To have them as part of our normal electricity systems we must pursue those projects that can show the technology working, can be technically and environmentally feasible, provide significant benefits to the community, and can do so for a reasonable price. A wind farm at the Albany Sandpatch site may provide these things and supply the confidence for Western Power to pursue such projects at other locations. Without developing such good sites, renewable energy stands little chance of emerging as a main stream electricity generator."

Dr Paul Ebert, Project Manager Albany Wind Farm, Western Power Corporation Discussion Paper : Feb 2000

No excusing EPA for coal nod : "Excuses, excuses. It seems that even the mightiest have convenient excuses when they fail to perform as they should. Excuses come in a variety of forms. Of course, some may be valid. But, at worst, they amount to nothing more than weasel words. 'I was only following orders' is a classic excuse of bureaucrats. That's the so-called Nuremberg defence put forward by some nazi officials at the war crimes trials after World War II. The Allied military court dismissed it, rightly or wrongly, on the basis that there is an absolute law contained within common morality that must override bureaucratic orders. Then there's 'I didn't know'. Sticking with the previous theme, this was the excuse of many wartime Germans who said they were unaware of the extermination of Jews. And then there's 'I knew, but I couldn't do anything. My hands were tied'. The coward's excuse. I wonder what excuse the five members of the Environmental Protection Authority use to justify to friends and family their decisions last week to green light three coal-fired power station proposals for the South-West."

"Such decisions can always be explained away with words that appear plausible and pass limited scrutiny. Sometimes they don't appear weasel-like at all. But nothing can remove the EPA's members from an ultimate finding that they have failed us. And they've failed on the most pressing problem facing the environment – the greenhouse gas crisis which underpins a threatening increase in global warming. Ironically, one of the few arguments in favour of coal for power generation these days is that it provides so much particulate pollution that it is shading the planet from the full greenhouse effect – the phenomenon of 'global dimming'. It's a shame the EPA didn't offer us that delightful perversity. It's better than the mush we got from it. You can't get much insight into the thinking of the EPA from the three bulletins issued outlining its advice to Environment Minister Judy Edwards on the proposals."

"The bulletins tell us gas is better than coal for the environment and that the coal plants would be very polluting indeed. And then they endorse coal. That's instead of telling the Minister that no self-respecting environmental watchdog could possibly countenance another dirty coal (*fired power*) plant in the face of the greenhouse crisis. And that it intended to live up to its legislated responsibilities by drawing one of *Premier* Geoff Gallop's famous 'lines in the sand'. No-one in their right mind would suggest that we dismiss the valuable energy resource we have in Collie coal. But the time must come when Western Power seriously winds back its 70% reliance on coal to fuel our growing electricity demand. The EPA doesn't concede that time has arrived, even though hairy-chested rednecks like California's Governator Arnie Schwarzenegger have recently seen the greenhouse light and are doing something about it. So how did our so-called environmental watchdog get itself into this pickle?"

"Its chairman told this newspaper last week that 'in the absence of a national standard for emissions, the EPA had chosen to simply highlight the differences in emissions between coal-fired proposals and gas-fired stations'. What a complete abrogation of responsibilities. EPA chairman Wally Cox said yesterday that the watchdog had also decided against forcing the coal proponents to take significant measures, such as planting trees, to offset their greenhouse emissions in return for EPA approval, *The West Australian* reported. He said this was because Australia had no national framework to control greenhouse emissions from power stations, partly because the (*Howard*) Federal Government had refused to sign the Kyoto protocol. There is nothing in the EPA Act that says its recommendations have to fit in with national government policy – or an absence of such a policy. The Act allows the EPA to confer and collaborate with federal authorities and to have regard for any bilateral agreements. It doesn't say it has to have regard to any lack of federal policies. Which is what makes the EPA's rationale nonsense."

"However, there is much in the Act to say that the EPA has a responsibility to instruct the State Government about its greenhouse policies. The Authority, if it considers it appropriate or is requested to do so by the Minister, may consider and make proposals as to the policy to be followed in the State with regard to environmental matters, says Section 17. And you only have to go to the objectives of the EPA set out in the Act to understand how far it has strayed from its set task. They are : 'to protect the environment' and 'to prevent, control and abate pollution and environmental harm'. Instead, what the EPA did last week was to endorse proposals it knew would harm the environment through massive pollution. In doing so, it calls into question its independence of executive government. Section 8 of the EPA Act states that neither the authority nor its chairman 'shall be subject to the direction of the Minister. The problem is that some people don't need to be directed. Members of the former Tonkin Labor government must be dismayed when they see what has happened to their brave idea from 1972 when WA led the nation in environmental protection law."

"Let's put the potential environmental harm endorsed last week into some perspective. Wambo's proposal for a 320MW combined cycle gas turbine plant at Kwinana would emit 846,000 tonnes of carbon dioxide a year. The dirtiest of the competing coal-fired plants – Griffin's 330MW Collie B – would produce 1,000,000 tonnes more greenhouse pollution. A million tonnes more. That's way over double the gas plant's carbon dioxide emissions. We could get twice as much power from gas for the same environmental damage. The EPA did muster up enough courage to make this observation in its bulletin : Air quality is an emerging issue in Collie, Dr Cox said. Sulphur dioxide levels may begin to approach ambient standards designed to protect human health and the environment as industry, including proposed power stations, around Collie develops. So they might get

jobs in Collie, but they'll pay a price. Appeals against the EPA's reports close on Monday, They are considered by an appeals convenor who prepares a report for the Minister. Dr Edwards then takes into consideration both the EPA's and the convenor's reports when making her final decision. Fancy a wager on coal?"

The Hon. Dr Judy Edwards MLA, Minister for the Environment Extract : West Australian (Page 19), 25 Jun 2005

Following up – The Hon. Dr Judy Edwards MLA held the environment portfolio in state cabinet from February 2001 to February 2006, and retired from parliament as the Member for Maylands (Labor) after eighteen years at the 2008 State Election. Dr Cox resigned in May 2007.

Nuclear fuels debate : "I am a federalist, and I mean that. There is an appropriate place for national leadership and an appropriate place for allowing state governments to get on with their business. My position *(on uranium mining)* is clear. When we go to the next national conference of the Labor Party, I will be arguing for change to the three-mines policy. I judge that important for the nation. What state governments do in the future in relation to their own land management systems and mining licences and permits is a matter for state governments."

The Hon. Kevin Rudd MHR, Federal Opposition Leader Extract : Sunday Times (Page 16), 17 Dec 2006

"We don't support the development of a nuclear industry in WA. We don't support WA becoming a nuclear-waste repository. I believe that if we pick up one end of the stick, uranium mining, we will pick up the other end of the stick – waste. The agreement we have today with Kevin Rudd is that this issue is a matter for state jurisdiction. If the South Australian Government and its population want to expand its uranium mining industry, then that is a matter for them."

The Hon. Alan Carpenter MLA, Premier of Western Australia Extract : Sunday Times (Page 16), 17 Dec 2006

Nuclear is answer to greenhouse threat : "Australia has less than 10 years to change its entrenched opposition to nuclear power or it will have to adopt a fallback position of adapting to a warmer climate (*not of our own making*). And that would lead to some difficult (*future*) decisions to be taken in the country's (*best*) economic interest. He argues that Australia is only responsible for 1.5% of the world's greenhouse emissions, tacitly suggesting we can go on polluting with impunity. The US, Japan, China, Russia, India, and the European Union were responsible for 75%. Without them moving away from fossil fuels quickly, whatever Australia did was meaningless globally – and greenhouse emissions were a global, not a local problem."

"However, the decision Labor took a month ago in lifting the no-new-mines policy was an enormous step. Arguably, history will judge that to be the most important thing Australia has done to contribute to the reduction of greenhouse gases globally. Down the line – and this is true at Federal and State levels – if you accept the gravity of climate change, if you insist that we move to low greenhouse gas emitting technologies, when it comes to base load electricity technologies, the only alternative is nuclear. If the world was to make moves to decrease greenhouse gas levels, over the next two decades, it had to move quickly towards replacing fossil fuels with nuclear energy. Making more Australian uranium available to a growing international nuclear energy industry played a big role in that (*global response strategy*)."

Ziggy Switkowski, Chairman Commonwealth UMPNER Extract : West Australian (Page 16), 22 May 2007

We can reach emissions targets without nuclear power : "Opposition Leader Kevin Rudd has insisted Australia can reach ambitious emissions reductions targets without resorting to nuclear power ... the key was to establish an emissions trading market, not to adopt nuclear power. The science of this is pretty basic. All scientists around the world agree that we have got to reach a point whereby we actually bring total emissions down. That is the carbon target ... once the target is set, the emissions trading scheme and the market could establish the most cost-effective means of achieving it."

"Then you would see a huge investment in alternative clean energies like solar, wind, geothermal and the rest. You'd set the right price signals for clean coal technologies and carbon sequestration and also for gas. On the question of nuclear ... our position on that is for Australia, with this rich array of other alternative energy options available, we can achieve our overall carbon target without taking on the extra safety and environmental risks which the nuclear option for Australia would present. The Prime Minister's commitment to a policy of pledging and reviewing climate change targets sounded like pledging before the election then reviewing afterwards. Mr Howard has just got to get fair dinkum about climate change."

The Hon. Kevin Rudd MHR, Federal Opposition Leader Extract : West Australian (Page 4), 11 Jun 2007

Peak oil talk not so slick : "Proponents of 'peak oil' – the theory that global crude oil production has hit its peak and is headed for a steep decline – are angry at a US oil industry group's findings that the world has plenty of oil. Next week, the US National Petroleum Council – a board of high-level US oil industry executives – will release a study titled, 'Facing the Hard Truths About Energy', conducted at the behest of US Energy Secretary Sam Bodman. According to the report's executive summary, the world is not running out of oil, but there are 'accumulating risks' to securing supply until 2030."

"With crude oil futures prices in London at 11-month highs of more than \$US77 (\$A89) a barrel, the International Energy Agency, adviser to 26 industrialised countries, has predicted a supply crunch in 2012. The IAE said global demand would reach 95.8 million barrels a day, up from 86.1 million in 2007, assuming average global GDP growth of 4.5% a year. Outlining its findings to Mr Bodman, (*Lee Raymond, CEO of ExxonMobil and Chairman of*) the National Petroleum Council said the world is not running out of energy resources, but there are accumulating risks to continuing expansion of oil and natural-gas production from conventional sources relied upon historically."

Lee Raymond, Chairman, US National Petroleum Council Extract : Sunday Times (Page 82), 15 Jul 2007

Prime Space – Viva la revolution against the evil planners : "I commissioned new power stations, all nuclear, to provide certainty of power supplies for the next 20 years. No more power blackouts during Northern Bernardistan's summer storms. This

step also ensured that we Bernardistanis were at the forefront of the technology that would ultimately replace dirty coal-based power generation. Once the People's Republic of Bernardistan declared its independence and sovereignty over this land, I immediately nullified all metropolitan planning strategies and instigated a bold new dual-city planning policy."

"We have the land; we can manage the resources; we can deliver the infrastructure."

"I sometimes think that the architects of metropolitan planning strategies have little or no appreciation of the real needs of the average Australians. Families need the sort of space and independence that only a separate house on separate blocks of land can deliver. I sometimes wonder whether in fact this conflict between what the market wants and what the planning system imposes is in reality a clash of cultures. Planning can be used, as a tool of control and of punishment. According to this ideology 'the suburbanites must be chastised for their wickedly wasteful sins of the past'. Indeed, only through the penance of corralled and sanctioned behaviour can suburbanites and other non-believers find redemption : 'May the God of the Environment have mercy on their souls'."

Bernard Salt, Demographer & Partner, KPMG Australia Extract : Weekend Australian (PS Page 8), 18 Aug 2007

At the Asia Pacific Economic Community Forum in Sydney – The answer is nuclear : "Ahead of the formal proceedings, Mr Howard and Mr Bush agreed on several efforts to tackle climate change, including Australia's participation in a US-led research project into a prototype coal-fired power plant that captures and stores carbon as it is emitted. Australia will also join an international partnership working on fourth-generation nuclear power plant technology, and the US-led Global Nuclear Energy Partnership examining zero-emission nuclear energy. If you truly care about greenhouse gases, then you'll support nuclear power. If you believe that greenhouse gases are a priority, like a lot of us – if we take the issue seriously, if you take the issue seriously, like I do and John (Howard) does, then you should be supportive of nuclear power."

President George W. Bush, United States of America Extract : West Australian (Page 7), 06 Sep 2007

"Nuclear push threatens coal jobs – Labor committed to Coal / Howard committed to Nuclear : Despite the desperate claims by some Ministers in the Howard Government, Labor's 20 per cent renewable energy target poses no threat to our coal industry. The biggest threat to the coal industry is the Howard Government's plans for twenty five nuclear reactors across Australia. Labor's renewable energy target will deliver approximately half the new capacity needed to meet our growing energy demands out to 2020. Which means all existing capacity, including coal fired power stations, will be needed to meet future energy demands. There will also be a need for new fossil fuel fired power stations that use advanced coal technologies and are built capture ready or with carbon capture installed.

The key to securing the future of Australia's coal industry is the development and deployment of these clean coal technologies that can significantly lower greenhouse emissions from the use of coal. That is why Federal Labor has committed \$500 million to bring forward the deployment of these technologies. This commitment, matched by \$1 billion from the coal industry, will fund research and demonstration projects necessary to commercialise full scale carbon capture technologies that can be applied to new and existing coal fired power stations. Playing a leading international role in the development of clean coal technologies will help ensure the continuing economic viability of our coal mining industry and position Australia to export these technologies and expertise into a growing overseas market.

Labor's commitment to clean coal contrasts with the Howard Government's failure to invest in these technologies. Information provided by the Federal Department of Industry shows that the Howard Government has spent just **\$3.4 million** to support the research and development of clean coal technologies (see Hansard attached). For too long John Howard has denied that climate change was occurring and has failed to support the development of technologies that are vital to securing the future of Australia's coal industry. In contrast with its reluctance to support the future of the coal industry the Howard Government has been eager to push for the construction of twenty five nuclear reactors across the country. These reactors would potentially replace existing and future coal fired power stations.

The Howard Government has ensured that these nuclear reactors would also be eligible under its clean energy target, alongside wind and solar power. Which is why Dr Ziggy Switkowski, the head of the Government's Nuclear Review has said this clean energy target is a "positive step for a future nuclear industry". According to modelling undertaken by McLennen Magasanik Associates for the Climate Institute, including nuclear power in a clean energy target could decrease the use of coal fired power by 20% [1]. At the coming election Australian's face a stark choice between the clean coal and renewable energy future offered by a Rudd Labor Government and Mr Howard's nuclear nation.

Senator the Hon. Chris Evans (Labor), Western Australia Extract : ALP Website (Media Statement), 31 Oct 2007

"New strategy needed to avert a nuclear 9/11 : While the United States remains preoccupied with the war in Iraq, nuclear nightmares are fast becoming more realistic. As the possibility of a nuclear terrorist attack increases, America's ability to counter that threat remains anaemic. To reduce this risk, we advocate accelerating efforts to secure and eliminate bomb-making nuclear materials worldwide, to detect and interdict illicit shipments of such materials, and to develop nuclear forensic technologies that would enable the US to hold states accountable if they assisted terrorists in acquiring or using nuclear weapons."

Robert Einhorn, US Centre Strategic & International Studies Extract : West Australian (Page 20), 01 Nov 2007

Wendy Sherman, Principal, Albright Group Extract : West Australian (Page 20), 01 Nov 2007

Gorgon gas capture under fire : "Prominent Australian scientist Karl Kruszelnicki has criticised plans to bury millions of tonnes of carbon dioxide generated by the Gorgon gas project off WA's North-West coast, saying the mass of liquid CO₂ created would be harder to manage than radioactive waste. The physicist, radio personality and Climate Change Coalition Senate candidate has

blasted 'clean coal' technology, which includes burying gas emissions deep below the Earth's surface in a process known as geosequestration, as a complete furphy. Long-term, the way they're trying to put up geo-sequestration as the cure for everything, I don't buy that because the volumes you're trying to get rid of are huge."

Dr Karl Kruszelnicki, Climate Change Senate Candidate Extract : West Australian (Page 16), 07 Nov 2007

Please explain – Nuclear powered submarines : "As a former submariner and having been involved in the production of nuclear submarines, I am heartened that the Minister for Defence (*Joel Fitzgibbon MHR*) is planning for the new generation of submarines to replace the present Collins Class. However, I am horrified that an estimated \$25 billion is to be spent on upgraded conventional diesel-driven submarines. I concede that the Collins Class submarines are the leaders in conventional submarines, but I must point out that in the worldwide theatre of submarine capabilities they are only second to nuclear submarines whose underwater speed, range and endurance are superior. Why must Australian defence capability take second place when other countries are investing in nuclear submarines? It is time Australians took their heads out of the sand, buried the nuclear bogeyman and joined the rest of the world on an equal footing."

G. Arnold, Riverton Resident & Taxpayer Extract : West Australian (Page 22), 03 Jan 2008

The Nuclear Comeback – it's scary, it's expensive, but could it save the world : "In a world living in fear of climate change, the nuclear industry has put its hand up as a solution. It claims that nuclear power generation produces zero carbon emissions, and people are listening. What we're witnessing is the start of a global nuclear renaissance, with 27 nuclear power stations under construction, and projections for another 136 to be commenced within the next decade. The earth's electricity consumption is expected to double in the next 25 years and the nuclear industry claims that nuclear power is the only large-scale method of power production that can reliably replace coal, gas or oil-fired power plants. However, many people have an inherent fear of things nuclear. Is it time we learnt to love the split atom? Or, is there a risk that we might be jumping out of the carbon frying pan and into the plutonium fire?"

"This film goes on a worldwide tour of the nuclear industry in search of answers. The Nuclear Comeback visits some of the planet's most famous nuclear facilities – including inside the Chernobyl control room; it investigates the state of "the grand old lady" of commercial nuclear power – the UK's Calder Hall; and travels through a nuclear waste repository under the Baltic Sea. The Nuclear Comeback also explores a power plant in Sweden that last year experienced a near meltdown; it tours a uranium mine in Australia; and goes inside one of only two fuel recycling plants in the world. Despite nuclear power's new environmental merits, detractors claim that its producing a 100,000-year legacy of radioactive waste – for which there is not yet any permanent storage; that the power stations are known terrorist targets; and that the industry has a reputation for accidents, cover-ups and is linked to nuclear weapons."

Justin Pemberton, www.theTVset.co.nz Extracts : The Cutting Edge (SBS Television), 15 Jan 2008

Fossil Fuel Alternatives – When our drive to burn more biofuels goes against the grain : "Biofuels are renewable gas or liquid fuels made from plant material. Two common biofuels are :

- * Biodiesel : derived from vegetable oils such as canola or from tallow and can replace diesel or be mixed with diesel
- Ethanol : derived from feedstocks such as sugar cane, wheat or corn and can replace petrol in modified petrol engines."

How much do we produce? : "Australia is expected to produce about 100 million litres of ethanol and 50 million litres of biodiesel in 2008. In WA, Construction is due to begin on a major ethanol plant at Kwinana which by late 2009 is expected to produce 176 million litres a year by processing WA wheat."

What policies govern biofuels production? : "In Australia, a national production target has been set for 350 million litres, 1% of fuel use, by 2010. Two percent of the total volume of petrol sold in NSW must now be ethanol. The WA Biofuels Taskforce has recommended that the State Government introduce a 5% biofuels target by 2010. The Federal Government has spent \$150 million in grants and subsidies to encourage biofuel production."

What are other countries doing? : "The US uses about 18 billion litres a year of ethanol, but a new energy bill will see that figure triple by 2022. The European Union demands 5.75% biofuel inclusion in all transportation fuel by the end of 2010. Last year, it produced 5.3 billion litres of biodiesel."

Why should we use biofuels? : "Biofuels play an important role in reducing greenhouse gas emissions from the transport industry, contribute to fuel security and help the development of new industry, particularly in regional areas."

Growing concerns over subsidies or mandates? : "Doubts are mounting over the environmental and economic benefits of biofuels and the distortion of markets through subsidies or mandates. Of particular concern is deforestation in Brazil, Malaysia and Indonesia to make way for biofuels crops such as palm oil and sugar. The 'fuel versus food' debate has pushed grains and oilseeds prices to record levels, which in turn has been blamed for inflating food prices."

The moral question? : "The world would burn, as a substitute for oil, about 400 million tonnes of food a year by 2020, an amount roughly equivalent to the world's annual rice harvest or North America's wheat crop. Biofuels are taking over arable land and farming resources ... The contribution to slow climate change in doing this will be insignificant. I'm not averse personally to agricultural fuels, provided they are made with waste products and things like that. But if you're burning food and it's having an (upward) impact on food prices, we really need to think about the morality of that."

Professor Julian Cribb, Flinders University, South Australia Article : West Australian (Page 18), 18 Jan 2008

UN warns of looming global crisis over water : "Peter Brabeck-Letmathe, chairman and chief executive of Nestlé SA, the world's biggest food and drink company, said time is still on our side but time is running out, just like water is running out. He said the demand for biofuels was misguided because 9000 litres of water was needed to produce one litre of biodiesel. This can only work because water has no price. If we are going to use 1950 cubic kilometres of water for biofuels when at the same time our ... water reservoirs are already depleted now, you can see that this strategy that we have today (*biofuel supplements*) – and which is backed by all major governments – is not the right strategy."

Peter Brabeck-Letmathe, Chairman & CEO, Nestlé SA Extract : West Australian (Page 32), 26 Jan 2008

Climate plan back to the Middle Ages : "Moves by the Rudd Government to significantly cut greenhouse gas emissions will needlessly push living standards back to the Middle Ages, former WA Labor senator Peter Walsh has warned. Mr Walsh, who heads the hardline global warming sceptic organisation Lavoisier Group, yesterday labelled the Kyoto hypothesis linking global warming with greenhouse caused by human activity as a 'hoax'. Mr Walsh, who was finance minister in the Hawke government, said proposed targets to reduce greenhouse gas emissions by 60% by 2050 were unrealistic without substituting nuclear power for coal, or alternatively set the world back on a path to living standards of the Middle Ages."

Former Senator Peter Walsh, ALP Western Australia Extract : West Australian (Page 11), 29 Jan 2008

Opposition urges State nuclear rethink over climate change : "Nuclear power should be considered if tough targets for cutting greenhouse gas emissions were to be met. WA's Shadow energy minister John Day, said the Carpenter Government needed to accept nuclear energy as a part of the long-term solution and reconsider its outright opposition (*to uranium mining and nuclear power generation*). The call came after the Rudd Government's chief climate change adviser Ross Garnaut said last week that Australia might need to slash emissions as much as 90% by 2050 to avert the effects of climate change. Nuclear energy use in WA itself can't be ruled out in the long-term. We don't think there's a case for it in the foreseeable future ... but you certainly can't close the door on it forever."

"But Mr Day warned that a reduction of the proportions outlined by Professor Garnaut would require widespread support which included other countries that significantly contributed to greenhouse gas emissions. It (*Australian reduction targets*) would be largely pointless unless there was going to be substantial change or reduction also in other much larger economies, including China and India. It was in WA's interests to start mining uranium now ahead of expected advancements in carbon sequestration and renewable energy sources such as wind and solar power."

"Federal Opposition climate change spokesperson Greg Hunt said the coalition would only embrace nuclear power if it attracted bipartisan support, widespread community backing and the economics made sense. Gary Wood, state secretary of the mining & energy division of the Construction, Forestry, Mining and Energy Union, said any greenhouse targets should be positive for the longer term sustainability of the coal industry. The CFMEU does not support uranium mining in WA."

Hon. John Day MLA, Shadow Energy Minister WA Extract : West Australian (Page 13), 25 Feb 2008

Nelson turns back on nuclear power option : "Opposition Leader Brendan Nelson (Bradfield, NSW) has gone cold on atomic energy just two years after almost single-handedly sparking the nuclear debate in Australia. Dr Nelson, previously a loud advocate of Australia actively pursuing the nuclear option as a solution to global warming, was yesterday far more cautious. We've made it very clear that as far as Australia's future is concerned there is no plan at all for a nuclear power industry. There will be no nuclear power industry in Australia unless Mr Rudd and his Government have some sort of secret plan for it. We cannot envisage any circumstance under which Australia will have a nuclear power industry. Deputy Liberal leader Julie Bishop (Curtin, WA) told *The West Australian* yesterday that nuclear energy was not viable."

Hon. Dr Brendan Nelson MHR, Opposition Leader Article : West Australian (Page 6), 29 Feb 2008

Anger at MP rebels : "New Liberal Party state president Mr Barry Court, who today takes over as president from Danielle Blain, will have to iron out his own differences of opinion with Mr Buswell over nuclear power. Mr Court said nuclear power should be considered, and he could see nothing wrong with nuclear power as an alternative form of energy for WA, not just in the long-term but also in the short-term. WA should not be frightened by what has happened in the past – nuclear plants had been vastly improved since the Chernobyl disaster of 1986. France has got nuclear power, South Africa has got nuclear power – there are plants in England. You wouldn't even know they were there – these days, they don't make monuments out of them. We have moved on from Chernobyl. We haven't had a problem with nuclear power plants for years. Technology has moved on. We should look at it (nuclear power) every day."

Barry Court, State President, Liberal Party WA Extract : Sunday Times (Page 17), 16 Mar 2008

State Liberal Conference : "Mr Buswell said WA did not have to contemplate nuclear power for decades because of its vast gas and coal reserves. Though committing the Liberals to scrapping Alan Carpenter's ban on uranium mining, if he becomes premier at the next *state* election, Mr Buswell would not commit to nuclear power. It's unimaginable that nuclear power will be considered as an energy source for this state in my lifetime, my children's lifetime and my children's children's lifetime."

Troy Buswell MLA, Opposition Leader WA Extract : Sunday Times (Page 17), 16 Mar 2008

Labor revives new uranium mines plan : "The *Rudd* Federal Government has quietly resurrected John Howard's plan to expand uranium mining in Australia. Resources Minister Martin Ferguson, an enthusiastic industry advocate, has reconvened the Uranium Industry Framework, a hand-picked advisory group appointed by the previous government. Policies on the agenda include an information campaign, paid for by the uranium industry, to address public concerns about mining."

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"There is a separate strategy to use uranium mining to improve the economic fortunes of indigenous communities and to improve 'engagement' ween traditional owners and mining companies. But Mr Ferguson says the Government will jot pursue an idea the previous government flirted with – overriding State bans in Western Australia and Queensland that prevent new uranium mines or other nuclear activities. Uranium mining remains an extremely sensitive issue in the ALP. The Minister said it was only a matter of time before mining developments occurred in those States, which have large uranium deposits."

"Exploration for new uranium deposits is under way in all States, including Western Australia and Queensland, and new mining developments are likely in the Northern Territory. Australian uranium would play an important role in powering nuclear reactors in other countries wanting to cut their greenhouse gas emissions. The Minister predicted substantial growth in nuclear power outside Australia. Uranium mining has got a bright future, and it's going to lead to increased export earnings for Australia and jobs, Mr Ferguson said."

Hon. Martin Ferguson MHR, Federal Minister for Resources Extract : West Australian (Page 18), 02 Apr 2008

Select Committee on the impact of peak oil on South Australia : "A Select Committee of the Legislative Council has been established to inquire into and report on the impact of peak oil on South Australia with particular reference to :

- a) The movement of people around the State, including :
 - (i) The rising cost of petrol and increasing transport fuel poverty in the outer metropolitan area, the regions and remote communities
 - (ii) Ways to encourage the use of more fuel efficient cars
 - (iii) Alternative modes of transport
 - (iv) The need to increase public transport capacity; and
 - (v) Implications for urban planning
- (b) Movement of freight
- (c) Tourism
- (d) Expansion of the mining industry
- (e) Primary industries and resultant food affordability and availability
- (f) South Australia's fuel storage capability including :
 - (i) Susceptibility of fuel supply to disruption; and
 - (ii) Resilience of infrastructure and essential services under disruptive conditions
- (g) Alternative fuels and fuel substitutes
- (h) Optimum and sustainable levels of population under these constraints :
 - (i) The need for public education, awareness and preparedness; and
 - (ii) Any other related matter."

Legislative Council of South Australia Advertisement : Weekend Australian (Page 11), 26 Apr 2008

The forgotten crisis: "I have just finished reading through the 2020 Summit summary. I had reached the end of the 38 pages on the 2020 website and found myself looking for the rest of it – specifically the part that deals with the desperately urgent problems facing Australia right now and how we are going to deal with them. I was shocked to find that the most desperately urgent problem facing us today, the unfolding energy crisis die to skyrocketing world oil prices, did not even rate a specific mention. Could that be due to the fact that many of the 2020 participants have government and company cars and do not pay for their own fuel and are subsequently unaware or unconcerned about this threat?"

"Every aspect of our lives revolves around oil; our modern civilisation has been built on and runs on oil. Our civilisation as it is structured would collapse without oil. And yet here we are, with dwindling world oil reserves and rapidly spiralling prices, and our best and brightest are preoccupied with ideas of republics and carbon footprints. We are already seeing the immediate effect of this energy crisis in world grain prices. Families are going hungry because we, the developed nations, are using it to make biofuels to power our cars. Average Australians are now starting to feel the pain from spiralling oil and grocery prices and it will only get worse until the cost of oil is such that it threatens the very fabric of our way of life."

"It is no longer a matter of if but when. I am frightened at how quickly the oil price is rising and the lack of concern from our Federal Government. Its complacency borders on the criminally negligent in my opinion and I fear for my children's future when I see the short-sightedness of our leaders. I fear Kevo (*the Hon. Kevin Rudd MHR, Australia's Prime Minister*) is fiddling as Rome burns. Unless the Rudd Government wakes up to the immediacy of this worldwide threat the only carbon footprints we will be leaving in the future will be those from our bare feet to our humpies (*a traditional Aboriginal shelter*). What our elected leadership also needs to keep in mind is that if civilisation does collapse due to this stupidity, and we are forced to resort to cannibalism, it will be the soft and tender slow-moving bureaucrats who will be eaten first. Now there's an incentive scheme!"

Tim Ciovica, Glen Forrest Resident & Taxpayer Extract : West Australian (Page 22), 30 Apr 2008

Indonesia oil warning : "President Susilo Bambang Yudhoyono said yesterday that Indonesia was considering quitting the Organisation of Petroleum Exporting Countries (*OPEC*) because it was no longer a nett oil exporter. Indonesia's oil output has declined steadily from oil production of 1.5 million to 1.6 million barrels a day in the mid-1990s. It produced around 860,000 barrels a day of crude oil last month and recorded a deficit of US\$794 million in its oil trade accounts."

Susilo Bambang Yudhoyono, President of Indonesia Extract : West Australian (Page 53), 07 May 2008

N-ambitions spur fears of arms race : "At least 40 developing countries from the Persian Gulf to Latin America have approached United Nations officials recently to signal interest in starting nuclear power programs. It is a trend concerned proliferation experts say could provide the building blocks of nuclear arsenals in some of those nations. At least half a dozen countries have also said in the past four years that they are planning to carry out enrichment or reprocessing of nuclear fuel, a prospect that could dramatically expand the global supply of plutonium and enriched uranium, according to US and international nuclear officials AND arms-control experts."

"Much of the new interest is driven by economic considerations, particularly the soaring cost of fossil fuels. But the officials said that for some Middle Eastern states with ready access to big stocks of oil or natural gas, such as Kuwait and Saudi Arabia, the investment in nuclear power appeared to be linked partly to concerns about a future regional arms race stoked in part by Iran's alleged interest in such an arsenal. We are concerned that some countries are moving down the nuclear (weapons) path in reaction to the Iranians, a senior US Government official who tracks the spread of nuclear technology."

"Although the UAE (*United Arab Emirates*) has a proven oil reserve of 100 billion barrels, the world's sixth-biggest, it signed a deal with a French company in January to build two nuclear reactors. Wealthy neighbours Kuwait and Bahrain are also planning nuclear plants, as are Libya, Algeria, Morocco and Jordan. Egyptian Ambassador to the US Nabil Fahmy told a recent gathering of Middle Eastern and non-proliferation experts that his country's plan for four nuclear power plants was not related to Iran's nuclear activities. But he acknowledged that commercial nuclear power does give you technology and knowledge and warned that a nuclear arms race might be inevitable unless the region's leaders agreed to ban such weapons."

"Many countries involved in nuclear expansion have stressed their peaceful intentions. Some have vowed never to pursue uranium enrichment or fuel reprocessing – technologies that can be used to create fissile materials for nuclear weapons. But some arms-control experts say the sudden interest cannot be fully explained by rising oil prices. This is not primarily about nuclear energy – it's a hedge against Iran, Ploughshares Fund president Joseph Cirincione, an expert on nuclear policy said. They're starting their engines. It takes decades to build a nuclear infrastructure and they're beginning to do it now. They're saying : 'If there's going to be an arms race, we're going to be in it'."

Joseph Cirincione, President Ploughshares Fund Extract : West Australian (Page 24), 13 May 2008

Carpenter stands firm on uranium mining : "Alan Carpenter is standing firm on his Government's uranium mining ban despite renewed pressure to rethink his stance after a recent report said the State would reap massive environmental and economic benefits if it relented. The report, commissioned by the Australian Uranium Association and the released by the Federal Government last week, predicted that if uranium mining was allowed in WA and Queensland, then greenhouse gases would be slashed by up to 15 billion tonnes and a \$27 billion economic boost would be delivered by 2030."

Hon. Alan Carpenter MLA, Premier Western Australia Extract : West Australian (Page 4), 19 May 2008

WA's \$2b clean coal project ditched : "The *Rudd* Federal Government's silver bullet for dealing with climate change – the underground storage of greenhouse pollution (*geo-sequestration*) – has been dealt a blow with the collapse in WA of a \$2 billion trial of the technology. The clean coal experiment run by the resources giants Rio Tinto and BP was ditched after it was found that deep-sea storage beds off Perth would not hold the tonnes of carbon the companies wanted to bury. Several other 'clean coal' experiments are still under way, the biggest being Queensland's ZeroGen project and the Otway project in Victoria. But the failure of the WA project points to the complex geological problems associated with safely burying millions of tonnes of carbon dioxide under the seabed."

"Despite this, the *Federal* Government is optimistic about carbon capture, at the weekend quietly releasing its draft legislation to regulate the experimental technology. Resources and Energy Minister Martin Ferguson described carbon capture as 'essential for the long-term sustainability of coal-fired power generation'. With 83% of Australia's electricity generated from coal (*not to dismiss the billions in export earnings*), no serious response to climate change can ignore the need to clean up coal and the Government's establishment of a carbon capture and storage framework represents a major step towards making clean coal a reality, Mr Ferguson said."

"Explanatory notes with the legislation said no more than 10 areas would be tested as potential storage sites but the number of sites chosen to trap greenhouse pollution was likely to be only half that. The cost will be high. Exploration will cost from hundreds of thousands to multiple millions of dollars, and the costs of a greenhouse gas transport, injection and storage project would be in terms of hundreds of millions or some billions of dollars, the notes said. However, the legislation seems unclear on who accepts final long-term responsibility for the deep-sea storage sites."

Hon. Martin Ferguson MHR, Federal Minister for Resources Extract : West Australian (Page 16), 19 May 2008

SA eyes new world-class uranium mine : "South Australia is a step closer to having a new world-class uranium mine. An application by Quasar Resources had been lodged to develop the Four Mile deposit about 10km north-west of the Beverley uranium mine in northern South Australia. According to Premier Mike Rann, the Four Mile deposit is considered one of the most significant uranium discoveries anywhere in the world in the past 25 years and the biggest find since Olympic Dam."

Hon. Mike Rann MLA, Premier South Australia Extract : West Australian (Page 35), 19 May 2008

WA guru eyes tram, bus, train revival : "A WA appointee to the Rudd Government's peak infrastructure advisory group says he will use his influence to promote a 'renaissance' of trains, trams and buses in Australia's cities. Professor Peter Newman, from Curtin University's Sustainability Policy Institute, said rising fuel prices meant hundreds of thousands of city dwellers were reliant on public transport systems which were already full. For the first time in 50 years Australian public transport systems are growing rapidly and we have the opportunity to create a public transport renaissance by tapping into this new-found interest because of the global price of fuel and the interest in living more centrally."

"Trains, trams and buses will be a major focus of my attention ... I've been trying to get cities ready for the fuel crisis for 30 years. It's arrived and it's now time to put the money where it's needed. Perth's new southern railway is already carrying a near capacity 40,000 passengers a day. Professor Newman was yesterday named on the 12-member advisory council for Infrastructure Australia, a new agency advising the Government on infrastructure to be funded by the \$20 billion Building Australia Fund."

"The advisory council includes chairman Sir Rod Eddington (*formerly British Airways*), WA Treasury executive director Anthony Kannis, Australian Industry Group chief executive Heather Ridout, Federal Treasury secretary Ken Henry, head of the Prime Minister's department Terry Moran, Babcock & Brown's head of infrastructure division Ross Rolfe, and Industry Funds Management chairman Garry Weaven."

Professor Peter Newman, Curtin University Sustainability Institute Extract : West Australian (Page 5), 20 May 2008

I have no answer to oil woes : "Kevin Rudd, who went to the 2007 federal election promising to put downward pressure on petrol prices, yesterday admitted he had 'no silver bullet' for the problem, as analysts warned that soaring oil prices were threatening to drive unleaded fuel to \$1.70 a litre within weeks. Mr Rudd, who ahead of the election promised to put pressure on fuel prices by establishing a national petrol price commissioner, said there was little else he could do : 'we have done as much as we physically can to provide additional help to the family budget, recognising that the cost of everything is still going through the roof."

The Hon. Kevin Rudd MHR, Prime Minister of Australia Extract : West Australian (Page 1), 23 May 2008

Peak oil survivalists brace for world's end : "A few years ago, Kathleen Breault was just another suburban grandmother, driving countless hours every week, stopping for lunch at McDonald's, buying clothes at the mall, watching television in the evenings. That was before she heard an author talk about the bleak future of the world's oil supply. Now, she is preparing for the world as we know it to disappear. Mr Breault cut her driving time in half. She switched to a diet of locally grown foods near her New York home and lost 32kg. She sliced up her credit cards, banished her television and swore off plane travel. She began relying on a wood-burning stove. I was panic-stricken, the 50-year old recalled, her voice shaking. Devastated. Depressed. Afraid. Vulnerable. Weak. Alone. Just terrible."

"Convinced the planet's oil supply is dwindling and the world's economies are heading for a crash, some people around the US are moving on to homesteads, learning to live off their land, conserving fuel and, in some cases, stocking up on guns they expect to use to defend themselves and their supplies from desperate crowds of people who did not prepare. The exact number of people taking such steps is impossible to determine, but anecdotal evidence suggests that the movement has been gaining momentum in the past few years. These energy survivalists are not leading some sort of green revolution meant to save the planet. Many believe it is too late for that, seeing signs in soaring fuel and food prices and a faltering US economy, and are largely focused on saving themselves."

"Some are doing it quietly, giving few details of their preparations – afraid that revealing such information as the location of their supplies will endanger themselves and their loved ones. There's going to be things that happen when people can't get things that they need for themselves and their families. Some believe cities could see a rise in violence as early as 2012. These survivalists believe in 'Peak Oil', the idea that the world oil production is set to hit a high point and then decline. Scientists who support the idea say the amount of oil produced in the world each year has already or will soon begin a downward slide, even amid increased demand. But many scientists say such a scenario will be avoided as other sources of energy come in to fill the void."

www.PeakOil.com Extract : West Australian (Page 46), 28 May 2008

The high price of crude oil will not persist for long : "What's all this fuss about oil prices? At US\$130 a barrel in recent days, it cannot be anything other than a bubble for several reasons. First, at well below this price, unconventional crude, ie. tar sands and oil shales, become economically attractive and the world has essentially unlimited resources of these unconventional crudes. Second, the Persian Gulf is full of super-tankers at anchor fully laden with crude oil because they cannot find a market, and third, BP's recently published Statistical Review states that world crude oil reserves have actually increased by 15%. The gathering US recession will greatly reduce the demand for oil products during the US summer 'driving season', which accounts for a significant part of world demand for oil, and when this happens – it will become apparent in August – US oil inventories will rise."

"The Arab oil producers in OPEC will react in their customary way by dumping oil on to world markets at any price. This will happen before Christmas 2008 and when it does, the price of crude will plummet, as it has done before. The truth is that crude has reached current prices because of hedge funds and refinery constraints, not because of economic fundamentals. So it's not necessary to alarm people, including our politicians, with stories of peak oil and only 40 years' supply left, as I heard on ABC-

TV's *Lateline* on Wednesday night. Anatole Kaletsky ('A crude detachment from the real world', Opinion, 23/5) got it right: the doubling of oil prices in the past nine months is being driven by a financial bubble."

Stan Yeaman, Retired Oil Executive Extract : Weekend Australian (Page 16), 31 May 2008

Fisherman join fuel protest : "Lisbon – Fuel protests triggered by rising oil prices have spread to more countries across Europe, with thousands of fisherman on strike. Union leaders said Portugal's entire coastal fleet stayed in port on Friday, while in Spain, 7000 fishermen held protests at the Agriculture Ministry. French fishermen for weeks, with Belgian and Italian colleagues also involved. UK and Dutch truck drivers held similar protests earlier this week. The strike reflects anger at the rising cost of fuel, with oil prices above \$130 a barrel. Trade Unions say the cost of diesel has become prohibitively high, after rising 300% over the past five years."

"Wholesale fish prices, meanwhile, have been static for 20 years. Fishermen's leaders from France, Spain and Italy have been meeting in Paris to coordinate strikes and protests over the nest tree weeks in the run-up to a European Union meeting of Fisheries Ministers. The protesters are calling for immediate aid for the fishing industry, coupled with increased subsidies. Several thousand fishermen marched on the Agriculture Ministry in Madrid, where they handed out 20 tonnes of fresh fish to the public in an attempt to draw attention to their ailing industry."

Agricultural Ministry, European Union Extract : Sunday Times (Page 39), 01 Jun 2008

Fuel costs tipped to cull airlines : "Air travel industry body IATA yesterday predicted airlines would lose US\$2.3 billion (A\$2.4 billion) this year, dramatically reversing an earlier prediction of profits nearly twice this figure. The International Air Transport Association, which represents companies accounting for 94% of world air travel, had forecast profits of US\$4.5 billion in April 2008 but blamed rising fuel costs for the reversal. The situation has changed dramatically in recent weeks, IATA secretary general Giovanni Bisignani said at the start of the organisation's general meting in Istanbul. Oil skyrocketing above US\$130 per barrel has brought us into uncharted territory. Add in the weakening global economy and this is yet another perfect storm. The industry made profits of US\$5.6 billion in 2007, the first since 2000 (*or post 9/11*)."

"Meanwhile, the head of the German unit of Britain's *easyJet* said in an interview published yesterday that high fuel prices would trigger a rash of airline bankruptcies, leaving only five major carriers in Europe. Several airlines in Europe will go out of business, John Kohlsaat told Berlin's daily newspaper, Der Tagesspiegel. Theoretically, 50 are endangered. Mr Kohlsaat said several carriers had been hit hard by rising fuel costs and were sliding into the red – a development that in the end would leave only British Airways, Air France / KLM, Lufthansa, Ryanair, and easyJet. Easyjet will weather the storm due to its relatively low operating costs and modern, fuel-efficient fleet. A new Airbus consumes 20% less fuel than an old Boeing 737. EasyJet, currently the fourth-biggest airline in Europe, has no plans to revise its aircraft orders despite the high cost of fuel. We have ordered 119 and have options for another 88."

John Kohlsaat, easyJet Operations, Germany Article : West Australian (Page 42), 03 Jun 2008

2050 *emissions target to cost A\$47 trillion a year :* "Governments and industry need to invest at least US\$45 trillion (A\$47 trillion), or 1.1% of world GDP annually, to halve greenhouse gas emissions by 2050, the International Energy Agency has warned. That calls for a massive increase in nuclear energy output – about 32 new nuclear plants a year for the next 40 years, compared with the 393 currently in commission – and other forms of non-carbon-emitting power generation. An average 60 new coal and gas-fired electricity plants around the world would need to be fitted each year with carbon dioxide capture and storage technology, at a cost of US\$90 billion annually. Massive investment would be needed to develop CO₂ reduction technology, up to US\$100 million annually for the next 15 years, the IEA asserts in its Energy Technology Perspectives 2008 report."

"But the alternative, under a continuation of current energy use, is a 130% increase in emissions over that time and a 70% net increase in global demand for oil. One benefit of achieving the 50% emissions reduction target would be a significant lessening of oil-dependence – total world oil demand in 2050 would be 27% below 2005 levels, according to the study. Under current policies and practices, IEA executive director Nobuo Tanaka warned: We are very far from sustainable development, despite the widespread recognition of the long-term problem. In fact, CO_2 emissions growth has accelerated considerably in recent years. We will require immediate policy action and a technological transition on an unprecedented scale, Mr Tanaka said yesterday ion Tokyo."

"At a summit in Hokkaido next month, G8 leaders are expected to adopt Japan's proposal to halve the current level of world CO_2 emissions by 2050. The target was recently endorsed by G8 environmental ministers. The IEA membership includes all the G8 states except Russia – the United States, Japan, Britain, Germany, France, Russia, Canada and Italy – plus most other significant developed economies, including Australia. Prime Minister Kevin Rudd will attend the Hokkaido summit at Japan's invitation as one of the G8 'outreach partners' to discuss emissions control and energy and food security. Japanese Prime Minister Yasuo Fukuda hopes to produce the framework for a global warming agreement to replace the Kyoto Protocol on emissions control, expiring in 2012. But IEA membership does not include the big developing economies such as China – which has just surpassed the US as the world's biggest greenhouse emitter – India and Brazil."

Nobuo Tanaka, Executive Director, International Energy Agency Article : Weekend Australian (Page 17), 07 Jun 2008

Gas woes renew nuclear calls : "WA's gas supply crisis has resurrected the polarising nuclear power debate, with the State's peak business group and experts urging an unwilling State Government to consider it to strengthen the vulnerable power market. Nuclear power is one of the energy alternatives preferred by the WA Chamber of Commerce & Industry . CCI chief executive James Pearson said nuclear energy had to be on the table as a base-load power source in a carbon-constrained future, especially when the State was home to one of the world's richest sources of uranium."

"The two gas disruptions in the last six months are a call to action which we don't want the Government to ignore and the business community in WA would like to work with the Government to help develop an energy blueprint, Mr Pearson said. The CCI planned to lobby the Government on this 'pressing' issue in the lead-up to the election. Alan Carpenter yesterday restated the Government's anti-nuclear stand, saying WA would never see domestic nuclear power under his watch. Opposition Leader Troy Buswell said yesterday nuclear power was not an option for WA in the foreseeable future, despite the Liberals' support for uranium mining."

James Pearson, CEO, WA Chamber of Commerce & Industry Article : West Australian (Page 12), 07 Jun 2008

Gas woes renew nuclear calls : "Nuclear power expert Ziggy Switkowski, who headed a task force established by former prime minister John Howard into the use of nuclear power, said the advance of nuclear power was inevitable. Dr Switkowski, chairman of the Australian Nuclear Science Technology Organisation and former Telstra boss, believed nuclear power generation would be a reality in the mid-2020s and would start operating first on the eastern seaboard. But in WA, smaller, compact reactors could supply power to provincial towns, mines or desalination plants before it was connected to the South-West grid. In my opinion, as we go farther down the path of understanding the severity of the emissions reductions that are ahead of us and the vulnerability we have in existing gas and coal fired power stations which are pausing awaiting the new environmental rules ... but it's only a matter of time before we consider nuclear power as a serious alternative."

Dr Ziggy Switkowski, Chairman, ANSTO Article : West Australian (Page 12), 07 Jun 2008

Gas woes renew nuclear calls : "ANU dean of science Aiden Byrne said nuclear power could not be discounted and greenhouse gas emissions were likely to be the catalyst for an eventual government backflip. Professor Byrne said nuclear reactors, which if happened were at least 20 years away, should be built near coal-fired power station sites because the grid, cooling and heating infrastructure were all accessible. Greens MP Giz Watson said nuclear energy was not viable for WA and it was better to focus on expanding renewable energy sources."

Prof. Aiden Byrne, Dean of Science, Australian National University Article : West Australian (Page 12), 07 Jun 2008

Quick decision on N-waste dump site : "The Rudd Federal Government is preparing to accelerate a decision on the site of a nuclear waste dump, with every indication it will be in the Northern Territory."

"Consultants investigating NT sites are expected to report by the end of this month; however, Resources and Energy Minister Martin Ferguson said he was resolved to act soon after decades of indecision by previous governments. I know I've hot one of the tough decisions of this Parliament. It's got to be done. You can't hide from your responsibilities and you can't play politics. It has left open the possibility of using Howard-era legislation to dump nuclear waste in the NT against the wishes of the *Henderson* Territory government, despite Labor's pre-election promise that it would repeal the legislation."

"Once you've selected the site, you have to go through the normal environmental protection process, the EPBC Act. You've got to treat the indigenous community correctly as to consultation and then put together an outcome. If the Government decided to use the Howard-era law, it could a political nightmare for the Environment Minister Peter Garrett, who condemned the law before the election and who would need to approve the site under the Environmental Protection & *Biodiversity Conservation* Act."

"Mr Ferguson said time to make a decision was fast running out. It's about time we took the politics out of it and fronted up to our responsibilities. Let the Greens and the fringe groups play their little games, it's the responsibility of this Parliament once and for all to resolve it. It is necessary to finalise the site well before the next (*federal*) election because nuclear waste from Sydney's Lucas Heights research reactor sent overseas for reprocessing would soon return to Australia. Under agreements signed in the late 1990s, spent nuclear fuel rods have been sent to Scotland and France to have their uranium extracted before the remaining medium-level waste is returned to Australia. Mr Ferguson made it clear that any repository would be used only for Australian waste. Waste from overseas reactors would not be accepted."

Hon. Martin Ferguson MHR, Federal Minister for Resources Extract : West Australian (Page 4), 09 Jun 2008

WA farmers urge upgrade of dilapidated rail freight network : "The State Opposition and the WA Farmers Federation have called on the *Carpenter State* Government to improve the dilapidated rail freight network as rising fuel costs impact on the cost of road haulage. Shadow agriculture minister Gary Snook (formerly Shadow Planning and Transport) said yesterday that a task force had identified about 400km (*ERA <8% of State public rail network*) of rail track in WA's regional freight network which needed to be upgraded, including old lines into the Wheatbelt regions. Industry had indicated it was prepared to put in \$600 million to retro fit and relay track. He said the *State* Government needed to get Federal Government infrastructure funding for rail network maintenance. There would be massive pressure on WA's freight transport network if favourable rainfall led to a record grain harvest. Mr Snook said a lot of roads were deteriorating because they were not meant to have 70-tonne trucks travelling on them."

Gary Snook MLA, Shadow Minister for Agriculture (Greenough) Extract : West Australian (Page 7), 09 Jun 2008

WA farmers urge upgrade of dilapidated rail freight network : "WA Farmers Federation president Mike Norton said that the transport of grain by rail was going to be crucial in the future and a lot of maintenance work needed to be done on regional rail lines. The Government also had to look at putting in more spur lines to improve the transport of hay and grain (*and not to exclude rural passenger services, timber products, coal, lead, nickel, cobalt, sulphur, haematite, magnetite, etc.*). Mr Norton said State governments from both sides had paid lip service to rail transport. It started back with the (Richard) Court *coalition* government when they wanted to sell all the key infrastructure."

Mike Norton, President WA Farmers Federation Extract : West Australian (Page 7), 09 Jun 2008

WA farmers urge upgrade of dilapidated rail freight network : "Planning and Infrastructure Minister Alannah MacTiernan said the problem had been caused by the incompetent privatisation of the State's rail freight network by the previous State coalition government which enabled the original buyers to take hundreds of millions of dollars out of the network and then walk away, leaving it in poor condition. Ms MacTiernan said the State Government was involved in discussions about the issue with the Federal Government."

Hon. Alannah MacTiernan MLA, Minister Planning & Infrastructure Extract : West Australian (Page 7), 09 Jun 2008

WA farmers urge upgrade of dilapidated rail freight network : "Agriculture Minister Kim Chance said rail transport had a big advantage over road transport when fuel costs were high because fuel was only a very small cost in rail haulage whereas fuel was about 20-25% of the cost in trucking. But the State was limited to a landlord role until 2050, with private companies responsible for the maintenance of rail hardware. Mr Chance said he supported Cooperative Bulk Handling's 'grain express' proposal which aimed to link freight with storage and handling services."

Hon. Kim Chance MLC, Minister for Agriculture Extract : West Australian (Page 7), 09 Jun 2008

Gas failure puts nuclear energy on agenda again : "Alan Carpenter is nothing if not constant in his obdurate refusal to consider the merits of nuclear energy. Time and again the Premier has maintained the line that there will be no domestic nuclear energy in Western Australia on his watch. The fact that WA has had two potentially crippling gas misadventures in the past six months and that oil prices are beginning to bite deeply into government and household budgets does not, apparently, cause him to ponder the wisdom of a stance which also bans the mining of uranium. He is boxing himself (WA, Australia and the Globe) into a tight corner as concerns grow that WA is not considering the nuclear option as part of an energy blueprint to meet future power needs."

"The WA Chamber of Commerce and Industry, for instance, believes that the State must at least consider nuclear energy as a base-load power source since the world is facing what is called a carbon-constrained future. WA, the CCI rightly pointed out, is one of the world's richest sources or uranium. Sixteen percent of the world's power comes from the nuclear energy used in more than 30 countries. The rapid rise in the past month in the price of oil is a stark reminder that refusing to acknowledge the potential of nuclear energy, and to consider it as part of an overall energy scheme, may come at a hefty financial cost. Renewable sources of energy, including solar, must be considered too, though a report 18 months ago by a House of Representatives industry and resources committee found that renewable sources were limited in their application by being intermittent and diffuse and that they posed significant storage problems. The committee found that at present the only alternative to fossil fuel was nuclear energy."

"Mr Carpenter's opposition to it (nuclear energy), and the suspicion that his argument is based on outdated and populist ideology which a substantial part of the community and certainly some members of his own party no longer accept, may see him heading for political trouble. At the very least, he must be mature enough to include nuclear energy in any debate about how the State will meet the business and household needs of the future. He cannot remain captive to a philosophy which ignores the increasing foolishness of a blinkered reliance on fossil fuels. It is generally accepted that nuclear power generation is unlikely in Australia within at least the next decade and probably longer. But like the mining of uranium in WA, it is all but inevitable."

Paul Armstrong, Editor, The West Australian Editorial : West Australian (Page 20), 10 Jun 2008

Following up – At the National Press Club in Canberra this very day, Premier Mike Rann of South Australia, now the longest serving Labor premier in Australia, and currently National President of the Australian Labor Party, who governs in minority with one National Party and one Independent Liberal as ministerial colleagues of State Cabinet, outlines SA's plans to embrace uranium mining and nuclear power.

Apache Energy & the Varanus Island gas explosion : "So, the energy question has finally hit home. One accident and the results are chaos and panic. What are the answers? Back-up alternative systems? But Alan Carpenter (WA's Premier) doesn't like nuclear. Peter Garrett (Federal Environment Minister) doesn't want solar; except for the poor. Bob Brown (Federal Greens Leader) is against biofuels. Kevin Rudd (Australia's Prime Minister) doesn't know what he wants until he hears from his committee."

"What we need is a biomass product, from a sustainable renewable resource. Ah-hah, I hear you say, waste wood-fibre from plantations and natural forests, like they do in other parts of the world; nay say the greenies, and the smoke will taint our wine say the vignerons. Wind-powered turbines might be a solution? Sorry, say the preservationists, they upset the vista and besides, they make that horrible humming noise. It might just be easier in the long run to just pay \$2 a litre for our petrol."

L. Harvey Strack, President, Timber Communities Australia (WA) Extract : West Australian (Page 24), 10 Jun 2008

Ship costs jump lifts BHP, Rio ore case : "Rio Tinto and BHP Billiton have received a big boost in their iron ore price stand-off with China's steel mills after the cost of chartering ships soared to a record US\$233,988 (A\$243,083) a day last week, an increase of almost 200% since the start of the year. The Pilbara's other main miner, Fortescue Metals Group, is not involved in the talks but will adopt the Rio-BHP price."

Extract : West Australian (Page 39), 10 Jun 2008

Australia offered a seat at table for oil crisis meeting : "Australia is set to attend a crisis meeting of the world's biggest petroleum producers and suppliers on the soaring oil price, which analysts believe may soon reach US\$140 a barrel. An invitation was extended to Australia to attend the June 22 meeting organised by Saudi Arabia amid arguments between producer and consumer nations over who to blame for the blow out in energy costs. I will be looking very carefully at the proposed agenda

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for that meeting overnight and I will have further to say about it. Key nations have already suggested they will attend, though US President George Bush is sending his Energy Minister rather than find himself in the same room as the leaders of nations such as Iran and Venezuela."

"European countries, the European Commission, oil company representatives, the International Energy Agency and the heads of investment banks Morgan Stanley and Goldman Sachs are also being invited as well as members of the OPEC oil cartel. A key element of the increase in prices has been the weak American dollar. Investors, looking for safe havens, have plunged their cash into oil, pushing up demand. Liberty Trading Group president James Cordier said investors were now banking that interest rates in Europe would increase this year while rates in the US would remain unchanged or fall, raising the prospect that crude oil may crash through US\$140 a barrel. That's going to really fuel the (investment) funds back into the long side of crude oil, he said."

James Cordier, President, Liberty Trading Group, USA Extract : West Australian (Page 5), 13 Jun 2008

N-power back on drawing board in Italy: "Italian Prime Minister Silvio Berlusconi is to put nuclear power at the heart of a new energy plan because of soaring fuel costs. Italy, the only Group of Eight country without nuclear power stations, decommissioned its four plants after a public referendum was held in 1987 in the wake of the Chernobyl disaster. However, with fuel prices at record highs, Italy is spending twice as much as France on generating electricity and has had to shut several power stations to save money. It also is the world's biggest electricity importer and buys 10% of its power from nuclear plants in other (*European*) countries."

"Paying the highest electricity bills in Europe has changed the public's attitudes toward nuclear power. The latest polls show 60% support among Italians, a dramatic change from 70% opposition in 1991. Our priority will be nuclear, Economic Development Minister Claudio Scajola said. It is a direction in which the whole world is being forced to go and we must follow. Mr Scajola hopes to begin work on the first power station within four years. Giancarlo Aquilanti, head of nuclear development at Enel, the partially state-owned power company, said six plants could be built."

"However, there is still strong local opposition. The horrific memories of children and animals being disfigured by a nuclear leak at Garigliano, near Turin, in the late 1970s are still fresh. Recent problems at nuclear power stations in Slovenia and Japan have confirmed for many Italians that living close to a plant is a health hazard. Nuclear waste is another issue. A proposed dump in Basilicata was shelved after thousands of demonstrators staged roadblocks, marches and hunger strikes. Italy paid Sellafield in Britain to reprocess the waste and asked if it could be dumped in Britain. The Mafia has been caught trying to ship nuclear waste to Eastern Europe and Somalia."

Silvio Berlusconi, Prime Minister of Italy Extract : West Australian (Page 32), 17 Jun 2008

Radical shift need for climate fight : "The world needs a shift as radical as the Industrial Revolution to cut greenhouse gas emissions by 2050 while safeguarding economic growth, the McKinsey Global Institute said yesterday. Increasing carbon productivity tenfold in less than 50 years will be one of the greatest tests humankind has ever faced. The McKinsey study said that the world could make big savings in energy use with measures such as improving insulation of buildings. But both history and economics give us confidence that this can be done."

"One step was taken yesterday when British Prime Minister Gordon Brown unveiled plans to build 7000 wind turbines across the country. The Prime Minister insisted that the plans had public support and were essential to help the country reduce its dependency on oil. To achieve a 15% renewable energy target by 2020, a massive wind energy building program was needed, according to the new Renewable Energy Strategy. There would be 4000 more on-shore turbines and 3000 off-shore wind farms. The Prime Minister warned that more communities had to accept green energy projects. A consultation document is due to say that 'visible changes to our landscapes, town and cityscapes are inevitable'."

Gordon Brown, Prime Minister of the United Kingdom Extract : West Australian (Page 30), 27 Jun 2008

Radical shift need for climate fight : "Meanwhile, Portugal, blessed by a long deep-water Atlantic coastline and temperate climate, is leading the way in a drive to harness the power of ocean waves to produce electricity at a profit. Portuguese scientists for the last three years have been working with foreign counterparts on a wave-energy scheme that could eventually supply nearly a fifth of Portugal's energy needs, according to the Centre for Wave Energy. Between now and 2012, we hope to reach a production capacity of 1000 megawatts, Professor Antonio Sarmento, the head of the centre, said. The country's first pilot project was launched three years ago on Pico Island in the Azores, 1500km off the Portuguese mainland. Two other power stations are planned."

Prof. Antonio Sarmento, Centre for Wave Energy, Portugal Extract : West Australian (Page 30), 27 Jun 2008

Energy headache of migraine proportion : "Having again ruled out nuclear power in no uncertain terms, the *Rudd Federal* Government had better hope carbon capture and storage technology works. Otherwise, meeting its target to reduce greenhouse emissions by 60% by 2050 starts to look very tricky indeed. Australia's latest set of greenhouse accounts show that electricity generation emits 34% of greenhouse gases and that they increased 53% between 1990 and 2006. The same accounts show us on track to keep the increase in our total emissions between 1990 and 2012 to only 8% - but this outcome is skewed by a 53% reduction in emissions from land clearing."

"And you can only stop clearing land once. That means after 2012, when the emissions-trading scheme starts to kick in, we have to turn that drastic increase in emissions from power generation into a drastic decline. The report on emissions trading to former Prime Minister John Howard was absolutely clear on this point : 'Demand for electricity is expected to more than double by 2050. Over this period, more than two-thirds of existing electricity generation will need to be substantially upgraded or replaced

and new capacity will need to use technology with near-zero greenhouse gas emissions from this sector at today's levels'. And there's the rub."

"Gas will be the first option. It becomes competitive with coal as soon as a carbon price hits about \$20 a tonne. But while its emissions are lower, it is not a zero-emission technology and its reserves are finite, meaning it can not drive the deep, long-term cuts the Government is seeking. Nuclear is certainly zero emissions and starts to become commercial at a carbon price somewhere between \$40 and \$60 a tonne, depending on who's doing the modelling. But we're going to leave it on the shelf."

"Which leaves carbon capture and storage. Emissions from coal-fired power can be reduced by 90% if the carbon can be captured and stored underground. The modelling estimates this process will become commercially viable at a carbon price of between \$50 and \$60 a tonne. But there's one hitch : we're not sure if it works on a large scale. If it doesn't, we're in a spot of bother. Because the renewable energy sources that might be able to drive base-load power generation, such as thermal, geothermal and biomass, cost a great deal more and have not been proven at scale either."

Lenore Taylor, Journalist, AFR Article : Weekend Australian (Page 6), 28 Jun 2008



Bill Leak, Cartoonist Cartoon : The Australian (Page 16), 28 Jun 2008

Debate nuclear – unionist : "Union boss and Labor candidate at the coming State election Tim Daly yesterday backed uranium mining and a debate on nuclear energy. Mr Daly's Australian Workers Union is strongly behind a national push for a rethink on nuclear energy and said yesterday he believed WA should not be left out of the debate. But Mr Daly, who has the marginal number three position on the ALP's North Metropolitan ticket and will battle the Greens' Giz Watson for the seat, said he would not be taking on Alan Carpenter over the issue. The Premier has continued to back his predecessor Geoff Gallop's opposition to uranium mining but Mr Daly said he could think of no reason why uranium should not be mined. We mine it in South Australia and the Northern Territory and the safety record in those places is exceptional."

Tony Daly, Branch Secretary, Australian Workers Union (WA) Article : West Australian (Page 11), 28 Jun 2008

Rail freight booms as fuel costs savage road transport : "Rising fuel and labour costs have led to a resurgence in the rail freight network, with new statistics showing record volumes of goods being transported between the Eastern States and WA. It comes as research shows rail has become almost 50% cheaper than road transport for east to west freight. Latest statistics from the Australian Rail Track Corporation, which administers the interstate rail network, shows 3.6 billion gross tonnes per kilometre

were transported between the Melbourne to Perth and Sydney to Perth routes in May – breaking the previous record of 3.53 billion GTK in November 2007."

The total volume of goods transported in the first five months of this year was also 3.5% higher than the same time last year. ARTC chief executive David Marchant said rail freight was five times more efficient per tonne than road transport, making it more cost effective for companies which had to transport goods over a long distance. Infrastructure upgrades and longer trains meant larger volumes could be freighted across the Nullarbor. With growing demand for reliable freight transport and with rising fuel prices impacting on the trucking industry, the resurgence of rail is good news for the Australian market."

"Over all rail corridors in Australia, rail *freight* was about 20% cheaper *than road freight*. There has also been a movement between modes, with the rail market share of land transport growing from 55% to 82%. That movement has been going for a decade and is continuing. Australian Trucking Association spokesperson Bill McKinley said rail and road competed on only 10-12% of the freight market, which was growing at an unprecedented rate. Mr McKinley said the rising cost of diesel had left many small and medium operators in crisis, with those on fixed-term contracts unable to increase rates."

David Marchant, Chief Executive, Australian Rail Track Corporation Extract : West Australian (Page 16), 09 Jul 2008

Select Committee on Fuel & Energy : "The Senate has established a Select Committee on Fuel and Energy to inquire into :

- (a) The impact of higher petroleum, diesel and gas prices on families; small business; rural and regional Australia; grocery prices, and key industries, including but not limited to tourism and transport
- (b) The role and activities of the Petrol Commissioner
- (c) The operation of the domestic petroleum, diesel and gas markets
- (d) The impact of an emissions trading scheme on the fuel and energy industry
- (e) The existing set of state government regulatory powers as they relate to petroleum, diesel and gas products
- (f) Taxation arrangements on petroleum, diesel and gas products
- (g) The role of alternative fuels to petroleum and diesel
- (h) The domestic oil and gas exploration and refinement industry; and
- (i) The impact of higher petroleum, diesel and gas prices on public transport systems."

www.aph.gov.au/Senate/committee/fuelenergy_ctte/index.htm

Senate Committee, Commonwealth of Australia Advertisement : West Australian (Page 62), 12 Jul 2008

Strife likely over English nuclear plan : "Plans to build eight new nuclear power stations in England were likely to meet opposition from residents and environmentalists, the London Daily Telegraph newspaper said yesterday. New planning laws would be used to fast-track approval for the plants which British Prime Minister Gordon Brown believed were crucial to reducing Britain's dependency on fossil fuels. The plants, to be built over a decade, would mainly be sited next to eight existing nuclear power stations. The Scottish Executive has ruled out any of the nuclear stations being built north of the border. Mr Brown is a strong backer of nuclear energy."

"PM Brown said earlier this year : When North Sea oil runs down people will want to know whether we have made sure that we've got the balance right between external dependence on energy and our ability to generate our own energy within our country. Britain has pledged to cut carbon dioxide emissions by more than half by 2050 and the ambitious nuclear building plan is considered critical to meeting the target. At the Group of Eight (G8) summit in Japan last week, Mr Brown spoke of the need for up to 1000 new nuclear power stations around the world to supply energy during the next century. He said there should be nuclear power plants on every continent."

Gordon Brown, Prime Minister of the United Kingdom Extract : West Australian (Page 32), 15 Jul 2008

Hysteria : "One of the symptoms of climate change hysteria (an allied condition to the recently diagnosed 'climate change delusion) is an inability to think logically or rationally and engage in inappropriate analogies. Pru O'Dea (Letter, 14/7) exemplifies this strange and disturbing affliction. The analogy was to vaccination. But Ms O'Dea rapidly becomes confused with it. If Australia's unilateral reduction of its minuscule share of global greenhouse emissions was to be properly compared to vaccination, that action would need to be likely to 'cure' the Earth of climate change."

"But it won't. This is the hard and inconvenient fact that Ms O'Dea is so desperately trying to avoid. If you shut Australia down tomorrow and got rid of everyone and everything completely, it would make absolutely no measurable difference to average global temperatures (which have in fact gone down over the past 18 months). And then the ever-rising emissions of China and India (that have no intention of watching Australia cut its own throat and then imitating us) would take less than a year to completely make up for even such a total shut down of Australia."

Garth Godsman, Nollamara Resident & Taxpayer Extract : West Australian (Page 32), 15 Jul 2008

Prices fuelling tourism worry (by Ben Papalia): "Relaxation is a part of life and without it the stress factors of day-to-day living can often become too heavy to handle. The South West region from Bunbury to Manjimup, to Pemberton and Margaret River are locations frequently visited by the State's population, but the journey might not be as simple now. Nowadays the

average tank of unleaded (*fuel*) costs around 170 cents a litre (*Northcliffe* 185 e/ltr - 21 July 2008), so it begs the question, could the region's tourism industry by under severe threat by escalating fuel costs?"

"Those initial fears were confirmed by South West Regional Tourism Organisation chief executive officer Sascha Papalia recently. Mrs Papalia said the fuel crisis could potentially deter holiday-makers from visiting the South West's hotspots, but it would come down to personal choice. With that in mind, you could say higher fuel costs might be a positive for tourism in the South West. With travel overseas, interstate and even to the State's North West holiday hotspots being affected by rising costs passed on by airlines etc due to the hike in fuel price, more Perth residents might be persuaded to spend their precious relaxation time in the South West."

Sascha Papalia, CEO Australia's South-West Extract : Manjimup Bridgetown Times (Page 9), 16 Jul 2008

Following up – Sascha Papalia (nee Turner) representing the Board of Australia's South-West Tourism has declined on three occasions to facilitate a briefing session on the Rainbow 2000° Project (including the Albany International Seaport & Airport).

Peak oil has arrived in Australia : "Oil production in Australia has already peaked and the alternative fuels industry needs to be dramatically ramped up in response, an expert research group says. After years of a stop-start approach to ethanol production, Australia is fast running out of time to end its love affair with crude oil, much of which is imported, the NRMA Motoring funded Jamison Group says. Oil production in Australia has already peaked, the group's report, 'A Roadmap for Alternative Fuels in Australia', warns."

"Meanwhile, Australia's demand for petroleum is increasing at a rate of 2% a year, from 750,000 barrels per day currently to 800,000 barrels by 2009/10. The domestic arrival of peak oil means more and more crude will be imported from the Middle East. One of the researchers, former CSIRO automotive expert David Lamb, passionately called for change. Our cities, our towns, our farming, our food distribution are all very heavily oil dependent. It leaves us with a large trade deficit for the oil we import. We owe it to ourselves to plan our way out of this situation."

"The Jamison Group has refined its 57-page report to 12 points, some of which deal directly with the biofuels industry. The goal to reduce oil dependence should translate into a commitment to develop alternative fuels in Australia as well as to reduce consumption and improve energy efficiency generally. Mr Lamb warned the nation's security was at risk if action was not taken. We were deeply concerned that there may not be enough oil to go around. Having a strong economy will not protect Australia from a global oil shortage. It's like having a pocket full of money and going into a shop with empty shelves. Our lifestyle is totally dependent on cheap oil."

David Lamb, Jamison Group, National Roads & Motorists Association e-News : WA Business News, 22 Jul 2008

Big Oil – big gains but little new oil : "The five biggest international oil companies ploughed about 55% of the cash they made from their business into stock buybacks and dividends last year, up from 30% in 2000 and just 1% in 1993, according to Rice University's James A. Baker III Institute for Public Policy. The percentage they spend to find new deposits of fossil fuels has remained flat for years, in middle-single digits. In the first three months of this year, ExxonMobil, the world's biggest publicly traded oil company, shelled out US\$8.8 billion (A\$8.98 billion) on stock buybacks alone, compared with US\$5.5 billion on explorations and other capital projects."

"ConocoPhillips has already told investors that its stock buybacks for April to June of this year will come to about US\$2.5 billion – nine times what it spent on exploration. Stock buybacks are common throughout corporate America, not just for Big Oil. They shrink the amount of stock on the open market, essentially increasing its value and giving individual shareholders a bigger stake in the company. But some critics say Big Oil focuses too much on boosting stock prices, in an industry that sometimes ties executive pay to stock price. And in focussing on buybacks and dividends over exploring for new oil, some critics say, oil companies jeopardise their already dwindling share of world supply."

"Investor-owned companies like ExxonMobil and Chevron hold less than 10% of global oil and gas reserves, way down from past decades. And finding new oil has become harder and more expensive. State-run oil companies, like those in Saudi Arabia and Venezuela, control about 80% of oil reserves – and at today's prices, it's not surprising they're keeping a tight grip on what they have. Scarce equipment and hard-to-find labour also pose problems. No one questions that Big Oil is rolling in cash. The cash the biggest oil companies bring in from running their businesses, or operating cash-flow, is four times what it was in the early 1990s. So what's Big Oil to do? The companies say they are doing what they can to find more fossil fuels around the world, but the easy oil is gone."

Amy Myers Jaffe, James Baker IPP, Rice University, Texas, USA Extract : West Australian (Page 56), 23 Jul 2008

WA Libs say 'yes' to uranium mining : "A Liberal government would allow uranium to be mined in Western Australia but not receive nuclear waste or develop nuclear power. Opposition leader Troy Buswell will address a national uranium conference in Fremantle this afternoon to make a public declaration on the Liberals' policy. In the last three years spending on exploration for uranium has jumped up \$2.2 million to \$11.2 million last year, and an estimated \$19 million this year, Mr Buswell told Fairfax Radio."

"So while (Premier Alan Carpenter) is saying 'No uranium mining on my watch', there are record levels of expenditure in WA on exploring for uranium. What he's saying and what's happening behind the scenes are two different things. The Australian Uranium Association's website lists eight major deposits and prospective mines in Western Australia: at Kintyre, Yeelirrie, Mulga Rock, Manyingee, Oobagooma, Lake Maitland, Lake Way and Centipede; and Thatchers Soak."

"Under current WA laws and regulations, mining companies can explore for uranium but not take it out of the ground. The WA Greens and some members of the Labor Party want legislation to ban uranium mining, but Premier Alan Carpenter said it was not needed. The facts are, there is an amount of exploration happening in WA as we speak, Mr Buswell told ABC Radio today. What I am hoping will happen is that there will be a significant increase in that exploration and that ultimately uranium will be mined and uranium oxide will be exported from Western Australia to countries or customers deemed suitable by the federal government under relevant international protocols."

"The Association of Mining and Exploration Companies has welcomed Mr Buswell's uranium mining stance but said it will not use the policy to bully Premier Alan Carpenter to change his mind. AMEC respects the political process and welcomes all points of view, including those of the leader of the opposition," AMEC manager of advocacy and public affairs Darren Brown said. However, AMEC will not use the Opposition's policy to try to bully the Premier into changing his position on uranium. Mr. Carpenter has made his public position on the exploration and mining of uranium in Western Australia very clear - he is opposed to it."

Troy Buswell MLA, Opposition Leader WA e-News : WA Business News, 24 Jul 2008

Report calls for fast-tracking of development of electric cars : "Tough decisions made by the Federal Government today could see Australia replace its fossil-fuel technology with electric cars generated by renewable, clean energy sources within years, according to a new report by the Jamison Group. The Jamison Group was established by the NRMA following the company's Alternative Fuel Summit in 2006 and comprises four eminent scholars in the fields of energy and transport – David Lamb, Mark Diesendorf, John Mathews and Graeme Pearman. The report, 'A Road Map for Alternative Fuels in Australia : Ending our Dependence on Oil', finds that in the past four years Australia's dependence on foreign oil has grown by 30% and if nothing is done, the nation will have an oil trade deficit of \$25 billion by 2015, causing enormous inflationary pressures on the economy and further damage to the environment. The report calls on the Australian Government to set a target of reducing oil dependence by 20 per cent by 2020; 30 per cent by 2030 and 50 per cent by 2050. It urges the Australian Government to do all it can to fast-track the development of the electric car in Australia, charged by renewable energy sources such as wind or solar."

www.envirocentre.com.au e-News : CO2 News, 06 Aug 2008

Libs to allow U-mines as Premier rebuffs Greens : "Liberal leader Colin Barnett recycled the party's pro-uranium mining, antinuclear power policy yesterday, while *Premier* Alan Carpenter rejected the Greens' wish for laws banning uranium mining. The Greens warned that legislation prohibiting uranium mining was a bargaining tool in preference talks. The Premier said there was no need for anti-uranium laws because it would not stop the Liberal Party mining uranium if it won power. The Greens and environmental groups fear that without such laws, a future conservative government would approve uranium mining without any avenue for Parliament to scrutinise or oppose it."

"Mr Barnett reiterated that a Liberal government would lift Labor's mining ban because there was no reason not to capitalise on the export potential. We have been mining uranium since the 1930s. Australia and Canada have the two largest reserves and are the two largest exporters of uranium. Why wouldn't WA join with *South Australia* and other States, including the *Northern Territory*, and mine and export uranium? Mr Barnett ruled out nuclear power, saying it was not needed in WA for at least 50 years."

Colin Barnett MLA, Opposition Leader WA (Liberal) Article : West Australian (Page 7), 13 Aug 2008

LNG prices tipped to rise 80% : "Liquefied Natural Gas (LNG) prices in Asia may climb about 80% this year as new projects get delayed and countries from Indonesia to Egypt curb exports. John Harris, a director at Cambridge Energy Research Associates in Beijing, said cargoes of LNG might rise to as much as US\$25 per million British Thermal Units (*BTUs*) in the northerm hemisphere winter. This winter can be very tight, said Andy Flower, a London-based industry consultant and former executive at BP's LNG business. There's not going to be much supply available. Cambridge Energy and Edinburgh-based Wood Mackenzie Consultants say natural gas will reach parity with oil this year. Oil is forecast to average US\$124 a barrel in the forth quarter, according to the median estimate of 31 analysts in a Bloomberg survey. That equates to a gas price of around US\$21 per million BTU. UK gas futures for winter are trading at about US\$18 per million BTU."

"Supplies of LNG, which pollutes less than oil-based alternatives, could be constrained because plants in Egypt, Nigeria and Norway operated at about 60% capacity in the first half of 2008 after equipment failures and inadequate pipeline capacity, according to estimates compiled by Mr Flower. Global LNG trade rose 7.3% to the equivalent to 165.3 million tones last year according to the BP Statistical Review of World Energy June 2008. Consumption will increase 10% a year through 2015, more than five times as fast as crude oil. Tokyo Electric Power Company, Asia's biggest utility, increased consumption by about 18% to 19.9 million tonnes in the year ended 31 March 2008 after an earthquake last July shut its Kashiwazaki Kariwa nuclear plant, the world's biggest. Japan and South Korea will pay whatever it takes to get the fuel, Mr Harris said."

John Harris, Cambridge Energy Research, Beijing PRC Extract : West Australian (Page 38), 18 Aug 2008

WAFF calls for State to pick up WestNet : "The WA Farmers Federation yesterday added to the scrutiny of Babcock & Brown by raising concerns over the health of the investment bank's beleaguered energy and transport fund, suggesting the crisis of confidence weighing on the group could threaten the management of the State's vital grain freight network. WAFF president Mike Norton said Babcock & Brown Infrastructure's (BBI) decision two weeks ago to sell down its 76% stake in WestNet Rail highlighted uncertainty over the group's ability to adequately manage and maintain the State's freight network. Eight years ago (*under the Court Coalition Government*), WestNet signed a 49-year lease with the State Government to operate WA's freight network in the South-West, which covers 5100 km of line and carries 65% of the State's grain harvest."

Mike Norton, WAFF Extract : West Australian (Page 47), 21 Aug 2008

Airlines face \$7b hit as fuel prices soar and demand slumps : "A 'perfect storm' of soaring fuel costs and slipping demand could cost global airlines US\$6.1 billion this year, the International Air Transport Association warned yesterday. Painting a grim outlook for the industry, IATA's director-general and chief executive, Giovanni Bisignani, expected to see more airlines go bust as sky-high fuel prices slashed profitability. Already some 25 airlines in our financial systems have gone bust – greater than immediately following 9/11 – and we are bracing for more."

"Mr Bisignani said the reality was that oil prices seemed to be permanently higher than five years ago and were 'reshaping the business in a way that demand shocks of SARS and 9/11 did not'. IATA represents about 240 air carriers accounting for 94% of world air travel. He said while airlines had worked hard to cut costs to survive the tougher environment, they were not free to operate as normal business because airspace access and foreign ownership were controlled by governments. He called on Australia to play a leading role in changing the 60-year old rules which govern global aviation, despite acknowledging the fact that unwinding 3500 bilateral agreements would be a challenge."

Giovanni Bisignani, Director-General, IATA Extract : West Australian (Page 50), 21 Aug 2008

\$225m plan for SW gas pipeline : "A natural gas pipeline from Bunbury to Albany will be built and operating within four years, if the Liberals are elected to government. The proposed South-West pipeline will extend via Bridgetown and Manjimup (*and Mt.Barker*) at a cost of about \$225 million. Construction would begin in the first term of a Liberal (*State*) government. Opposition Leader Colin Barnett, announcing the policy yesterday, said the pipeline was designed to develop a secure, reliable and safe energy supply for the future economic and social growth of the region. For many customers along the route, this would mean a lower cost alternative to bottled LPG."

"The line would also provide new jobs and encourage value-adding and exports for the viticulture, agricultural, minerals and timber industries through access to internationally competitive gas prices. Mr Barnett said it would encourage further investment in the region and reduce greenhouse-gas emissions through increased use of cleaner natural gas. The gas pipeline grid could enable the installation of gas turbines in the region to support the electricity grid in times of high demand, taking pressure of the transmission system upgrades to support additional capacity. This would be particularly relevant for wind projects that have high prospects in the region."

Hon. Colin Barnett MLA, Liberal Opposition Leader WA Extract : Sunday Times (Page 7), 24 Aug 2008

Labor does U-turn on uranium : "Alan Carpenter produced another spectacular policy reversal yesterday when he announced that he (*as Leader of the Australian Labor Party if elected to form the next State Government*) would legislate to ban uranium mining in Western Australia, only weeks after dismissing the measure as unnecessary. Our position has been criticised because it relied only on the presence of the premier of the day, myself, and I've been convinced that there needs to be more rigorous process, Mr Carpenter said. Legislating to ban the mining of uranium will mean it is a decision of the Parliament of Western Australia for that ban to be overturned rather than a decision of the premier of the day."

"The Premier's policy reversal caught Greens MP Giz Watson (*MLC North Metropolitan*) by surprise because Labor had voted with the Liberals to defeat her private member's bill to ban uranium mining just four months ago. That does strike me as somewhat ironic but, what do they say, 24 hours is a long time in politics? Ms Watson said. It's a pleasant surprise and we will work with him to make sure that it is adequate, comprehensive legislation and brought in with the highest priority. Both Mr Carpenter and Ms Watson denied that the reversal was part of a preference deal between Labor and the Greens."

"Independent MP Shelley Archer (*MLC Mining & Pastoral – formerly Australian Labor Party – and disenfranchised with the Burke CCC investigations*), who will share the balance of power in the Upper House with Family First MP Anthony Fels (*MLC Agriculture – formerly Liberal Party – and also disenfranchised after CCC investigations*) until May 2009 (*because the Legislative Council does sit for fixed terms*), said she would not support the legislation. I just think it's another backflip, and I certainly won't be supporting it, Ms Archer said. To be frank, I think Mr Carpenter is a bit panicked – the polls aren't looking good for him and some of his members and I think he's just looking for areas where he might gain an extra vote or an extra edge against the Liberals."

"The uranium mining industry was stunned by the Premier's policy reversal, with the Association of Mining and Exploration Companies advocacy and public affairs manager Darren Brown calling the decision 'short-sighted and embarrassing'. It's short-sighted because it closes the door on a future industry that could deliver many billions of dollars and tens of thousands of jobs to the State. It's embarrassing because it will solidify WA's place as the least attractive Australian state to do business. Federal Resources Minister Martin Ferguson is on record saying that this is a bad policy and now it looks like the loony Left (*faction of the ALP*) will get their way and drive the last nail in the coffin of common sense. WA Chamber of Commerce and Industry policy executive Trevor Lovelle said legislating against uranium mining would hinder the State's economic, environmental and social development."

Hon. Alan Carpenter MLA, Premier of Western Australia Extract : West Australian (Page 5), 27 Aug 2008

Following up – With copies to all twelve WA Senators and the President of the Senate, Smithson Planning submits its discussion paper on Peak Oil, Gas & Nuclear Power dated 21 August 2008 to the Commonwealth Government's Senate Select Committee Inquiry into Fuel & Energy (updates with later commentary will be submitted prior to the public hearings).

China's power carbon emissions set to outstrip US for first time : "The carbon emissions of China's electric power sector will jump by about $1/3^{rd}$ this year, surpassing the total emissions of the US power industry for the first time, according to a report by the Centre for Global Development, a Washington-based think tank. The estimate shows that though China and India are

becoming more efficient in energy use, their rapid pace of economic growth will mean a doubling of their carbon emissions from power plants over the next twelve years. We se some marginal signs of improvement in carbon intensity, particularly in some of the major developing countries, Kevin Ummel, a researcher at the centre said. But even with that slight silver lining, aggregate emissions, the only measure that matters to the atmosphere, continue to race upward."

"Worldwide, power generation accounts for 37% of energy-related carbon dioxide emissions and 27% of all carbon emissions, including those attributed to deforestation. The report highlights the challenge of curbing greenhouse gases in time to slow climate change while maintaining world economic growth. China and India have made growth their top priority to raise living standards and many international climate negotiators do not expect meaningful limits on carbon emissions from them until after 2020 – that spells trouble for the climate, many scientists warn. We urgently need to cut power-related carbon dioxide emissions, David Wheeler, a senior fellow at the centre, said. According to the report, Chinese power plants will produce about 3.1 billion tonnes of carbon dioxide this year, up from about 2.3 billion tonnes last year. Paul Ting, a veteran oil analyst now specialising in China, said China relied on coal for three-quarters of its energy consumption."

Kevin Ummel, Centre for Global Development, Washington DC, USA Extract : West Australian (Page 19), 28 Aug 2008

Uranium firm considers Australian withdrawal : "Premier Alan Carpenter's election pledge to legislate a uranium ban may cost the country some \$200 million in investment as one Canadian company considers a withdrawal from its Australian assets. Toronto-listed Mega Uranium Ltd said it is reassessing its plans for the development of its Australian uranium assets, including the Lake Maitland project in Western Australia, and other assets which have an in-ground value of over \$3 billion. Mr Carpenter has consistently opposed uranium mining but until last week maintained there was no need for legislation. He said he had changed his mind after speaking with groups opposed to uranium mining which convinced him of the need to enshrine the policy in law."

"Mega said it had been in advanced discussions with a number of parties involving off-take agreements and funding ventures to develop the projects. In light of the Western Australian Premier's comments, these high level negotiations with some of Australia's largest trading partners have now stalled and, if as proposed, the legislation to ban uranium mining in WA is passed, they will be terminated. Mega has spent over \$130 million acquiring and exploring over the past two years. The Canadian company also said Mr Carpenter's uranium opposition has put into jeopardy the federal government's Uranium Industry Framework which encourages companies to work with Indigenous groups."

"The legislation proposed by Premier Carpenter destroys some of the best opportunities in WA to achieve the desired outcomes of this policy, Mega said. Mr Carpenter's back-flip has prompted outcry from several representative groups which have labelled the pledge as 'disappointing'. The Western Desert Lands Corporation (WDLAC) which acts on behalf of the Martu people, who hold land rights over the major Kintyre uranium deposit, said the pledge will rob Indigenous people the right to earn a living and potentially achieve and equity stake in a major project."

Mega Uranium Ltd, Toronto, Canada e-News : WA Business News, 28 Aug 2008

Russia aims economic oil weapon at Europe : "Fears are mounting that Russia may restrict oil supplies to Western Europe in response to the threat of European Union sanctions and NATO naval actions in the Black Sea. Such a move would be a dramatic escalation of the Georgia crisis over Abkhazia and South Ossetia and play havoc with oil markets. Reports from Moscow suggest Russian oil companies are under Kremlin orders to prepare to cut supplies to Germany and Poland through the Druzhba (Friendship) pipeline. With the US and European credit crisis already causing great stress, a fresh oil spike would rock financial markets and the Kremlin undoubtedly knows it has extraordinary leverage if it strikes now."

"Such action would be seen as economic warfare but Russia was infuriated by NATO meddling in its 'backyard' and threats of punitive EU sanctions. Russia tested a long-range missile on Thursday as Prime Minister Vladimir Putin accused the United States of provoking the war in Georgia to improve Republican prospects in the US presidential election. 'They needed a short, victorious war. And if it didn't work out, they could always put the blame on us; make us look like the enemy and against the background of this surge of patriotism, once more rally the country around a particular political force', PM Putin said. The White House said Mr Putin's suggestion was 'not rational' and 'patently false'."

Vladimir Putin, Prime Minister of Russia Extract : West Australian (Page 12), 30 Aug 2008

Following up – Two days later Australia threatens Russia with withdrawal from strategic agreements struck in 2007 for the supply of uranium ore for nuclear power generation and enrichment if it fails to heed EU / NATO expectations relating to Georgian sovereignty.

Nuclear ban is deception : "The fact is that many countries are already reliant on nuclear reactors for energy production. For example, France produces 80% of its energy from nuclear power, Sweden 50%, Japan 30%, and the United States and the United Kingdom 20%. All are vibrant democracies and all are signatories to the Nuclear Non-Proliferation Treaty. That the Premier Alan Carpenter could link renewable energy targets in his home state to the overseas export of uranium shows a lack of public policy skills, if not a simple inability to think logically. Either Carpenter and his advisers don't understand that the uranium mining and nuclear power debates are separate, or they hope the public doesn't understand the difference and are looking to cash in on a politically sensitive subject."

"In his statement on the matter, Carpenter also claimed that the global demand for nuclear power was diminishing. Either the Premier is being deliberately misleading or he is again ill-informed. There are more than 400 nuclear power plants worldwide. The total number under construction or proposed for construction will go close to doubling that number in the not-too-distant future. Carpenter is certainly being misleading when he suggests that WA may be saddled with returned waste from exported

uranium. No country that exports uranium is required to tack back the waste, and Australia never has. It is not as if the mining and export of uranium is a new debate in Australia. We have been doing it since 1954."

"Labor's three-mines policy ensured there wasn't a proliferation of new mines following the 1970s growth in uranium exports. But the policy was overturned at last year's ALP national conference, and just last week Federal Environment Minister Peter Garrett approved an expansion of one of South Australia's largest uranium mines. Former Premier Geoff Gallop committed not to allow uranium mining in WA when he was elected in 2001, affirming the commitment at the 2005 election. Carpenter honoured Gallop's ban when he took over the premiership."

"However, by going a step further and enshrining the ban in legislation, Carpenter is making it prohibitively difficult for future state governments to choose a different public policy direction, not to mention exposing WA to expensive compensation claims from mining companies already granted licences (or the forfeiture of mining royalties and employment opportunities). Carpenter's failure to have a serious debate about the very different issues of uranium mining and nuclear reactors, whatever the outcome of that debate, is an example of putting good politics ahead of good policy."

Peter van Onselen, Assoc. Professor of Politics, Edith Cowan University Extract : Sunday Times (Page 69), 31 Aug 2008

Albany's future is on the line : "Colin Barnett and the Liberals see uranium as part of our energy future. They won't say where it will be mined, or if it will go through Albany port. Meanwhile, Labor has been working hard to deliver cleaner sources of power like solar, wind and wave power technology. Alan Carpenter and I have a vision to make Albany the first city in Australia powered 100% by renewable energy."

Hon. Peter Watson MLA, Labor Candidate for Albany Letter : 01 Sep 2008

Plugged in – **Going Green ... and not so green :** "A spokesman for the Premier yesterday defended the Government's green record, claiming renewable energy accounted for about 5% of the main electricity grid, up from about 1% in 2005. He said renewable energy achievements included new wind farms, a commitment to the State Government using 20% renewable energy by 2010 and new solar energy rebates. A spokesman for the State-owned Verve Energy said less than 1% of its electricity relied on renewable power sources, claiming it had severe limitations as a base-load power source because it was expensive and unreliable. 'Fossil fuels, coal and gas will continue to be the backbone of base-load power generation for some time. Among the challenges associated with big lumps of renewables are managing the transmission system and ensuring there is enough capacity to handle the extra renewable-sourced electricity, especially when that energy is not constant."

Renewable energy power stations since Labor came to power in 2001 (combined 210 MW)

2005 Alinta Mid-West Wind Farm – 54 wind turbines with 90 MW capacity (JV Singapore Power, BBI & BBP) 2006 Emu Downs Cervantes Wind Farm – 48 wind turbines with 80 MW capacity (JV Stanwell & Griffin Energy) 2009 WA Biomass – 40 MW boiler / steam turbine power station to be fired by biomass

Non-renewable energy power stations since Labor came to power in 2001 (combined 2,180 MW)

2003 Cockburn 1 – 240 MW of gas fired combined cycle plant (Verve Energy) 2005 Kemerton – 2*130 MW gas turbines fired on either natural gas or distillate (Transfield Services) 2006 Pinjarra – 2*140 MW of gas fired cogeneration plant (JV Singapore Power, BBI & BBP) 2007 Wagerup – 2*175 MW of open cycle gas turbines fired on gas (JV Singapore Power, BBI & BBP) Scheduled 2008 Bluewaters 1 Collie – 200 MW of coal fired plant (Griffin Energy) Scheduled 2008 Kwinana (NewGen) – 320 MW of gas fired plant (ERM Power and Babcock & Brown) Scheduled 2009 Bluewaters 2 Collie – 200 MW of coal fired plant (Griffin Energy) Scheduled 2009 Neerabup (NewGen) – 330 MW of open cycle gas turbines fired on gas (ERM Power and NewGen Power)

Hon. Alan Carpenter MLA, Premier of Western Australia Table : West Australian (Page 7), 02 Sep 2008

PM dodges fallout from Carpenter's nuclear cloud : "Labor's new national policy supporting uranium mining purposefully does not override the States simply because Mr Rudd (*the Australian Prime Minister*) did not want to buy an internal fight with Mr Carpenter's entrenched position (*especially before the WA State election*). But nothing can disguise the fact that the arguments in favour of uranium mining advanced by senior Australian Labor Party figures such as Mr Rudd, Mr Carr (*a former Premier of New South Wales*) and Mr Rann (*the current Premier of South Australia and National President of the ALP*) leave our second-rung Premier stranded."

"Like so much of the populist pap advanced by Mr carpenter in this election campaign, his position on uranium is glib, intellectually unsupportable and designed to play on ignorance, prejudice and fear. He has no counter to Mr Rudd's world view, Mr Carr's technological view or Mr Rann's environmental view. Mr Carpenter is left denying the rest of the world access to an energy source they need to help meet their greenhouse targets while his government approves coal-fired (*and gas*) power stations at home. How green is that?"

Paul Murray, The West Australian Newspaper Extract : West Australian (Page 20), 02 Sep 2008

Carnegie closer on wave power : "Carnegie Corporation has moved a step closer to its Albany wave energy farm ambitions after a preliminary environmental review said it appeared unlikely to be scuttled on environmental grounds. Commissioned as part of a feasibility study being undertaken by Carnegie at the Albany site, the report said that based on available information, it appears unlikely there would be any fatal flaws in the proposed development due to environmental considerations. While the report

means Carnegie has hurdled an early potential obstacle, it still has a long way to go to hit its aim of producing power by 2011, with the project still subject to further environmental surveys and EPA approval."

"The company said it might also need to change some aspects of the project to incorporate environmental considerations, although the extent of alterations would not be known until further studies were done. Carnegie managing director Michael Ottaviano said the extremely positive outcome was a good first step in a long environmental approval process. Carnegie hopes to use its so-called CETO technology to create a wave energy farm at Albany, where the State Government has granted it a five-year exclusive licence over 30,000 hectares of offshore and onshore land. The technology uses submerged buoys and seabed pumps to deliver pressurised seawater via a pipeline to drive hydro turbines onshore and generate electricity. Shares in Carnegie slipped $0.5 \notin$ to $15.5 \notin$."

Michael Ottaviano, Managing Director, Carnegie Corporation Article : West Australian (Page 58), 03 Sep 2008

Affordable electric vehicles planned : "A Dutch-based company yesterday announced plans to produce affordable electric cars by the end of 2009, promising they will be much more powerful than existing models and have zero emissions (excluding the manufacturing process). Detroit Electric is in negotiations with Malaysia's national auto maker, Proton, to produce the car in Malaysia and is also talking to a German and a US carmaker, said the company's chief executive Albert Lam. We believe in affordable electric vehicles for the public. That is our dream ... to find innovative ways to counter global warming, Mr Lam said before journalists test drove a sports car, a sedan and a sub-compact car fitted with Detroit Electric's technology."

"Mr Lam said the car would use lithium ion batteries and a motor developed in-house. When people tell you it (an electric car) is not practical, that it runs at a slow speed and you can't charge it, that is not true, Mr Lam said at Proton's test track in central Shah Alam city. Exiting models were used for demonstration – the sports car was a modified Lotus – but the company will create its own designs and market the vehicles under the Detroit Electric brand, a now-defunct US company that produced electric cars in 1907. Mr Lam bought the rights to the name to restore its historical legacy. Detroit Electric's chief scientist, Frits van Breemen-Schneider, who invented the motor, said it was four to 12 times lighter than existing motors and had a much higher power-to-weight ratio."

Albert Lam, CEO, Detroit Electric Article : West Australian (Page 62), 03 Sep 2008

Forget people, it's all about power : "When this election is over, my blood pressure will drop! The promises, the misleading statements, the patronising of the voters, and the sheer scale of Labor's and Liberal's ability to talk up short-to-medium term budget issues that half a dozen 'ordinary' family householders could solve in minutes give me cause for concern that today's election is not going to provide anything like a way forward for WA. The visions of the main parties are seriously delinquent. Take for example, public transport infrastructure. Of course new rail lines are needed, but has anyone mentioned a rapid transit system to include Perth's dilapidated airport? To improve the link between the busiest traveller hub and Perth city ought to be integral with plans for expanding the existing network."

"Journalists, too, are really asking the wrong questions when it comes to nuclear issues. Instead of asking about which roads, suburbs and ports will be used for transporting nuclear materials, they should be asking about which roads, suburbs and ports are currently used for transporting nuclear materials. If the anti-nuclear lobby wants to bury its collective head in the sand, then fine, but don't rely on journalists to dig you out! And don't pretend it isn't happening. As an example, our health system would be in an even worse state without the nuclear option. It also saddens me that as a State we can dictate the restrictive use of power generation to overseas communities desperate to raise their standards of living, let alone by doing so with a will to minimise carbon emissions. Obviously, I believe that nuclear power generation is an essential element of a future mix of energy sources, and there are many compelling reasons why that should be so."

"This election is not about leadership, vision, taking the tough decisions or planning for the long-term interests of the community. There was little thought directed to the kind of lifestyles our grandchildren might enjoy. And, yes, their future does need to be planned now. This election is simply about gaining political power. Essential services including education, law enforcement, fire and safety, and health are in a mess. Governments are not powerless to shape a future that we can look forward to, want to identify with, and most importantly, feel that we have earned. After all, we are funding it."

Brian Embleton, City Beach Resident & Taxpayer Extract : West Australian (Page 23), 06 Sep 2008

Brown targets oil in political fight-back : "Prime Minister Gordon Brown has vowed to 'free Britain from the dictatorship of oil' and promised that his Government would protect voters feeling the pinch as he stepped up his political fight-back. In a speech to business leaders in his native Scotland, Mr Brown sought to reassure voters that the beleaguered Labour Government would shield them from the effects of the global credit crunch and rising oil and food prices. He revealed a strategy to wean Britain off oil and, despite Chancellor of the Exchequer Alistair Darling's bleak assessment that economic conditions were the worst for 60 years, insisted he was 'cautiously optimistic' about the British economy. Today I set an ambition to free Britain from the dictatorship of oil, he said, arguing the policies implemented would lead to a 20% reduction in the amount of oil used per unit of output by 2020. He announced a working group to look at North Sea oil reserves; a new pilot program for electric cars; and promised to match the car industry's investment in new fuel efficiency technology."

Gordon Brown, Prime Minister of the United Kingdom Extract : West Australian (Page 54), 06 Sep 2008

OPEC nations eye US\$100 as oil price floor : "With the oil market falling rapidly, questions have been raised at a gathering of OPEC producers in Vienna this week about whether US\$100 oil should be a minimum price to defend. For the past five years, crude oil prices have been on a steep upwards path, peaking in July 2008 at US\$147 a barrel amid widespread concern among consumer and producer countries about the impact on economic growth. But the dizzying ascent has been followed by an equally

steep fall, with prices now around US\$106, leading OPEC members to consider the desired price for their vital exports. Iran and Venezuela, two traditional price hawks, have made it clear they regard US\$100 as a level to protect – something that was considered dangerously high by observers at the beginning of the year. We're going into an election period in Iran and the government has more money to pump into the economy to build popularity with US\$100 prices, said an analyst at PFC Energy, David Kirsch, referring to presidential elections next year."

"Venezuela needs US\$100 a barrel to balance their accounts, he said, adding that Iran could balance the books somewhere around US\$66 a barrel. Ecuador, OPEC's smallest nation by output and a Latin American producer like Venezuela, considers US\$110-120 a barrel as reasonable. The Organisation of Petroleum Exporting Countries, which pumps 40% of world crude oil, has a quota system that sets limits for its members in a bid to influence the volatile price of the precious commodity. The 13-nation group met yesterday to decide its latest policy, with no change expected to its quota of 29.67 million barrels per day (bpd). The biggest area of uncertainty surrounds Saudi Arabia, the de facto leader of OPEC and the world's biggest oil producer. As a close ally of the United States, it is keener than most to keep oil prices down to appease Western consumers. Saudi Arabian King Abdullah has said he would like prices below US\$100 a barrel and consensus is emerging that US\$80 is the country's preferred level."

David Kirsch, Analyst, PFC Energy Extract : West Australian (Page 57), 10 Sep 2008

Following up - If it is this hard to attain consensus on the price of oil in a volatile market, imagine the degree of difficulty associated with establishing an agreed value of carbon emissions arising from any universal Emissions Trading Scheme – and who would pay, or perhaps more poignantly, who wouldn't? – unwilling participants to a global management scenario.

N-power 'best WA option': "Uranium mining and building nuclear reactors could be Western Australia's biggest contribution to fight against global warming at home and abroad, guests at the Engineers Driving Australia's Future conference in Perth will be told today. Dr Ziggy Switkowski, chairman of the Australian Nuclear Science and Technology Organisation, says nuclear energy is still Australia's best and cheapest option for cutting (*greenhouse gas*) emissions and meeting energy needs. The biggest contribution to the global warming challenge that we could make is to encourage more use of clean energy sources, of which nuclear energy is at the top, he said."

Dr Ziggy Switkowski, Chairman, ANSTO Article : West Australian (Page 7), 11 Sep 2008

UK airline collapses : "The biggest airlift in British history has started after the collapse of a package holiday airline that stranded almost 90,000 customers and left 200,000 more holding worthless tickets. In a shattering blow for the travel industry, the third-biggest tour operator in Britain, XL Leisure Group, called in administrators on Friday. XL chief executive Phil Wyatt said he was 'devastated' and blamed rising oil prices for the collapse. Ultimately, I blame myself; I'm the CEO, I take legal responsibility for it, he said, adding that the withdrawal of support from lenders had left the company with no option but to call in administrators."

"The airline's 1700 staff are out of work and are unsure whether they will receive full pay and entitlements. British soccer club West Ham United – captained by Socceroos defender Lucas Neill – is left without a sponsor after the collapse of XL, which had a \$17 million contract with the team. The Civil Aviation Authority and rival airlines were yesterday organising the industry's biggest-ever airlift to get the tens of thousands of passengers home from the US, the Caribbean and Mediterranean countries. Air industry analysts have predicted that up to 30 airlines will financially crash during the next 12 months."

Phil Wyatt, Ex-CEO, XL Leisure Group, United Kingdom Extract : Sunday Times (Page 41), 14 Sep 2008

Rudd unveils \$100m Carbon capture program : "The federal government will commit \$100 million a year to a Global Institute, based in Australia, aimed at accelerating the development of carbon capture and storage (CCS) technology. The government says the institute will pave the way for the commercial deployment of CCS across the world by the end of the next decade. The institute will help facilitate demonstration projects and identify and support necessary research, including regulatory settings and regulatory frameworks. The commitment is in addition to the government's \$500 million national clean coal fund, announced in February last year. The Minerals Council of Australia welcomed the initiative, which reinforced the view that there could be no global solution to the challenge of climate change without clean coal technologies. The connecil said it was encouraged by the prospect that significant revenues generated from the proposed Emissions Trading Scheme would be channelled into the institute."

"Australia is the world's largest coal exporter so it is clearly in our interest to contribute to the commercialisation of clean coal technologies, and the earliest possible adoption of that technology in the fastest growing regions of the world, Minerals Council of Australia Chief Executive Officer Mitchell H Hooke said in a statement. The International Energy Agency expects global coal demand is expected to increase by 73 per cent by 2030, with China and India by that time to account for 60 per cent of total world coal demand, up from 45 per cent in 2005. Australia already has an active research effort underway for the deployment of CCS technology, led by the Commonwealth Scientific and Industrial Research Organisation and the Cooperative Research Centre for Greenhouse Gas Technologies."

"A number of small-scale CCS demonstration projects have commenced at Australian power stations, the largest being the CO₂CRC Otway Basin project in Victoria. That project is one of the largest and most comprehensive geological storage projects in the world, and has already successfully sequestered 10,000 tonnes of CO₂ two kilometres underground. In WA, Chevron is investigating the feasibility of incorporating carbon capture and storage at its proposed Gorgon LNG project. Aspiring energy generator Aviva Corporation is also looking at the possibility of using CCS technology at its proposed \$1 billion 400 megawatt coal fired power station near Eneabba. Aviva has partnered with oil and gas producer ARC Energy Ltd to undertake a study on potentially burying CO₂ emissions underground in depleted oil and gas reservoirs in the North Perth Basin."

Mitchell Hooke, CEO, Minerals Council of Australia e-News : WA Business News, 19 Sep 2008

Babcock & Brown pulls support for Natural Fuel : "The future of renewable energy provider Natural Fuel was in doubt last night after its partner in Australia's biggest biodiesel plant withdrew funding support for the fledgling venture. Perth-based Natural Fuel insisted yesterday its

future was sound despite being forced to put subsidiary Natural Fuels Australia, the operator of the troubled biodiesel plant in Darwin, into administration. Natural Fuels Australia and Babcock & Brown Environmental Investments operated the Darwin plant in an equal joint venture. The latter company was absorbed by parent Babcock & Brown in April. A spokeswoman for Babcock & Brown said funding for Natural Fuels Australia had been withdrawn because Lurgi, the German biodiesel technology provider to the project, had withheld payments, triggering a cash shortage. The investment banks loan to Natural Fuels Australia was written down to \$7 million on June 30."

"Natural Fuel raised \$80 million at \$1.50 a share in 2006. But the share price tanked to 8.2¢ in June and the company reported a net loss of \$64.9 million for 2007-08 as it struggled with design and start-up difficulties at both its Darwin and Singapore plants and the loss of high-profile chairman John Hewson (*a former federal Opposition & Liberal Leader*). Natural Fuel said it was disappointed with the collapse of Natural Fuels Australia, but the appointment of administrators would allow the company to focus on its wholly owned Singapore biodiesel plant. Natural Fuel raised the provision for impairment against its secured loan to Natural Fuels Australia to \$30.3 million in December and said yesterday it was likely that a further provision would be required. Its annual accounts valued the loan at \$13.8 million. A spokesperson for administrators Ferrier Hodgson said yesterday the biodiesel plant was still in operation, and a meeting for shareholders was planned."

Ferrier Hodgson, Administrators of Natural Fuels Australia Article : West Australian (Page 46), 23 Sep 2008

Regional prices to soar under Emissions Trading Scheme : "The cost of living in regional and remote WA will skyrocket under the Rudd Government's emissions trading scheme, airline Skywest has warned, as transport and freight prices climb. In its submission to the *Federal* Government's Green Paper on the ETS, Skywest chief executive Paul Daff said although the company agreed with the broad outline of the scheme, there was a case for special compensation for people living in the most remote parts of the country. He said the price of aviation fuel would rise under the ETS, and that price would have to be passed on to customers, miners and passengers. This will result in an increase in mining input costs and in the cost of goods and services, particularly in remote and regional Australia."

"Skywest would encourage the Government to appropriately compensate the people in remote and regional Australia for the higher costs, particularly given those consumers (who) have little option to substitute air travel for other modes of transportation. Mr Daff also used the company's submission to ask for changes to airspace regulations governing the RAAF Pearce base, arguing restrictions on commercial aircraft flying through that airspace actually increased the greenhouse emissions of airlines. He said Skywest could cut its emissions by 1300 tonnes a year if it could use the airspace, while other airlines such as Qantas and Virgin would also make considerable savings on fuel and emissions. The Government must ensure that the RAAF and other departments do their part to contribute to an appropriate solution to carbon emissions

Paul Daff, CEO, Skywest Airlines Article : West Australian (Page 17), 24 Sep 2008

Albany rules the wave farms: "Albany has emerged the front runner for Australia's first wave energy farm after an independent study returned encouraging results for the local site. Carnegie Corporation is investigating several sites in Australia for wave power generation with the capacity to supply base-load electricity. Carnegie managing director Michael Ottaviano said the independent report had confirmed his expectations of wave power potential in Australia and at the Albany site. Albany, from a purely resource point of view, is probably the best wave energy site in mainland Australia and that is reflected by the measurements which show it has about a 54 megawatt capacity. The report also showed Albany was the only site measured which had wave heights more than one metre 100% of the time which improves the site's suitability. What it means is that if we put a CETO wave farm in Albany, we could be generating power 100% of the time, which is the best result of all of the sites measured."

"Dr Ottaviano said the company would be negotiating with the newly-elected Barnett Government to improve the financials of establishing the Albany farm. The reality is Albany is the most likely site anywhere in Australia and WA because we have got the licence and the lease for the site there – it is the frontrunner. If Carnegie chooses the Albany site, the wave power plant will be built of the coast of Sandpatch, and the electricity produced will be fed into the South-west grid. The CETO technology uses the movement of submerged buoys on the ocean floor to drive sea bed pumps. The pumps pressurise seawater which is delivered ashore via a pipeline. The high-pressure seawater is then used to drive hydro turbines generating base-load electricity with zero greenhouse gas emissions. Dr Ottaviano said the technology would be commercial-ready in 2009."

Dr Michael Ottaviano, Managing Director, Carnegie Corporation Extract : Albany Extra (Page 1), 03 Oct 2008

WA's risky status no surprise : "The state's ranking as the nation's riskiest territory for mining investment comes as 'no surprise', the Chamber of Minerals and Energy (*CME*) said. In a survey by publication '*RESOURCE STOCKS*', Western Australia was ranked behind other states and territories, with companies increasingly frustrated by issues such as land access, green and red tape, land claims and labour relations. WA was ranked 12, while South Australia came in second place and the Northern Territory was ranked number 5. New South Wales came in at sixth, Tasmania ranked seventh, Queensland came in at 10 and Victoria was 11. The rankings are out of 74 countries and regions."

"CME chief executive Reg Howard-Smith said, while WA's ranking comes as no surprise, it reinforced the need for 'deep approvals reform' in the state. This is an opportunity for the new State Government to demonstrate strong leadership and prioritise the deep approvals reforms needed to streamline exploration and development approvals. The CME continues to advocate for a risk-based approach, reducing duplication of approvals at state and national level and ensuring state government agencies are well resourced to manage these issues. This approvals reform is necessary to underpin future investment in exploration and development that will guarantee the future prosperity of the State."

Reg Howard-Smith, Chief Executive, WA Chamber of Minerals & Energy e-News : WA Business News, 07 Oct 2008

Public transport booms as commuters ditch cars : "Australia is undergoing an unprecedented public transport explosion as commuters respond to spiralling petrol prices and climate change fears by ditching cars in favour of trains, buses, trams and ferries. Figures prepared exclusively for the West Australian by the federal Department of Infrastructure show that in every big city except Sydney, public transport use has doubled or tripled the population growth over the past five years. The surge has seen

a near 25.0% jump in train use over the past 10 years, a 35.2% rise in tram and light rail passengers and a 32.2% lift in commuters taking ferries to work. Bus trips rose by only 5.8% from 1997 to 2007 nationally but surged 42.4% in Perth."

"The figures provoked renewed calls for the Rudd Government to use a sizeable chunk of its \$20 billion Building Australia Fund on new public transport projects, with WA sustainability expert and Infrastructure Australia board member Professor Peter Newman declaring Australia was on the verge of a train and tram renaissance not seen since the 1940s. Infrastructure Minister Anthony Albanese said the figures confirmed that Federal investment in public transport was central to tackling climate change, especially at a time of high petrol prices. Perth saw a 39.6% rise in patronage in the 10 years to 2007 – second only to Brisbane and more than twice the national average."

"In this decade, it's (*Perth or Australia*?) population grew by 18%. Much of this patronage growth occurred in the past five years when it grew by 19.2% and when petrol prices spiked with oil more than quadrupling from US\$18 a barrel at the start of 2002 to US\$88 at the end of last year. These figures do not include the surge from the Mandurah train line which, according to WA Government figures, accounted for a 7.8% increase in public transport take-up in the 12 months to June. Professor Newman said the figures pointed to Australia entering a new era in which commuters became less reliant on cars. The growth in car usage has got to the point where cities like Sydney have become dysfunctional, he said."

Professor Peter Newman, Board Member, Infrastructure Australia Extract : West Australian (Page 18), 10 Oct 2008

Securing Australia's Energy Future – Kimberley Tidal Power : "Since it is Governments which, over the years, set our energy consumption policy and built the power generation facilities now blamed fro carbon emissions, why is it now right of Government to propose an \$11 billion taxation system, in the guise of a carbon trading scheme, upon the people and businesses of Australia, which may or may not fix the problem of greenhouse (*gas*) emissions. Surely Government should first research the possibility and practicality of producing and funding a solution that in fact might lower energy costs ain future years, whilst correcting our CO_2 emissions imbalance and ensuring certainty of energy supply for future generations."

"Such a solution exists and is explained in the following pages, both in terms of renewable energy production and distribution and how this energy resource can be utilised to fuel our personal and commercial *(land based?)* transport fleet in the future, thus removing Australia's reliance upon imported liquid hydrocarbons. Whatever your view about climate change, the reality is that growing global demand for energy, arising from increasing population and prosperity, will put unacceptable demand upon our traditional and finite energy resources. The first response will be continuing price increases with the CSIRO recently predicting A\$8.00 per litre for *(unleaded)* petrol."

"An increasing percentage of renewable electricity would allow for the economic manufacture of hydrogen as our next fuel of mobility. Every renewable option requires back up. The predictability of tidal movements makes coal fired generation the ideal partner. Modern Bipolar High Voltage Direct Current (HVDC) transmission can provide the linkage. An initial investment of approximately \$10bn by Government can introduce this project, boosting Australia's installed generating capacity by approximately 10% from a zero emissions perpetual resource – the tides of the Kimberley. Just two inlets – Walcott and Secure Bay in the Kimberley region – are capable of providing nearly 10% of Australia's existing installed electrical generation capacity or 120% of Western Australia's Synergy capacity."

Hon. Wilson Tuckey MHR, Member for O'Connor Article : O'Connor Post (Page 1), 30 Oct 2008

Exiting Qantas chief tips airline mergers: "Outgoing Qantas chief executive Geoff Dixon has foreshadowed a rash of consolidation in the global airline industry as the twin impact of soaring fuel prices and the global economic crisis wipe out under-capitalised and inefficient carriers. Despite a share price that is languishing at \$2.48, just a few cents above the Flying Kangaroo's 10-year low, Mr Dixon believe Qantas was as well placed as any airline in the world to survive the aviation crisis that has wiped out more than 25 carriers worldwide since the middle of last year."

"We're fundamentally a very strong airline. We have a very strong balance sheet, and we have very good competitive positions. We've got options in both the low-cost and corporate area. We've got enough flexibility and we move quickly enough to take capacity out where it's necessary. So I think our position is certainly much stronger than just about all of our competitors. Mr Dixon said the development of Jetstar as a low-cost, high-efficiency brand had been crucial in Qantas' continuing strength and the budget carrier was well placed to capitalise if air travellers decided to downgrade their travel budgets in response to tighter economic circumstances. Qantas' strong balance sheet had allowed it to reinvest in its fleet at a time when many carriers, particularly in the United States, were buckling under the weight of inefficient aircraft and debt."

"Qantas has taken delivery of its first of 20 Airbus A380s, which last week began flights between Melbourne and Sydney and Los Angeles, and two more are due by the end of the year. Jetstar has ordered 15 Boeing 787 Dreamliners, the first of which it expects to receive in November or December next year. Mr Dixon said Qantas' fleet renewal constituted the biggest airline order in the world, worth \$35 billion. In a commentary on the state of the global airline industry, Mr Dixon said the present aviation model was not working as it should. It is based on international regulations that are 60 years old, and a consistent over-supply of aircraft seats. In aviation, the turmoil began in the second half of last year when a major hike in fuel prices tipped the balance for many precarious airlines."

"Mr Dixon said Qantas would spend \$1 billion more on fuel this year than last year. Forecasts just four months ago, when oil was near its peak at US\$130 a barrel, had that figure at \$2.6 billion (*more than last year*)."

Geoff Dixon, Out-going CEO, Qantas Airlines Extract : West Australian (Page 54), 30 Oct 2008

Following up – With the exception of Air New Zealand, which is trialling an aviation distillate, few of the major airlines are talking about investing in technology and research into fuel substitutes for Jet-A1 aviation gasoline. Under peak oil and gas, this would suggest that the

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aviation industry considers itself price competitive for the supply of specialist fuels over the next two decades. Alternatively, this will be the single most significant factor determining future global competitiveness. Either way, the cost of air travel under current scenarios will only increase, particularly over short-haul routes, which means the world is again becoming a much bigger place.

Clean coal aim a dirty deal for WA – Environmentally friendlier natural gas penalised under Rudd's knee-jerk climate strategy : "An oxymoron is not an idiot who likes clean air. It is simply the name for a combination of contradictory or incongruous words. And the biggest oxymoron you are likely to hear these days is the phrase clean coal. Coal is environmentally dirty and no one has yet succeeded in proving it can be economically burnt to make energy in a clean way. However, plenty have already failed trying to make coal clean, mainly by burying its waste gases deep underground. Even right here in WA, a project to sequester CO_2 was quietly scrapped because the geological formations would have allowed it to escape. There's plenty of politics attached to the clean coal lobby in Australia, especially in the States where coal mining matters to the economy : Queensland, New South Wales and Victoria."

"The Rudd Government's Treasury modelling of its so-called Carbon Pollution Reduction Strategy (CPRS) – the new name for emissions trading – is strangely predicated on Carbon Capture and Storage (CCS) being technically achievable, economically feasible, and able to be implemented quickly. None of those three conditions is anywhere close to being a reasonable assumption. And it should be noted that if CCS is proved to work, *then* the technology almost certainly couldn't be fitted to existing coal-fired power stations. It is not surprising that the modelling found CPRS could be introduced with a small impact on economic growth when the bulk of its work assumes CCS works. A tiny part of the report mentions what happens if it doesn't work."

"There is a wider issue here that is not often addressed in terms of CCS and it relates to Professor Jorg Imberger's comments in this newspaper this week about our belief in our invincibility against global warming. We got ourselves into this mess by believing we could vent our pollution into the atmosphere with impunity. We are now working on the basis of being able to push it underground also with impunity – it's the same mindset. Professor Imberger says we have little hope of reversing global warming and our efforts should go into preparing for it and adapting to it."

"The Commonwealth Government needs to take into account the economic ramifications of the CPRS on the Liquefied Natural Gas (LNG) industry, if this results in new LNG projects being delayed, WA Treasury has said. Much of WA's new domestic gas supply depends on applying the State's domestic reservation gas policy to new LNG developments. In other words, if those projects do not go ahead because carbon-trading makes them comparatively too expensive, WA runs out of gas for local use. We should understand that there is a natural bias in this presumption that CCS works that acts against WA interests. The scheme favours coal (read Eastern States) against gas (read WA). Everyone would like to see climate change reversed and most people are prepared to play their part. But there is no reason to believe that the early adoption of carbon trading in Australia will do anything other than harm our (WA's) economic interests while doing nothing to save the planet – and most of that pain will be felt in Western Australia."

Paul Murray, The West Australian Newspaper Extract : West Australian (Page 21), 08 Nov 2008

Following up – And of course, while the gas industry is trying to establish a level playing field with the coal industry, both are lobbying to preclude the uranium industry from establishing a foothold in the provision of base-load power generation in Australia.

The futures market of crude oil : "A top Brazilian official estimates US\$400 billion (A\$608.27 billion) will be needed in the next decade to develop massive offshore oil finds. Haroldo Lima says the investment will get production fully going on the estimated 50 billion to 80 billion barrels of oil. The director of Brazil's National Petroleum Agency also hints the government is unlikely to use concession contracts with oil companies. He says now that Brazil is on the cusp of being an oil powerhouse; the government should review how it takes profits. A ministerial committee is working on reforming Brazil's oil sector and is expected to present its recommendations soon. Analysts earlier estimated US\$600 billion (A\$912.41 billion) would be needed to fully develop the oil finds."

"Oil prices tumbled yesterday as traders worried about slipping demand for energy amid a financial crisis battering the global economy. New York's light sweet crude finished at US\$56.16 a barrel, down US\$3.17 from its close the previous day. In London, Brent North Sea crude slumped US\$3.34 to settle at US\$52.37 dollars a barrel. Oil prices dropped to intraday lows of US\$55.83 in New York and US\$52.05 in London, their lowest levels since March and January 2007, respectively. Nimit Khamar, an oil analyst at the Sucden brokerage in London said, prices continued to fall amid an increasingly deteriorating global economic outlook. The demand situation is deteriorating fairly quickly."

"The US Energy Information Administration predicted oil prices would remain somewhat steady in the lower 60 dollar range next year, saying levels will primarily depend on the magnitude and duration of the economic downturn as well as OPEC and non-OPEC behaviour. The current US and global economic downturn has led to a decrease in global energy demand and a rapid and substantial reduction in crude oil and other energy prices, the EIA said in its monthly outlook report. It said its projections assume that an OPEC production cut would limit, but not reverse, the recent sharp fall in oil prices. We project oil prices to remain relatively flat, averaging US\$60 to US\$65 per barrel throughout 2009, the Energy Department unit said. The condition of the global economy is expected to remain the most important factor driving world oil prices."

"The benchmark New York contract was forecast to average US\$63.50 per barrel in 2009. The market was anticipating the EIA's latest weekly snapshot of energy inventories for clues to supply and demand in the world's biggest economy, delayed a day until Thursday because of the Veterans Day holiday Tuesday. Falling prices could lead oil producers to shelve plans to pump more crude, energy leaders warned. 'If these prices continue ... many projects will be postponed' and there will be an 'energy crisis in two years', Libya's Oil Minister Shukri Ghanem told AFP in a phone interview. Libya is a member of the Organisation of the Petroleum Exporting Countries that supplies 40 per cent of the world's crude. Some cartel members have called for further

production cuts to shore up falling prices. OPEC is scheduled to meet in Oran, Algeria, on December 17. The International Energy Agency warned that dwindling crude reserves were pivotal to prices. The key determinant in the years to come is the oilfield decline more than demand (*ie. Peak Oil & Gas*), IEA chief economist Fatih Birol told a news conference in London at which he unveiled the agency's latest World Energy Outlook report."

Fatih Birol, Chief Economist, International Energy Agency e-News : WA Business News, 13 Nov 2008

It's official – ban lifted : "The Liberal-National Government has formally lifted the ban on uranium mining in Western Australia. Premier Colin Barnett said following cabinet approval today, mining leases would be granted for all minerals including uranium, unlocking tens of millions of dollars in royalties revenue, employment opportunities and allowing the state to play a greater role in the fight against climate change. Since the Gallop Labor Government imposed its administrative ban on uranium mining in June 2002, 1,475 mining leases had been granted but uranium had been excluded. The ban was nonsensical, Mr Barnett said. WA prides itself as a world leader in mining, yet an outmoded and philosophical objection to uranium mining was put in place, denying the State a significant economic opportunity."

"The sale of WA uranium to countries under the Nuclear Non-Proliferation Treaty for power generation will also allow WA to play a greater role in combating climate change. Nuclear energy is the only large-scale and commercially viable option for producing electricity without at the same time producing massive amounts of greenhouse gases. WA does not have a need for nuclear power, but many developing countries do. If a serious effort is to be made to reduce greenhouse gas emissions and the heavy reliance on fossil fuels, we must allow the development of nuclear technologies. Major uranium projects will almost certainly be subject to State Agreements Acts, meaning they will be dealt with by the Premier as the Minister for State Development. The mining of uranium will be subject to strict safety and security provisions including :

- Meeting all the necessary international safeguards in relation to the safe and peaceful use of uranium resources
- * That environmental approvals are obtained in relation to the mining of uranium and the transport of uranium oxide
- Ensuring a safe workplace for all employees involved in the mining and the transport of uranium oxide."

"The Premier said these provisions were fair, balanced and in accord with international standards. WA is a State more than any other in the federation that has been built on our resources sector, he said. The reality is that major new resource developments in our State have been driven by vision, planning and hard work of the Brand and successive Court Liberal Governments. Today, the Liberal-National Government continues that vision. Mr Barnett was keen to address the scare tactics used by Labor during the election campaign which stated that allowing uranium mining would commit WA to receiving nuclear waste. At the time of the last Liberal government in 1999, the Nuclear Waste Storage (Prohibition) Act was passed through parliament which actually banned nuclear waste being dumped in WA, he said."

"The Bill prohibits the construction of a nuclear waste storage facility. Nuclear waste is defined as unwanted radioactive material derived from the operations of a nuclear reactor, nuclear weapons facility, nuclear reprocessing plant or isotope enrichment plant except for nuclear waste generated in Australia or material that has been used under licence for scientific, industrial or medical purposes in accordance with the provisions of the Radiation Safety Act 1975. Australia has 28 per cent of the world's known uranium reserves (the largest of any nation) and produces 22 per cent of world uranium - second only to Canada (29 per cent). Uranium deposits in WA can be found from as far afield as the Kimberley region in the North-West to the Goldfields east of Kalgoorlie. There are about 25 known uranium deposits (*in Western Australia*), with Yeelirrie and Kintyre being the best known, the Premier said. These deposits may yield anywhere between 4,100 tonnes and 52,000 tonnes. However, we do not yet understand the true extent of these deposits."

Hon. Colin Barnett MLA, Premier of Western Australia e-News : WA Business News, 17 Nov 2008

Mining industry working group announced : "Mines and Petroleum Minister Norman Moore has announced the formation of a 12-member industry working group, chaired by former (*State*) Resources Minister Peter Jones, to advise on ways to improve the state's exploration and development approvals process. The group's member list reads like a who's who of mining and resources in Western Australia. Deputy chairman *the Hon.* John Bowler *MLA*, the current member for Kalgoorlie and former Mines Minister (*and Minister for the Great Southern*), will be joined by members of the mining and resources fraternity including representatives from major players like Apache Energy, BHP Billiton and The Griffin Group."

"Joining Mr Jones and Mr Bowler is Apache Energy's government and public affairs manager, David Parker, formerly a director with The Chamber of Minerals and Energy (CME) for six years, until he left the position in June this year. BHP Billiton's vicepresident government affairs, Ian Fletcher is also part of the government committee. He previously spent time as a Chief-of-Staff to former Premier Richard Court. Noel Ashcroft, chief executive government relations and market development for The Griffin Group is in the newly-formed group. Mr Ashcroft previously served as Western Australia's Agent General to the European Union, a role in maintaining and promoting business, government and cultural ties with Europe, as well as a stint at the Department of Industry and Resources."

"Another former member of the CME's executive committee, former chief executive Tim Shanahan, is also part of the group. Mr Shanahan was appointed as the inaugural director Energy and Minerals Initiative at The University of Western Australia in November 2007. Richard Ellis, a former staffer for *Premier* Colin Barnett and director (WA) of the Australian Petroleum Production & Exploration Association is on board, as is Derek Carew-Hopkins. As the Director-General of the Department of Environment, Mr Carew-Hopkins had responsibility for a diverse range of environmental and water related regulation, assessment and investigation. He left government in 2006."

"Mr Moore said the group will review the current approval processes that all proponents of exploration, mining and petroleum projects in WA must undertake before starting operations. This new working group consists of a number of prominent Western Australians with a broad knowledge of the minerals and petroleum industry and of industry concerns about WA as a place to do business, Mr Moore said. I have established the group to provide strategic advice about the best way for the State Government to make WA's approvals processes more efficient and more welcoming for exploration and development activity."

Hon. Norman Moore MLC, Minister for Mines & Petroleum e-News : WA Business News, 17 Nov 2008

Following up – following the Keating Major Projects Review (2001), the Templeman EPA Review (2008), and the Hawke EPBC Review (2008), this resources development review group comprises Peter Jones (chair, South-West CC), John Bowler (deputy chair, MLA), Derek Carew Hopkins (DoE), Mark Gregory (Minter Ellison), David Parker (Apache), Richard Ellis (APPEA), Ian Wight-Pickin (Peel Harvey CC), Ian Fletcher (BHP Billiton), Tim Shanahan (UWA), Chris Clegg (STAS), Doug Koontz (AquaTerra), Noel Ashcroft (Griffin Group).

Ferguson rejects Ripper N-claims : "Federal Resources Minister Martin Ferguson is demanding Eric Ripper drop his opposition to uranium mining, accusing the State Labor leader of 'patently false' and irresponsible scaremongering. Mr Ferguson rejected Mr Ripper's claim that expanding uranium mining to WA would increase the nuclear and terrorist threat and inevitably lead to nuclear power stations in Australia. There are many issues associated with uranium mining, Mr Ripper said yesterday. There's the question of the safety of mining and of transport, for workers and people who live close to the transport routes; there's the question of the safety of nuclear power stations; there's the question of the diversion of nuclear material to terrorist activities; and there's the question of the storage of the waste."

"Mr Ferguson said claims by the uranium mining industry's opponents, suggesting the Australian industry is unsafe for workers, risks supplying nuclear material to terrorists, and obliges Australia to store the nuclear waste of other nations, are patently false and such scaremongering is irresponsible. Mr Ferguson said Australia had the strictest uranium export rules in the world and only sold to countries that met all the safeguard requirements and which are signatories to the Nuclear Non-Proliferation Treaty. The Government is strongly committed to ensuring Australian uranium is only used for peaceful purposes by enforcing our strict safeguards policy, he said. In addition, the Government will prohibit the establishment in Australia of nuclear power plants – and all other stages of the nuclear fuel cycle - and remain strongly opposed to importation and storage of nuclear waste that is sourced from overseas, in Australia."

Hon. Martin Ferguson MHR, Federal Minister for Resources Extract : West Australian (Page 6), 19 Nov 2008

ALP shift in nuclear minefield : "WA Labor senator Mark Bishop said he sympathised with Mr Ripper's predicament as a new Labor leader but said the uranium policy was misguided idealism that had failed to keep up with the times. Since that policy was put in place some years ago, the ball-game's changed, Senator Bishop said. Describing Mr Ripper a mainstream Labor man, who is practical and pragmatic, he said : This requires maturity and leadership at all levels of the party. Mr Ripper rejected suggestions that the federal and WA ALP policies on uranium are inconsistent because, he said, last year's vote to dump the no new mines policy specifically allowed for different policies to apply in the States. My judgement would be that the overwhelming majority of Labor Party rank and file members would still be opposed to uranium mining in WA."

Senator the Hon. Mark Bishop, Western Australia (Labor) Extract : West Australian (Page 21), 21 Nov 2008

New MP calls for nuclear energy rethink : "A new Liberal MP has reignited the uranium debate, telling State Parliament its is ridiculous to mine and export yellowcake but continue to oppose the use of nuclear power in Australia. In a controversial maiden speech on Tuesday, Jandakot MLA Joe Francis said it was 'morally and logically incoherent' for Australians to support mining and exporting the nation's uranium for use in other countries as a low carbon energy source but oppose nuclear power plants in their own backyard. Mr Francis told Parliament that uranium mining, which has been approved by the State Government after it lifted Labor's long-held ban, went hand-in-hand with reducing global carbon emissions. Any response to carbon emissions that doesn't include a substantial role for nuclear energy is simply not credible. Its opponents have worked hard in Australia to invest the words uranium and nuclear with fear and loathing but many nations, including France and Japan, generate over half of their electricity from nuclear sources. Solar, wind and geothermal (energy) all have a role but they need the sheer grunt of fission, Mr Francis said."

"Outside Parliament yesterday, Mr Francis said WA had an abundance of natural gas and did not have the population or concentration of industry to sustain a nuclear power plant, but other States did. Certainly there are other places in Australia that should be looking at nuclear power in\stead of burning coal, such as New South Wales and Victoria. We should be exporting (uranium) and using it for power ourselves. If we were really concerned about global warming and carbon emissions, instead of bringing in an emissions trading scheme tax that's going to hit hard West Australian industry, the best thing we can do to reduce the world's carbon emissions is to mine uranium. Though State Cabinet lifted the former Carpenter Labor government's ban on uranium mining this month, the Barnett Coalition Government remains opposed to nuclear power and nuclear waste dumps."

Joe Francis MLA, Member for Jandakot (Liberal) Article : West Australian (Page 2), 29 Nov 2008

WMD panel predicts city terror attack before 2014 : "A US commission on weapons of mass destruction has concluded that a terrorist attack using nuclear or biological weapons on a major city is likely within the next five years. A commission study, published yesterday, warns of growing threats from rogue states, nuclear smuggling rings and the spread of atomic information in the developing world. It singles out Pakistan as a particularly grave source of danger, given its terrorist networks, instability and stockpile of nuclear weapons. The report concludes our margin of safety is shrinking, not growing."

"Bob Graham, a former Democratic senator who chairs the panel, said : The commission believes that unless the world community acts decisively and with great urgency, it is likely that a weapon of mass destruction will be used in a terrorist attack somewhere in the world by the end of 2013. The risk is growing, not because we're making no progress but because the enemy is adapting and we must constantly anticipate and adapt as well across a broad front, said Jim Talent, the panel's Republican vice-chairman. The commission recommended the overhaul of international non-proliferation treaties, including more robust inspections by the International Atomic Energy Agency."

Jim Talent, Commission Prevention of WMD Proliferation & Terror Extract : West Australian (Page 10), 04 Dec 2008

Fuel prices continue to fall : "Albany drivers can expect more relief at the *petrol* bowser over Christmas and New Year, but the lower prices may be short lived. Prices in the Great Southern had fallen consistently since an average of 171.1 cents per litre on July 21 to an average of 127.3¢ this week. On Tuesday and Wednesday, McKails General Store on Albany Highway was selling unleaded *petrol* for 115¢, nine cents less than the second-cheapest outlet. The cheapest price for diesel was 143.7¢ at Fuels West Denmark compared with a Great Southern average of 149.2¢."

"Motor Trade Association of WA chief executive Peter Fitzpatrick said the fall in prices had been caused by a fuel glut and the unusual situation of Singapore fuel prices being lower than barrel prices. While this is still the case, prices will continue to fall, probably about 10¢ per litre over the next few weeks. Mr Fitzpatrick said country customers would always pay more for fuel, but blamed a lack of competition at oil wholesale prices for part of the discrepancy. Retailers in the country do not get the same discount on product as their city counterparts."

Peter Fitzpatrick, CEO, WA Motor Trade Association Extract : Albany Extra (Page 3), 05 Dec 2008

Fuel prices continue to fall : "FuelWatch's Ray Gibson said the only way to put downward pressure on prices was for consumers to support retailers with low prices. On Wednesday there was a 23 cent difference between the lowest and highest prices in the Albany region, so consumers have the chance to save up to that amount per litre. There is a definite lag between the fall in metro and regional prices but prices in the country are driven largely by sales volumes. The best thing to do is to support retailers (*and wholesalers / manufacturers*) with the best prices. Retailers are free to set their prices and consumers are free to shop where they like. If we all rewarded the cheapest retailers it would certainly help prices to drop faster."

Ray Gibson, State Coordinator, FuelWatch WA Extract : Albany Extra (Page 3), 05 Dec 2008

Following up – notwithstanding vehicle emissions and regional air quality, logically the best result for country WA would be to establish and preference 'regional' bio-diesel production facilities; extend the Dampier-Bunbury gas pipeline to regional service centres; and encourage oil and gas exploration, production and refining capability.

New \$25m solar power project for WA: Horizon Power today announced plans to build two state-of-the-art solar power stations in Marble Bar and Nullagine, in the east Pilbara region of Western Australia. The power stations are the first high penetration hybrid solar photovoltaic diesel power stations in the world. The project will include the installation of up to 2000 solar panels in total across both towns. The solar arrays in both towns will feature solar tracking systems that will follow the path of the sun in each town throughout the day. The ground-mounted systems will be the largest solar tracking PV systems in Australia. Flywheel technology will also be used to smooth the energy from the solar panels and to stabilise power quality between the diesel power station and the solar farm. It will also maximise the utilisation of the solar energy."

"The solar energy systems will generate over 1 GWh of renewable energy per annum, supplying over 60% of the daytime energy demand from sunlight. This equates to a saving of 35-40% of diesel and 1100 tonnes of greenhouse gas emissions every year. Horizon Power is working with development partners PowerCorp Pty Ltd and SunPower Australia to build, own and operate the new power stations. Energy Minister, Peter Collier, said Solar power is an abundant, reliable, clean source of energy. Horizon Power is leading the way by innovatively combining conventional diesel generation with this state-of-the-art renewable energy option. This new technology will lessen our carbon footprint and improve our environment for the future."

"Horizon Power's Managing Director, Rod Hayes said Horizon Power is excited to be driving a project that will set a new standard in large-scale renewable energy technology in Australia. The project will replace ageing power stations with modern, efficient and more environmentally-friendly power stations that will be able to meet the needs of local communities for the next twenty years, he said. Horizon Power vigorously pursues renewable energy options for power generation and is pleased that regional Western Australians will be able to experience the benefits of leading-edge, large-scale renewable energy technology as a result of our partnership with SunPower and PowerCorp. Construction will begin in March 2009, with completion scheduled for September 2009. Horizon Power will provide regular community updates on the progress of the construction of the power stations."

Rod Hayes, Managing Director, Horizon Power e-News : WA Business News, 11 Dec 2008

Following up – the Kilowatt (symbol: kW), equal to one thousand watts, is typically used to state the power output of engines and the power consumption of tools and machines. An electric heater with one heating element might use 1 kilowatt. The Megawatt (symbol: MW) is equal to one million (10^6) watts. A large residential or retail building may consume several megawatts in electric power and heating energy. The Gigawatt (symbol: GW) is equal to one billion (10^9) watts. This unit is sometimes used with large power plants or power grids. The Terawatt (symbol: TW) is equal to one trillion (10^{12}) watts. The average power usage by humans (about 15 TW) is commonly measured in these units. The Petawatt (symbol: PW) is equal to one quadrillion (10^{15}) watts.

Following up – Power and energy are frequently confused. Power is the rate at which energy is used (or generated). A watt is one joule of energy per second. A power station would be rated in watts, but its annual energy sales would be expressed in watt-hours (or kilowatt-hours or megawatt-hours or gigawatt-hours). The Embalse nuclear power plant in Argentina uses a fission reactor to generate 2109 MW_t (Megawatt Thermal) of heat, which creates steam to drive a turbine, which generates 648 MW_e (Megawatt Electrical) of electricity. The difference is due to the inefficiency of steam-turbine generators and the limitations of the theoretical Carnot Cycle.

15.12.2011 Rainbow 2000[©] Project – Peak Oil, Gas & Nuclear Power Page 35 of 85

World oil demand falls for the first time in 25 years : "World oil demand is set to fall this year for the first time in 25 years, as a broadening economic recession undermines energy consumption. New figures from the International Energy Agency (IEA) yesterday showed that global demand for oil will fall to an average of 85.8 million barrels per day this year – 200,000 barrels lower than in 2007 and representing the first year-on-year decline since 1983. Plunging demand is being led by the US easily the world's largest oil market, where the IEA says that consumption has been hammered this year by successive blows, including a financial crisis, high oil prices, devastating hurricanes, and to cap it all an officially recognised economic recession. The Parisbase energy adviser to the OECD (*Organisation for Economic Cooperation and Development*) club of 28 (*sic 31 including the European Union*) rich nations says that October demand in the US for all oil products was about 18.5 million barrels per day, 10% down on last year and the lowest level recorded since 1995."

"But weakening demand was not restricted to the United States. Japan, the world's second-largest economy, which officially entered recession last month, reported an even bigger decline of more than 11% to 4.3 million barrels per day. Canada, Mexico, France, Italy and Spain also all suffered big falls while British demand softened by 2.2% to 1.7 million barrels per day. Gareth Lewis-Davies, director of commodities research at Dresdner Kleinwort, said : There has been a marked slow-down in trade and economic activity around the globe. He said that the industrial and commercial use of energy was weakening as companies slashed production and laid off staff. At the same time consumers were restricting their personal energy use by driving and flying less and being more frugal in heating their homes."

"But despite the economic downturn, the IEA forecast that demand for oil worldwide would pick up again next year, rising to 86.3 million barrels per day as a global economic recovery took hold. David Martin, an IEA oil analyst, said that the forecast was based on the assessment by the International Monetary Fund that global gross domestic product would continue to expand next year at about 2.1%. Any recovery in demand would be driven by China, which the IEA believes will consume 8.2 million barrels of crude a day in 2009, up from 7.9 million in 2008. The IEA also indicated that the OPEC cartel of 13 oil-producing nations, which is meeting next week in Algeria, would need to announce substantial further cuts in production if it were to prevent crude prices from dropping even further."

"Mr Lewis-Davies forecast that OPEC would need to announce a reduction in production of about 1.5 million barrels per day at next week's meeting in order to stabilise prices. The prediction contrasts starkly with the US Government's view that global oil demand will continue to fall next year. The US Energy Information Administration said this week that it expected demand to shrink by 450,000 barrels per day, after a predicted 50,000 barrel decline this year. The IEA's prediction of a slump in demand for oil came as representatives from 190 countries met at a UN Climate Change conference in Poznan, Poland, to hammer out an agreement designed to cut back on global consumption of fossils fuels permanently. Some delegates at the meeting criticised the IEA for failing to recognise the potential of alternative technologies to offer other sources of energy."

David Martin, Oil Analyst, International Energy Agency Article : The Weekend Australian (Page 36), 13 Dec 2008



Website : Organisation of the Petroleum Exporting Countries (Interactive World Map), 15 Dec 2008

Following up – The OECD Rich List (alphabetical) : Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea (South), Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States & the European Union. Accession candidate countries include Chile, Estonia, Israel, Russia, and Slovenia; while enhanced engagement countries include Brazil, China, India, Indonesia and South Africa.

Following up – The Oil List (estimated % 2007 world production of 85.8m bbl/d) : OPEC members include Saudi Arabia (12.9%), Iran (4.6%), United Arab Emirates (2.9%), Kuwait (2.9%), Venezuela (2.8%), Nigeria (2.5%), Iraq (2.4%), Angola (2.0%), Libya (2.0%), Algeria (1.6%), Indonesia (1.0%), Qatar (0.9%), and Ecuador (0.6%) – non-OPEC producers include Russia (11.5%), United States (8.7%), China (4.4%), Canada(3.9%), Mexico (3.6%), Norway (3.0%), Brazil (2.1%), United Kingdom (1.9%), Kazakhstan (1.6%), Azerbaijan (1.1%), and India (0.9%).

Oil dive hurts shares : "The Dow Jones Wilshire US Oil & Gas Index – which tracks 290 companies that find, produce and refine fossil fuels – fell 37% in 2008, and another that tracks oil equipment and service companies fell a whopping 60%. Analysts and executives say any rebound for the oil & gas sector will be tied to the global economy. After ending 2007 near US\$96 a barrel, oil reached three digits for the first time two days into the new-year. Many observers say oil's meteoric rise to US\$147.27 *in 2008* was a classic bubble led by speculators. Tight credit has made it impossible for many smaller producers to finance new projects. Many of these companies will be snapped up by bigger, bargain-hunting rivals in the year ahead. The cashrich oil giants are in far better shape to ride out the downturn."

"The ting to keep in mind is the majors don't tailor their capital spending plans around short-term prices, energy analyst Brian Youngberg said. I really don't see any significant pull back unless we have a prolonged drought in prices. The major oil companies posted massive profits in 2008. ExxonMobil earned US\$14.83 billion in the third quarter *of 2008*, shattering its own record for the biggest profit from operations by a US corporation. In the same quarter, Chevron, ExxonMobil, BP, Royal Dutch Shell and ConocoPhillips posted combined earnings of US\$44.4 billion, up 58% from the same period in 2007, but their shares have tumbled – ExxonMobil, the world's biggest listed oil company, fell 15% in 2008."

Brian Youngberg, Oil Price Information Service, USA Extract : West Australian (Page 71), 03 Jan 2009

Airline raises stakes in biofuel quest: "Continental Airlines has ratcheted up the race to develop alternative fuel for passenger planes by successfully flying a Boeing 737 twin-engine jet powered partly by algae and weeds. The two-hour test flight over Houston, where the carrier has its headquarters, involved powering one of the two engines with a mix of 50% kerosene and a blend of fuel derived from algae and *jatropha*, a plant that bears oil-producing seeds. No passengers were on board. The demonstration flight was the first of its kind by a US carrier. It marked the latest effort by an airline to test a new generation of so-called sustainable biofuels that would help airlines cut fuel costs and reduce carbon emissions."

"Last week, Air New Zealand became the world's first airline to fly a plane powered partly by jatropha-based fuel. Later this month, Japan Airlines is planning a test flight using fuel refined from *camelina*, which wheat farmers grow on the high plains of the United States. It's another major step forward, said Billy Glover, managing director of environmental strategy for Boeing, which has been working with the airline industry to develop biofuel for passenger planes. With the latest milestone, a regularly scheduled passenger flight could be powered by biofuel in three years, pending further tests and Federal Aviation Administration certification, Mr Glover said. We've been pleasantly surprised by how smoothly these tests are going."

"Airlines began looking seriously at finding new fuel sources as oil prices skyrocketed last year and led several carriers to file for bankruptcy. Despite oil prices' sharp slump since then, airlines do not want to be burnt again by being too dependent on a single source of fuel. Algae and jatropha were among the more promising biofuel sources because they did not compete with food production or contribute to deforestation, industry officials said. However, airlines and jet makers cautioned that, although tests so far have been promising it could take a decade or longer before biofuels became a significant source of fuel for airlines. Air New Zealand, which has been particularly ambitious in developing alternative fuels, hopes to use biofuel for 10% of its needs by 2013. Continental and its partners in the project – Boeing, engine maker CFM International and a Honeywell refining subsidiary – will analyse post-flight data to see if biofuel can be a suitable substitute for traditional fossil fuel without any degradation of performance or safety."

Billy Glover, MD Environmental Strategy, Boeing Extract : West Australian (Page 71), 03 Jan 2009

Following up – With a significant national economic dependency on tourism to achieve balance of trade, New Zealand is one of the most remote destinations on Earth, whether by sea or air. Alternatively, Australia supports a significant fly-in-fly-out resources sector, and the Royal Flying Doctor Service plays a pivotal role in rural and remote health support services. But one might consider application of the principal to conventional air warfare and tactical engagement between futuristic combatants – like the Battle of Britain, the Battle of the Coral Sea, the Battle of Midway, Japan's Hiroshima & Nagasaki, the Sinai Six Day War, the Battle of the Falkland Islands, Iraq's Shock & Awe, and the significant military advantage afforded by air superiority to terrestrial and marine offensive or defensive capability.

Coal hard US facts on carbon for Rudd: "As head of NASA's Goddard Institute for Space Studies, James Hansen might be expected to be a bit 'out there'. Coal emissions must be phased out rapidly, Dr Hansen has argued. Yes, it is a great challenge, but one with enormous side benefits. Coal is responsible for as much atmospheric carbon dioxide as the other fossil fuels combined, and its reserves make coal even more important for the long run. Oil, the second greatest contributor to atmospheric carbon dioxide, is already substantially depleted, and it is impractical to capture carbon dioxide emitted by vehicles. But if coal emissions are phased out promptly, a range of actions including improved agricultural and forestry practices could bring the level of atmospheric carbon dioxide back down, out of the dangerous range. There is no such thing as clean coal at this time, and it is doubtful that we will ever be able to fully eliminate emissions of mercury, other heavy metals, and radioactive material in the mining and burning of coal, he told *US President-Elect* Barack Obama."
"However, because of the enormous number of dirty coal-fired power plants in existence, the abundance of the fuel, and the fact that CCS (*Carbon Capture & Storage*) technology could be used at biofuel-fired power plants to draw down atmospheric carbon dioxide, the technology deserves strong R&D (*Research & Development*) support. But Dr Hansen's strongest plea to the president-elect, other than phasing out coal, was to support the development of a new generation of nuclear power plants. A presidential directive for prompt investigation and proto-typing of advanced safe nuclear power is needed to cover the possibility (*probability*) that renewable energies cannot satisfy global energy needs. One of the greatest dangers that the world faces is the possibility that a vocal minority of anti-nuclear activists could prevent the phase-out of coal emissions."

"The steady swing towards nuclear power as a solution to replacing fossil fuels within a reasonable time frame is likely to leave Mr Rudd (*Australia's Prime Minister*) as stranded on the issue as WA opposition leader Eric Ripper is on uranium mining. Dr Hansen says most experts believe the presumption that renewable energy sources will replace fossil fuels as the carbon price escalates would probably still leave the world with many coal-fired power stations in 25 years. Such a result would be disastrous for the planet, humanity and nature. Fourth generation nuclear power (4th GNP) and coal-fired power plants with carbon capture and geo-sequestration at present are the best candidates to provide large base-load, nearly carbon-free power in case renewable energies cannot do the entire job. In our opinion, 4th GNP deserves your strong support, because it has the potential to help solve problems with nuclear power : nuclear waste, the need to mine for nuclear fuel, and the release of radioactive material. Existing nuclear reactors use less than 1% of the energy in uranium, leaving more than 99% in long-lived nuclear waste. 4th GNP can 'burn' that waste with a half-life of decades rather than thousands of years. Thus 4th GNP could help solve the nuclear waste problem, which must be dealt with in any case."

James Hansen, Director, Goddard Institute of Space Studies, NASA Extract : West Australian (Page 21), 10 Jan 2009

Following up – from the journalist who wrote the article : this is a far more sophisticated argument than anything going around in Australia at the moment and worthy of public debate.

Rudd 'hypocrisy' over secret nuclear pact : "The Rudd Government has secretly maintained a role in a controversial US-led nuclear energy pact embraced by John Howard, despite Labor MPs claiming in opposition that it could lead to Australia being a nuclear waste dump. Documents reveal that in August last year, Kevin Rudd and his Cabinet made decisions, which have not been publicly announced, about Australia's involvement in the Global Nuclear Energy Partnership. One of the decisions was to continue Australia's role in the partnership – a US plan to spread nuclear power in developing countries without increasing nuclear weapons proliferation. The revelation of the Government's decision to keep Australia in GNEP has triggered a backlash from conservation groups and accusations of hypocrisy from the Opposition."

"Prior to the 2007 *federal* election, Labor attacked then Prime Minister John Howard's decision to join the partnership, with front-benchers Peter Garrett (*now the Federal Environment Minister*) and Chris Evans (*a Western Australian Senator and now the Federal Immigration Minister and Leader of the Government in the Senate*) warning Australia could become a nuclear waste dump. The GNEP requires developed nations to export enriched uranium and technology to poorer countries. Spent fuel and nuclear waste would be sent back to developed nations for reprocessing and storage to minimise proliferation risks. A spokeswoman for Stephen Smith (*MHR – Federal Member for Perth and the Minister for Foreign Affairs*) said last night the Government had yet to decide on Australia's participation in GNEP."

The Hon. Stephen Smith MHR, Minister for Foreign Affairs Extract : West Australian (Page 7), 24 Jan 2009

OPEC needs oil above US\$50 : "OPEC members need an oil price above 50 dollars a barrel to make exports worthwhile, the head of the cartel said Thursday, adding that more production cuts were possible later this year. We are not happy with 40 even 50 dollars a barrel, OPEC Secretary General Abdalla Salem El-Badri told a panel discussing energy security at the World Economic Forum in Davos. Even US\$50 did not guarantee a decent income for our countries, he said, adding: I hope that the price will pick up... a 50-dollar price will not permit us to invest. Asked about further cuts by the cartel, he said: If we still have some downward problems (of prices), OPEC will not hesitate to take some quantity out of the market. We cannot tell at this time before our next meeting on March 15."

"New York's main futures contract, light sweet crude for March delivery, traded to US\$41.44 a barrel on Thursday, while Brent North Sea crude for March fell 68 cents to US\$44.22. Since September, OPEC has announced cuts of 4.2 million barrels per day (bpd) with a reduction of 2.2 million bpd on December 17 in Algeria. There had been doubts about the discipline of OPEC members and their willingness to reduce output by the agreed amount, but Bardi said all of the oil would be taken off the market. For the information I am seeing at this time, it would be about 100%, he said of the cuts. I think we will take out 4.2 million barrels per day."

"Tony Hayward, the chief executive of British oil group BP, told the panel that OPEC countries needed a price of about US\$60-80 dollars per barrel to balance their budgets and invest in social programs. He also explained that a high price was needed to encourage investment in new oil fields that will be required to meet future demand, particularly from energy-hungry India and China. Badri concurred, saying that the lessons from past oil price crashes had to be learned. We... don't want what happened in the 1980s where we did not invest and laid off very qualified people and when the demand picked up we were paying the price of shortages of materials and people, he said. If we don't invest now we will have the problem of a supply crunch in the future when demand picks up, he said."

His Excellency Abdalla Salem El-Badri, Secretary General, OPEC e-News : WA Business News, 30 Jan 2009

Buses, trains 'failing': "Perth's public transport system is failing commuters and road congestion is getting worse, according to the *Royal Automobile Club of Western Australia.* In a telephone poll of 300 metropolitan residents, almost two-thirds said 'it was not possible' for them to use public transport to get to work. But the Public Transport Authority has hit back, saying the phone

poll contradicted an earlier RAC survey that was more comprehensive. PTA media manager David Hynes said 78.3% of streets in the Perth public transport area were within 500m of a Transperth bus stop or train station. Even taking into account the high level of dependence Perth has on private vehicles, it is unreasonable to describe 500m as too far or too inconvenient, he said."

"RAC head of member advocacy Matt Brown said the state's public transport system would need significant ongoing investment to ensure Perth's workers could be offered a viable alternative to using their car. More than half *the* respondents said congestion had worsened in the past 12 months. Journey times for some motorists had increased by between five and 20 minutes in the last year. Mr Brown said congestion was estimated to cost Perth nearly \$1 billion in lost time, vehicle operating costs and air pollution costs. Perth's freeways and highways are becoming car parks at rush hour and this is only going to get worse, he said. Transport Minister Simon O'Brien said the Government was developing a 'comprehensive' transport blueprint for Perth."

Matt Brown, Director Member Advocacy, RAC WA Extract : Sunday Times (Page 31), 01 Feb 2009

Swedish Government makes U-turn on nuclear plant ban : "The Swedish Government has agreed to scrap a three-decade ban on building new nuclear reactors, saying it needs atomic power to avoid producing more greenhouse gas emissions. Although Sweden is a leader on renewable energy, it is struggling to develop alternative sources such as wind power enough to replace nuclear power, which accounts for half of its electricity production. If Parliament approves scrapping the ban and a phase-out of existing reactors, Sweden would join a growing list of countries rethinking nuclear power amid concerns over global warming and the reliability of energy suppliers such as Russia. MPs decided to phase out nuclear power after a referendum in 1980, when concerns about nuclear safety were running high in the wake of a partial meltdown a year earlier at the Three Mile Island plant in the US State of Pennsylvania."

"Only two of Sweden's 12 reactors have been closed and Prime Minister Fredrik Reinfeldt said he did not feel bound by the referendum because it did not specify how to replace nuclear energy. Swedish public opinion polls have shown growing support for nuclear energy in recent years because of the lack of alternatives. The Government's proposal, agreed on Thursday, calls for new reactors to be built at existing plants to replace the 10 operational reactors when they are taken out of service. Anti-nuclear activists said reinvigorating nuclear power would undermine the development of renewable sources."

Fredrik Reinfeldt, Prime Minister of Sweden Extract : West Australian (Page 40), 07 Feb 2009

Following up – a similar article appearing in The Weekend Australian of 07 February 2009 (Page 12) highlights that several European countries are opting for nuclear energy over recurring supply concerns (Russian gas via Ukraine), with Poland to have its first nuclear reactor by 2020; Britain deciding last year to replace all its current aging nuclear reactors and create additional new sites; France ordering its 61st nuclear generator; and Finland to build the largest reactor in the world expected to open in 2011.

China set to get Russian oil in return for \$39b of loans : "Russia and China have signed a \$39 billion energy deal in Beijing under which China will secure oil supplies from Moscow for the next 20 years in return for loans, Russian state pipeline monopoly Transneft says. As part of the broader energy supply deal signed on Tuesday, China's Development bank will lend \$23.5 billion to state-owned Russian oil company Rosneft and \$15.5 billion to Transneft, a vital boost for the energy companies as they struggle to raise capital amid tighter lending conditions and lunging oil prices. Russia, the world's second-biggest oil exporter after Saudi Arabia, promised in return to supply 15 million tonnes of oil – 300,000 barrels per day – annually for 20 years to its energy-hungry neighbour. Russian Deputy Prime Minister Igor Sechin led the high-level delegation to Beijing to sign the deal that at times looked in danger of falling apart after the two governments disagreed over interest rates and state guarantees for the oil supply."

Igor Sechin, Deputy Prime Minister of Russia Extract : West Australian (Page 30), 19 Feb 2009

Carnegie jumps on \$12m state investment : "Shares in Carnegie Corporation have risen as much as 27% in trade today on the back of the state government investing \$12.5 million in the company's new low-emissions power station off the coast of Albany. Carnegie's share price jumped 4.5 cents to a high of 21¢ before closing at 18¢ today. Environment Minister Donna Faragher and Energy Minister Peter Collier said today the funding from the Low Emissions Energy Development fund would enable Carnegie to develop the first two stages of a 50 megawatt power station by 2013. This would include the commissioning of a five megawatt facility. The funding is subject to the company matching every \$1 of Government funds with \$3 from elsewhere, which will lead to a direct total investment of \$50 million in low-emissions electricity generation in Western Australia, Mrs Faragher said."

"Submerged pumping units on the seafloor will collect wave energy in the form of pressurised sea water that would generate electricity from a hydroelectric turbine onshore. The pressurised sea water could be used for desalination using a reverse osmosis unit. The Government's investment gives the company a platform to explore the benefits of a commercial scale, wave-powered technology, which has the potential to save 240,000 tonnes of carbon dioxide equivalent emissions a year, Mr Collier said. Mrs Faragher added the government would finalise contracts with Carnegie Corporation to allow the funds to be distributed once agreed milestones had been reached. Carnegie managing director Michael Ottaviano said we are extremely pleased by this announcement which will result in the creation of green investment and jobs in Western Australia and is a major boost for Carnegie's wave powered, commercial demonstration project."

The Hon. Donna Faragher MLC, Minister for the Environment e-News : WA Business News, 20 Feb 2009

Japanese eye uranium ventures : "Japanese power companies have inundated Colin Barnett with inquiries about the State's uranium industry during his tour of the country. Repeatedly during this week, people have referred to the lifting of the the ban on uranium, from energy companies particularly the electric utilities such as Tokyo Electric and Kansai Electric, the Premier said from Tokyo yesterday. They have strong commitments to expanding uranium. About 31% of Japan's electricity is nuclear, so they were very aware (of the ban being lifted) and very supportive of that. Mr Barnett said he expected Japan's power companies

to invest further in WA's gas and uranium industries. He said a meeting with Japanese Foreign Minister Hirofumi Nakasone two days ago was an indication of how important Japan viewed its relationship with WA."

"But he acknowledged that the Japanese were concerned about Chinese moves on global resources. To me, I thought it was quite significant that the Foreign Minister had a meeting with me on this visit, Mr Barnett said. That showed their concern about security of supply and maintaining the friendship and the good relationship and the apprehension about China, the third person in the room. Mr Barnett said Japan was not concerned about Chinese investment in Australian resource companies but about control. The concern is about whether China can gain control of key resources on a global scale, he said. Mr Barnett said the Japanese concerns vindicated his decision to see the State develop the port at Oakajee north of Geraldton to service the emerging Mid-West iron ore industry."

Hon. Colin Barnett MLA, Premier of Western Australia Article : West Australian (Page 14), 20 Feb 2009

Liberals call for higher emissions target and new inquiry: "The Leader of the Opposition, Malcolm Turnbull, has stated that his party would support a higher carbon emissions reduction target than that proposed by the Rudd Government, and the Greens and Opposition have joined forces to set up a Senate inquiry into the emissions trading scheme and alternative strategies to achieve the target. The proposed inquiry would examine 'the choice of emissions trading as the central policy to reduce Australia's carbon pollution', taking into account the need to achieve emission reductions and the lowest cost. The government's trading scheme, which is due to go before the Senate in May, is designed to cut emissions by a minimum of 5% by 2020, and by up to 15% if other nations commit to similar targets at the United Nations Conference on Climate Change to be held in Copenhagen in December."

"The Opposition's move to set up a new inquiry follows the Government's decision not to proceed with a House of Representatives Committee inquiry initiated by the Treasurer, Wayne Swan. The inquiry was cancelled on the grounds that the issues had become too confusing and too politicized and could be used to delay the emissions trading scheme. The Liberals' position on achieving a higher reduction target has won conditional support from the Greens, but they have called for the Liberals to specify their target and explain in detail how it would be reached. At this stage the Liberals have not clarified what the higher target would be."

The Hon. Malcolm Turnbull MHR, Leader of the Opposition e-News : CO₂ news, 04 Mar 2009

Obama cans N-waste dump : "More than two decades after Yucca Mountain in Nevada was selected to be the US nuclear waste repository, the controversial proposal may finally be put to rest by President Barack Obama. In keeping with a pledge Mr Obama made during the election campaign, the budget released last week cuts off almost all funding to create a permanent burial site in the Nevada desert for most of the nation's radioactive nuclear waste. Congress selected the location in 1987 and reaffirmed the choice in 2002. So far, about US\$7.7 billion has been sunk into the project. Yucca Mountain is not an option and the budget clearly reflects that, Stephanie Mueller, a spokesperson for the Department of Energy said."

"Senate Majority Leader Harry Reid (*Democrat, Nevada*), a staunch opponent of the Yucca Mountain project called the Obama action 'our most significant victory to date in our battle to protect Nevada from becoming the country's toxic wasteland'. President Obama recognises that the proposed dump threatens the health and safety of Nevadans and millions of Americans, Senator Reid said. His commitment to stop this terrible project could not be clearer. Less clear is what will happen to the nation's growing stockpile of nuclear waste. That's a great question, Geoffrey Fettus, a lawyer with the Natural Resources Defence Council, said. The budget provides no answers as to what the administration proposes to do with about 57,700 tonnes of nuclear waste stored at more than 100 temporary sites around the country or with about 2000 tonnes generated each year by nuclear power plants."

"The Yucca Mountain site was designed specifically to handle spent fuel rods from the nation's 103 nuclear generators. The new administration is starting the process of finding a new strategy for nuclear waste, Ms Mueller said. Keeping the waste at temporary sites is an option in the short-term but experts say it will not serve as a long-term answer to the problem of radioactive waste, which will need to be kept stored safely for at least 1000 years. Others advocate processing much of the spent fuel, as is done in France, but this too is fraught with problems, according to experts. Ultimately, Mr Fettus said, the Government will have to find a new site or sites for permanent storage of nuclear waste."

Senate Majority Leader Harry Reid, United States of America Article : West Australian (Page 37), 06 Mar 2009

Peak oil body in tax plea : "The federal government is being urged to introduce a flow-through share scheme to protect jobs and shore up the future of Australia's junior petroleum exploration industry. The Australian Petroleum Production and Exploration Association – the peak industry body for Australia's oil and gas companies – has used its pre-budget submission to exhort the federal government to act swiftly to relieve pressure on the sector as the global financial crisis takes its toll. APPEA warned that a decline in petroleum production in Australia would expose the nation to major trade imbalances and potential economic, environmental and social costs. For smaller companies, equity funding is extremely difficult to source and financial institutions are becoming increasingly reluctant to provide debt funding. APPEA said efforts to discover petroleum would be better assisted by changes to the company tax regime to provide a 175% investment allowance deduction for exploration in frontier areas. In addition, APPEA called for 'substantial modifications' to how asset depreciation is calculated in relation to gas projects."

Australian Petroleum Production and Exploration Association Article : Weekend Australian (Page 30), 07 Mar 2009

God save the Governor-General from controversial political tasks : Just who does Quentin Bryce think she is? That question is not meant to be rude. But the still-new Governor-General has given Australians plenty of reasons to wonder how she sees her role. The Governor-General, as an unelected head of state, has to stay out of partisan politics for the position to hold any authority or public respect. Remember that the post has awesome reserve powers over an elected government that require absolute independence. Simply put, if Ms Bryce wants a political role, she should stand for election somewhere. She is now amassing a bit of form. She caused some concerns when she popped up launching Professor Ross Garnaut's climate change report in its book form. Professor Garnaut was appointed by Labor before the election in a highly political move to corner the Liberals on climate change. He continued (*continues*) his work under the new Government."

"The Governor-General's imprimatur on what the conservatives see as a political document was not wise. Shortly after, she took off to the World Future Energy Summit in Abu Dhabi to make a speech. But it also has a political component, given the state of the debate among the parties – including the Greens – on energy and climate change and Mr Rudd's Queensland-centric focus on so-called clean coal. We must act swiftly, act smartly, and act together, Ms Bryce told the gathering, even though there is a political debate in Australia about the pace of action. And then the Queenslander emerged. In the decades ahead the still growing hunger for energy will be fed by coal, she said. While finding a way to reduce emissions from coal through carbon capture and storage is by no means the whole answer to capping global emissions, it is a vital part of it. The she actively promoted Mr Rudd's controversial 'global' institute on carbon capture and storage into which he has ploughed more than \$100 million of (*Australian*) taxpayers' money."

"We now know that when coal is burnt to make power, we can separate the carbon dioxide from the production process, the Governor-General said. We can compress and transport the CO_2 . And we can inject it – at very low risk – into the right geological structures and depleted oil and gas fields deep in the ground. She did, however, later name just one successful operation – the *Sleipner* project in Norway – and noted the world would need the equivalent of 9000 *Sleipner Projects* to meet international coal pollution (*reduction*) targets."

Her Excellency Ms Quentin Bryce AC, Governor-General of Australia Extract : West Australian (Page 21), 12 Mar 2009

WA ideal for nuclear waste : "WA would be ideal for the safe storage of nuclear waste as Australia inevitably embraces nuclear power, a prominent geologist has claimed. John de Later, a Curtin University professor who has spent much of his career studying geological formations in WA and abroad, said Australia would eventually need to build nuclear reactors, but that he did not see underground nuclear waste storage as dangerous. I know this is unpopular but I believe that in WA there are many, many places where you could construct a natural repository, Professor de Later said on Friday after his induction into the WA Science Hall of Fame. Sooner or later we are going to have a power reactor in Australia – it's inevitable. But Professor de Later argued that WA should only handle Australian waste, because shipping it would be too risky. I don't believe we should take other people's radioactive waste, even though you could make a lot of money out of it. I'm worried about the transport of radioactive waste on ships."

"His (*de Laeter's*) comments contrast with the views of WA's 2008 Scientist of the Year Jorg Imberger (*a Professor at the University of WA*), who has argued that WA can make millions by opening its doors to waste from the world's burgeoning nuclear power industry. Premier Colin Barnett has dismissed accepting foreign waste, despite lifting the ban on uranium mining. The move was widely seen as paving the way for uranium exports. But the need to move away from fossil fuels means nuclear power will be on the agenda, Professor de Laeter said. I believe we will have nuclear power in this country in the next 10 to 15 years and I believe the way to look after our own nuclear waste is to put it into a natural geological repository. He said Australia should choose disposal sites carefully, to avoid similar problems to the US, which hurriedly (*over 30 years*) selected its Yucca Mountain site despite it being prone to earthquakes and volcanic activity."

Emeritus Professor John de Laeter AO, WA Science Hall of Fame Article : West Australian (Page 9), 16 Mar 2009

Following up – The U.S. Department of Energy began studying Yucca Mountain, Nevada, in 1978 to determine whether it would be suitable for the nation's first long-term geologic repository for spent nuclear fuel and high-level radioactive waste. Currently stored at 121 sites around the nation, these materials are a result of nuclear power generation and national defence programs. In 1983, the U.S. Department of Energy selected nine locations in six states for consideration as potential repository sites. This was based on data collected for nearly 10 years. The nine sites were studied and results of these preliminary studies were reported in 1985.

Following up – Based on these reports, the US president approved three sites for intensive scientific study called site characterization. The three sites were Hanford, Washington; Deaf Smith County, Texas; and Yucca Mountain, Nevada. In 1987, Congress amended the Nuclear Waste Policy Act and directed the U.S. Department of Energy to study only Yucca Mountain. On July 9, 2002, the U.S. Senate cast the final legislative vote approving the development of a repository at Yucca Mountain. On July 23, 2002, President Bush signed House Joint Resolution 87, allowing the DOE to take the next step in establishing a safe repository in which to store the nation's nuclear waste. On June 3, 2008, the DOE submitted a license application to the Nuclear Regulatory Commission seeking authorization to build the repository. With the election of Democratic President Barack Obama in 2009, Yucca Mountain was no longer a consideration for the government.

We can lead world in nuclear power : "I agree with John de Laeter's views (16/3) on the potential for nuclear waste storage in WA (or elsewhere in Australia), but propose taking the idea much further. Australia has big uranium resources (*with Canada approximately 50% of known global resources*) and many countries say that they are interested in using uranium for peaceful electricity generation. I propose that Australia should mine, process and enrich uranium on a huge scale, right here under our complete control. Many big nuclear power plants could be built, to the highest technical and safety standards, with assistance from such leaders in the field as the US, Britain, France and Canada. Processed uranium ore ('yellowcake'), enriched uranium fuel and spent fuel could be transported by a road / rail system at least partly dedicated to that purpose. Spent fuel would also need to be reprocessed, and the final waste material safely stored. The vast amounts of nuclear-produced electricity could then be used to electrolyse seawater or groundwater (depending on the locations of power plants)."

"Electrolysis of water produces hydrogen and oxygen. The oxygen could simply be released into the atmosphere, the hydrogen collected and liquefied, or perhaps very densely stored as metal hydride. It would then be hydrogen that was shipped overseas to

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provide clean electricity in power stations that simply burnt it or used it in hydrogen cells. In this scheme, no uranium needs to be transported overseas, nor radioactive waste in the opposite direction. Any country can have electricity that comes ultimately from uranium, and there is zero production of carbon dioxide (CO₂) from its generation. Australia would have a massive and profitable, integrated industry based on its great uranium resources, with virtually no risk of uranium falling into hostile hands or of radioactive contamination of the oceans. Most of Australia is geologically stable, making it safer than many other countries for the operation of nuclear power plants and for the disposal of nuclear waste. Australia and the rest of the world would have the means to achieve truly substantial reductions in CO_2 emissions (rather than continuing to pollute at will, provided you pay a big enough tax). That would qualify us as the 'clever country'."

Andrew Milne, Nedlands Resident & Taxpayer Article : West Australian (Page 22), 28 Mar 2009

Following up - Not to dismiss the use of sea or bracken water for cooling, which ultimately produces potable water through desalination.

Oil & gas majors back carbon institute : "The Federal Government has officially launched the Global Carbon Capture and Storage Institute today, with support from 85 bodies including 40 major companies. The Institute is designed to accelerate the deployment of carbon capture and storage (CCS) technology globally and the sharing of information. Most of the major players in the oil and gas sectors in Western Australia have become foundation members including Chevron, Shell, BHP Billiton, BP, Exxon Mobil Australia, INPEX Corporation, Santos and Woodside. Also joining the Institute are mining giant Rio Tinto and engineering firms Schlumberger and Worley Parsons."

"Chevron's Gorgon gas project hinges on CCS technology, which will be used to inject carbon dioxide into underground aquifers. Krzywosinski said the company's support of the Institute reflects its vision of providing natural gas that is essential to sustainable economic growth. Chevron Australia is proud to be playing a leading role in taking greenhouse gas (GHG) storage technologies from the research and demonstration phase to industrial scale application, thus significantly reducing global GHG emissions, Chevron Australia managing director Roy Krzywosinski said. He said the Gorgon Carbon Dioxide Injection and Storage Project, being operated by Chevron, will contribute to reaching the objectives of the Institute. The Gorgon Project will position Australia as a world leader in the application of carbon capture and storage technology with up to 3.4 million tonnes a year of CO_2 injected and stored underground. This is looking at injection rates between three and four times greater than is being done by existing commercial scale projects, added Krzywosinski."

"As the first company to sign a Memorandum of Understanding with the Australian Government in support of the initiative, Shell has been involved in establishing the framework of the Institute and will be an active participant in its programs. Shell Australia chairman Russell Caplan said: Shell believes CCS will be an essential technology to lower greenhouse gas emissions as the world's economy transitions to lower carbon energy sources. We need safe and cost effective ways to capture and store CO_2 from coal, oil and natural gas. Currently CCS is too expensive to deploy on most energy projects, so government leadership and support is vital to make this technology more economically viable and widely utilised."

Russell Caplan, Chairman, Shell Australia e-News : WA Business News, 16 Apr 2009

National transport plan will make city life bearable : "Long gone are the days in which Australia's infatuation with cars could be sustained. Despite their low population densities, our cities are among those with the highest car ownership. Australia has had a long love affair with the car, and the government continues to promote this through their support to the motor vehicle industry, including a recent \$6.2 billion assistance package. However, factors like five-hour traffic jams, increasing fuel prices and higher levels of community awareness about environmental issues are driving more and more people to rely on rail and other forms of public transport for everyday commuting. And we are not alone. The US recorded a 4% drop in motor vehicle use last year. Even though the popularity of trains among commuters is good news for the industry, the story acquires different hues on closer inspection. Until recently rail has been the victim of government's poor planning and massive under-investment, making it almost impossible for rail operators to provide efficient and effective passenger services."

"It is our strong belief that the government's funding of the public transport sector must change. Following the 'business as usual' arrangement is no longer an option for Australia. Having more cars on the roads is not sustainable any more. According to the projections of the Bureau of Transport and Regional Economics, the social costs of congestion are rising strongly to an estimated \$20.4 billion by 2020. At an environmental level, Australia cannot afford the current government's approach to public transport either. A recent study from the Cooperative Research Centre for Rail Innovation reveals that if Australia is to achieve its climate change goals, a major change in the transport sector is required. Reducing transport emissions will require a substantial modal shift from road to rail. No amount of investment in more roads will overcome the current situation. Our nation needs a national strategic transport plan for cities and regions, complemented by long-term funding for infrastructure. Such a plan is vital to secure the future economic and environmental benefits for all Australians. We need to make our cities liveable and free of congestion. The time to act is now."

Bryan Nye, CEO, Australasian Railway Association Article : Weekend Australian (Railways Special, Page 5), 18 Apr 2009

Britain lists likely nuclear plant sites : "Britain's commitment to building a new generation of nuclear power plants has taken a step forward with the announcement of a list of potential sites around England and Wales. A list of 11 areas was revealed, sparking anger from environmental campaigners but also hopes of new jobs and a boost to local economies. The sites have been nominated by companies interested in building the stations and have been given initial approval by the Government. Nuclear power supplies about 20% of the country's electricity, but most of the current stations will be closed with a decade because of old age. The list includes: Dungeness in Kent; Sizewell in Suffolk; Hartlepool in Cleveland; Heysham in Lancashire; Sellafield in Cumbria; Braystones in Cumbria; Kirksanton in Cumbria; Wylfa Peninsula in Anglesey; Oldbury in Gloucestershire; Hinkley

Point in Somerset; and Bradwell in Essex. The sites could be operational by 2025. The public has been invited to comment during a month-long consultation, with the expectation of a short-list being drawn up."

"This is another important step towards a new generation of nuclear power stations, Energy and Climate Change Secretary Ed Miliband said. Nuclear power is part of the low carbon future for Britain. It has the potential to offer thousands of jobs to the UK and multi-million-pound opportunities to British businesses. Keith Parker, chief executive of the Nuclear Industry Association, said the announcement shows we're making strong and tangible progress towards building new nuclear power stations, which will help keep the UK's lights on and drive down our carbon emissions. However the news sparked a mixed reaction from environment groups and local residents. Friends of the Earth energy campaigner Robin Webster said 'breathing new life into the failed nuclear experiment' was not the answer to Britain's energy problems. Nuclear power leaves a legacy of radioactive waste that remains dangerous for thousands of years, he said. Matthew Riddle, South Gloucestershire councillor for the Severn area, said plans to bring the Oldbury site back into use would boost the local economy. The general reaction here is that they are fairly happy about a power station at Oldbury. There is no great groundswell of opposition to it."

Ed Miliband MP, Secretary for Energy & Climate Change, UK Article : West Australian (Page 34), 18 Apr 2009

China widens uranium hunt : "China is shaping as a new multi-billion-dollar export market for Australia as the energy-hungry nation scours the world for uranium to underpin a massive expansion in its nuclear power industry. China plans to start building five extra power plants this year on top of 20 already under construction, 11 in operation and more than 100 planned by 2030. China's nuclear ambitions have led Chinese companies, including Sinosteel and Huaneng, to search for new Australian mining assets and also underpin expansion plans at ERA's Ranger Mine in Kakadu (*Northern Territory*) and BHP Billiton's Olympic Dam in South Australia. There are not enough uranium resources in China to support the aggressive nuclear power development plan for the next 20-30 years, said Professor Liu Deshun, of China's Institute of Nuclear and New Energy Technology. Australia has the uranium resources that could be exported and in China we have the demand. Federal Resources Minister Martin Ferguson gave a strong push for Australian uranium in his China tour earlier this month."

"Next week BHP is expected to release an environmental impact assessment for its expansion plans for the Olympic Dam uranium and copper mine while the country's biggest producer, ERA, is expected to provide more details on its Ranger mine plans at its annual general meeting today. Australian analysts say the Chinese market will underpin the economics of the proposed mine expansions. The two go hand in hand, said John Wilson, uranium analyst at Resource Capital Research. China's nuclear power plans have been fast-tracked because of mounting concerns about climate change and the more immediate task of boosting the economy. We have to accelerate the development of nuclear power, increase the ratio of clean energies like nuclear power, strengthen communication and cooperation between countries and institutions and jointly promote new development of the world's peaceful use of nuclear power, Vice-Premier Zhang Dejiang told a Beijing conference. Chinese resources and power companies are actively searching to invest in Australian uranium mining with Sinosteel already holding an exploration licence and Huaneng Power looking for Australian exploration and mining investments."

Vice-Premier Zhang Dejiang, People's Republic of China Article : West Australian (Page 54), 22 Apr 2009

Global Carbon Storage Institute : "The foundation members of the Global Carbon Capture and Storage Institute have met for the first time. The Canberra meeting of the foundation members marks the official launch of the institute, which has been established with the aims of accelerating the deployment of carbon capture and storage (CCS) technology globally and the sharing of information about the technology. At the time of the launch, 85 bodies, including 16 national governments and more than 40 major companies, had signed on as foundation members and collaborating participants of the institute. More members are expected to join by July 1, when the Institute will become a separate legal entity. The institute is also expected to play a key role - along with the International Energy Agency and the Carbon Sequestration Leadership Forum - in achieving the G8 group's goal of the broad deployment of CCS technology by 2020."

"The national governments joining the institute as foundation members are: the Government of Australia; the Emirate of Abu Dhabi; the Government of Canada; the Government of France; the Government of Germany; the Government of Indonesia; the Government of Italy; the Government of Japan; the Government of the Republic of Korea; the Government of Mexico; the Government of Netherlands; the Government of New Zealand; the Government of Norway; the Government of Papua New Guinea; the Government of South Africa; the Government of United Kingdom; the Government of United States of America. The European Commission is also a foundation member of the commission, along with the state governments of New South Wales; Queensland; South Australia; Victoria and Western Australia."

e-News : CO₂ News, 29 Apr 2009

Voelte outlines big vision for LNG: "Australia's rapidly growing liquefied natural gas (LNG) sector could be as big as that of Qatar's within 10 years, says Woodside Petroleum chief executive Don Voelte. There's no reason west Australia and northern Australia – the Timor Sea area – can't be a construction complex over the next decade that looks something like Qatar, Mr Voelte told reporters after Woodside's annual general meeting in Perth on Friday. The gas is all there. There's no reason in the world that if Qatar can build 77 million tonnes of LNG facilities over a 15-year period why Australia can't. Mr Voelte said Woodside, Australia's second largest oil and gas producer, aims to increase its number of LNG processing 'trains' in WA's Pilbara region from five to 11. The company plans to add three more trains to the five already operating at its flagship North West Shelf facility at Karratha."

"Plans are also progressing for the second and third trains at Woodside's adjacent Pluto project, with the first train now 60% complete. We have an 11-train vision of Karratha, Mr Voelte told reporters. The first Pluto train should be 85-90% complete by the end of this year, he told the shareholders' meeting. By the end of next year, we should be producing gas at this \$12 billion

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project, Mr Voelte said. He told reporters later that Woodside's Browse LNG project in the Kimberley region would not be neglected while the second and third Pluto trains were being developed. The Browse project gained momentum last month when the region's traditional owners reached a confidential agreement with Woodside to allow the development of the LNG hub at James Price Point near Broome. Mr Voelte said he expected Browse would follow 'close on the heels' of Chevron's Gorgon LNG development on Barrow Island. The latter project cleared a key environmental hurdle on Thursday and was Australia's largest resources project."

"Mr Voelte said he did not anticipate there would be a shortage of skilled workers for the Pluto projects, despite the thousands of employees Gorgon was tipped to require. We have plans for Pluto 2, 3 to work around Gorgon, and have our own set of contractors and our own yards internationally, and our own capability set in Karratha, he said. What is a little bit more 'iffy' is how does Browse (fit in)? If the state is able to secure environmental permits in 2010, as they have indicated to us, there is very little reason why Browse can't follow right behind Gorgon. Mr Voelte said there were 'very few stumbling blocks' left for Browse. The market is there. All that is left is the underlying permits for the gas precinct and the state says we'll have those next year, so we say 'why not construct in 2011?"

"Woodside confirmed its Otway gas project in Victoria is being considered as part of sale program of non-core assets. Mr Voelte said Otway was a stranded asset within Woodside's portfolio because it was isolated from its core activities in WA. If other companies had 'a bigger strategy in the area, can see more value in it', it would be considered for sale. It's a very good asset ... we won't sell it as a fire sale, he said. Woodside reiterated its production guidance for calendar 2009 of between 81 million and 86 million barrels of oil equivalent, but the low oil price will dent its earnings. Shares in Woodside were four cents higher at \$38.42."

Don Voelte, Chief Executive Officer, Woodside Petroleum e-News : WA Business News, 01 May 2009

Carbon Pollution Reduction Scheme – Economic cost without environmental benefit : "The Senate Select Committee on Fuel and Energy has just tabled its report into the Rudd Government's proposed emissions trading scheme. After an inquiry which lasted nearly a year, the Committee is of the view that the Australian economy will suffer with no benefit to the environment if the Government pushes ahead with its proposed CPRS. We are of the view that the CPRS will put even more pressure on our economy; damage our international trade competitiveness; cost jobs; put our future energy security at risk; and hurt regional Australia. And all that without helping to achieve the real objective – a reduction in global greenhouse gas emissions."

Recommendation 8 – The committee recommends that the government direct the Department of the Treasury to undertake and publish modelling of the impact of the proposed CPRS :

- (a) Assuming little or no action by Australia's major competitors to reduce greenhouse gas emissions;
- (b) Taking account of the economic conditions due to the global financial crisis;
- (c) On industry at a sectoral level, including the effective rates of compensation to industry;
- (d) On regional areas of Australia; and
- (e) In comparison with modelling of a variety of viable alternative policy scenarios aimed at Australia contributing to the reduction of greenhouse gas emissions."

Recommendation 16 – The committee recommends that incentives be provided to encourage research and development of second generation biofuels."

Recommendation 17 – The committee recommends that the Commonwealth and state governments remove restrictions on the mining and exporting of uranium."

Recommendation 18 – The committee recommends that the Commonwealth Government explore the feasibility, advantages and disadvantages of producing nuclear power in Australia, as a means of reducing domestic emissions and providing energy security for Australia into the future."

Senator the Hon. Mathias Cormann (WA Liberal), Chairman of Committee Report : SSC Fuel & Energy, 07 May 2009

In short – CPRS & ETS : "If Colin Barnett, Kevin Rudd, the Greens and the others are serious about greenhouse gas emissions, they would be joining around 30 enlightened countries and be entertaining nuclear power. It is a technology that is available now, unlike various doubtful carbon-capture technologies. Targets of 20% reductions and the like are pathetic when a combination of nuclear power and electric cars could enable reductions of 90% or more."

John Chapman, North Perth Resident & Taxpayer Article : West Australian (Page 22), 08 May 2009

Emissions targets tough without nuclear power : "Revealing the multi-million-dollar costs set to hit Alcoa Australia's bottom line under the proposed emission trading scheme (ETS), chief financial officer Tom Adams said yesterday he did not believe future emissions targets could be met without the use of nuclear power. A speaker at CPA Week in Perth, Mr Adams said the company welcomed the Federal Government's decision last week to delay the introduction of the scheme by a year until mid-2011, but even with an initial low cost of \$10 for a carbon credit, Alcoa faced a bill of \$20 million to \$35 million in the scheme's first year. Under the changes, Alcoa will have more than 90% of its emissions abated in the first year, decreasing 1.3% each year. With the assumption permit costs will increase in line with international schemes, Alcoa would incur costs of at least \$40 million in the second year."

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"Mr Adams said Alcoa's WA refineries at Kwinana, Wagerup and Pinjarra were among the most efficient in the world, producing about 0.57 of a tonne of carbon dioxide per tonne of alumina produced. That compared to an industry average of 0.75 of a tonne carbon and 1.4 to 1.8 tonnes of carbon for Chinese refineries. Mr Adams said that if carbon trading schemes were not adopted internationally and include China, Alcoa would end up just moving jobs from Australia into China and possibly producing twice as much carbon. Answering a question about the potential for nuclear energy to power refineries, Mr Adams said he could not see emissions being reduced quickly enough without it. I think long term though, and this is a personal view, it is hard to see us being able to reduce the carbon footprint as quickly as we can without nuclear (power), he said. However, he said : From Alcoa's perspective we don't intend to build any nuclear power stations next to our smelters in the near future."

Tom Adams, CFO, Alcoa Australia Article : West Australian (Page 44), 14 May 2009

Clean energy becoming an economic power : "Investment in wind, solar photovoltaic and biofuels has propelled the global renewables industry to fourfold growth over the past four years to hit US\$120 billion (A\$157 billion) last year, according to a leading renewable energy report. But despite weathering the global financial crisis better than most sectors, clean technology has shown it is not immune to the downturn. Total clean energy investment dropped 23% for the second half of 2008 from the previous corresponding period, falling particularly sharply after September. The 2009 Renewables Global Status Report, commissioned by international renewables group REN21 and financed by the US and German governments, shows the US became the investment leader in 2008 because of record wind power installations and ethanol investments. About US\$24 billion in new investment5 took place in the US, or 20% of the total global investment, the report said."

"Spain, China and Germany were not far behind (in that order), all in the range of US\$15 billion to US\$19 billion. Brazil was fifth, at US\$5 billion, due to investments in biofuels. The US also knocked long-time leader Germany off its mantle as the leading wind power nation, having 25 gigawatts (GW) of installed capacity compared with 24GW for the Germans. Installed wind power globally grew 29% in 2008 compared with 2007, to reach 121GW. More than 80 countries around the world had commercial wind power installations by 2008, with Mongolia and Pakistan being two of the most recent entrants, the report says. Three sub-Saharan African countries had commercial wind power installations and projects were under development in others, including Ethiopia, Kenya and Tanzania. Grid-connected solar photovoltaics continued to be the fastest-growing power generation technology, jumping 70% globally in the past year from 7.5GW of capacity in 2007 to almost 13GW last year."

Renewables Global Status Report, REN21 Article : West Australian (Page 56), 20 May 2009

Oil, gas to drive recovery : "Oil and gas could drive Australia's economic recovery if governments take the steps needed to get billions of dollars of projects going, a new report says. The **State of the Industry 2009** report, to be released today at the Australian Petroleum Production and Exploration Association conference in Darwin, says there is more than \$200 billion worth of oil and gas projects on the drawing board across the country. In seeking ways to stimulate economic recovery, governments should note that few other industry sectors have so many prospective major projects at such an advanced stage of planning, the report says. It found each of the projects was capable of attracting billions of dollars in investment and supporting thousands of construction jobs."

"Further progress in a number of key areas could see Australia's oil and gas industry potentially drive Australia's economic recovery, APPEA Chairman Eric Streitberg said yesterday. He said if all the projects were realised, they would create 50,000 jobs and deliver \$10 billion in annual government revenue. Mr Streitberg said the LNG industry could help lead the nation's return to economic prosperity. We provide 9% of global supply and if we get the policy settings right, we have the potential to grow to 20%, he said. The report also set aspirational targets for the oil and gas sector and identified regulatory reform, an emissions trading scheme and achieving a globally competitive fiscal regime as the main challenges to growth. The report also singled out the need for national tax reviews so Australia can deliver an internationally competitive investment framework."

Eric Streitberg, Chairman, APPEA Article : West Australian (Page 18), 01 Jun 2009

BP says oil reserves fall, output grows 0.4% : "The world's proved oil reserves fell last year for the first time in a decade, even as consumption in advanced economies slowed. According to BP's annual Statistical Review of World Energy, released last night, proved reserves of 1.258 trillion barrels in 2008 were 3 billion barrels less than in 2007. Energy consumption by members of advanced economies – defined by membership in the Organisation for Economic Cooperation and Development – fell behind consumption by all other nations including China for the first time. In 2008 the world was no longer supply-constrained, as production growth exceeded that of consumption for all fossil fuels, particularly later in the year, Tony Hayward, BP's group chief executive said. Our data confirms that the world has enough proved reserves of oil, natural gas and coal to meet the world's needs for decades to come. The challenges the world faces in growing supplies to meet future demand are not below ground, they are above ground – they are human, not geological."

"BP said increases in proved oil reserves in Vietnam, India and Egypt were offset by falls in Russia, Norway and China. Middle-East producers accounted for 59.9% of global reserves, led by Saudi Arabia with 21%. Global oil production increased 0.4% in 2008 on the strength of a 2.7% boost in output from OPEC countries. Non-OPEC production fell 1.4%. Saudi Arabia increased production by 400,000 barrels per day and Iraq by 280,000 bpd, BP said. Mexico had the biggest decrease at 310,000 bpd; Russian output fell by 90,000 bpd, the first decline in 10 years. Global consumption of coal rose a below-average 3.1%, but coal was the fastest-growing fuel for the sixth year in a row. China's consumption rose 6.8%, accounting for 85% of global growth. Nuclear output fell 0.7%, hit by a 10% drop in Japanese nuclear production resulting from an earthquake in 2007. Global hydro-electric generation grew 2.8%, global solar energy capacity rose 69% and wind power capacity increased 30%."

Tony Hayward, BP Group CEO Article : West Australian (Page 43), 11 Jun 2009

Oil prices tumble amid economic concerns : "Oil prices fell sharply on Monday as concerns over the current economic crisis eclipsed supply worries amid political tensions in Iran and attacks on oil installations in Nigeria. Traders said worries about the prospects of early recovery from the current crisis gripped the market. The main driver of oil has gone beyond traditional measures of just supply and demand and has metamorphosed into a macroeconomic force that at times measures the state of the global recovery and at other times becomes a safe haven from the dollar or inflation or systemic risk."

Phil Flynn, (The Energy Report) Alaron Trading, Chicago IL USA e-News : WA Business News, 23 Jun 2009

Calls for inquiry into BHP uranium plans : "An anti-uranium alliance has stepped up calls for a public inquiry into BHP Billiton's 'secretive' Western Australian uranium mine, Yeelirrie (*east of Meekatharra, Shire of Wiluna, 600km north-east of Perth*). The call comes as members from a consortium of environmental groups, including Conservation Council of WA, staged a protest at BHP's head office in Melbourne. A key demand of the protest was for BHP to outline plans on its proposed Yeelirrie operation, which could be the state's first uranium mine with production starting as early as 2014."

"Conservation Council of WA's Natalie Lowrey said there has not been a detailed public inquiry – which has the same powers as a royal commission – into the uranium sector for over 30 years. We want the WA Environment Minister to commission a public inquiry into plans for uranium mining in WA ahead of any project specific assessment and approval, she said. There are serious and wide-ranging impacts of this proposal. If an idea is a good one then it should have no fear of scrutiny."

"Other movements in the state's uranium industry include Canada's Mega Uranium which sold a 35% interest in its Lake Maitland project to two Japanese companies for \$US49 million. Yesterday Cameco struck its third joint venture deal with Uranium Equities over uranium tenements located close to the Kintyre uranium deposit, which Cameco and Mitsubishi bought off Rio for \$US495 million last year. Another potential near-term uranium development is Toro Energy's Lake Way-Centipede project. Comment was being sought from BHP at time of publishing. The Conservation Council of WA has already submitted its concerns regarding Yeelirrie to BHP and the Environmental Protection Authority."

Natalie Lowrey, Uranium Free Advocate, Conservation Council WA e-News : WA Business News, 08 Jul 2009

Eco-plane soars to green future : "The first piloted aircraft using only power from fuel cells which did not produce carbon dioxide has flown, its makers in Germany say. We have the performance capabilities and efficiency of the fuel cell to such an extent that a piloted aircraft is now able to take off using it, Johann-Dietrich Woerner of the German Aerospace Centre said on Tuesday. This enables us to demonstrate the true potential of this technology and perhaps, specifically, for applications in the aerospace sector. Developed by the centre, Lange Aviation, BASF Fuel Cells and Danish firm Serenergy, the Antares DLR-H2 motor glider has a range of 750km and can fly for five hours. Fuel for the system is hydrogen converted into electrical energy in a direct, electrochemical reaction with oxygen in the ambient air, without any combustion occurring. The only by-product is water and, if the hydrogen fuel is producing using renewable energy sources, then the motor glider is genuinely CO₂-free."

Johann-Dietrich Woerner, German Aerospace Centre, Berlin Article : West Australian (Page 38), 09 Jul 2009

Power for the people – Nuclear transitions : "Imagine someone handed you a lump of silvery metal the size of a golf ball. They said you might wish to put on some plastic gloves to hold it, although it would not be necessary if you washed your hands afterwards. You look down at the metal resting on your palm. It feels heavy, because it's very dense. You are then told that this metal 'golf ball' can provide all the energy you will ever use in your life. That includes running your lights, computer, airconditioner, TV, electric car, synthetic jet fuel. Everything. Using 1 kg of uranium or thorium – take your pick. That is what modern nuclear power offers – an incredibly concentrated source of energy, producing a tiny amount of waste. Taken over its life cycle, when used in next-generation fast spectrum nuclear reactors, this energy generation will produce less carbon dioxide emissions than wind turbines. It gets better."

"Your lifetime's worth of energy waste, also weighing just under a kilogram, will be less radioactive than the natural rocks around Roxby Downs (*the site of BHP Billiton's Olympic Dam mine*) within 300 years. Not 100,000 years – only 300 years. South Australian rocks contain this metal in great abundance. We live in one of the most energy-rich areas of the planet. We are endowed with far more energy than all the oil and gas in the Middle East. We already export a few thousand tonnes of it each year, and are planning to ship much more overseas in the future. Yet, we don't use it ourselves. We recognise the fact that our natural gas supplies are limited. Worse, burning this fuel produces vast amounts of carbon dioxide, which is destabilising the climate system. Coal, found in great abundance in Australia's east coast states, is twice as bad as natural gas in terms of carbon emissions, and also dumps heavy metals, soot and chemicals causing acid rain into the air."

"Clearly, we must hitch ourselves off the fossil fuel energy bandwagon, and quickly. Right now, we are pushing for more and more wind and solar power. This is well and good, but these variable and diffuse renewable energy sources have severe limits that often go unacknowledged. They cannot power a large fraction of the needs of future all-electric society without major breakthroughs in energy storage technology, and much cheaper backup options than now exist. Energy found in hot rocks deep beneath our deserts holds great promise, but is overshadowed by many unknowns. We'd be taking a great risk if we gambled our entire energy future on this one possibility. My research has convinced me that nuclear power is by far the best prospect that we, as South Australians and as a global community, have of drastically cutting carbon emissions. It's time for Australia to embrace nuclear power as a major enabler of a low-carbon (*global*) economy."

Professor Barry Brook, University of Adelaide Article : Adelaide Advertiser (Page 18), 04 Aug 2009

Gorgon carbon storage liability accepted by Australian Governments : "The Federal and Western Australian Governments have agreed to accept any long-term liability arising from the storage of carbon dioxide as part of the \$50 billion Gorgon liquefied natural gas project. It is planned to store the CO_2 in geological formations under Barrow Island off the WA coast. A statement by

the two governments says their decision clears a major hurdle for the Gorgon joint venture partners – Chevron, Exxon Mobil and Shell – as they move towards a final investment decision before the end of 2009.

"The statement says the governments' decision to accept long-term liability for CO_2 storage acknowledges the scale and significance of the LNG project to the Australian economy; the opportunity it provides to demonstrate carbon capture and storage technology at industrial scale; and the environmental significance of Barrow Island. It says the Gorgon CCS Operation will be the world's largest demonstration of CCS technology for many years and will receive \$60 million in funding from Canberra. The Gorgon project will provide jobs for about 6,000 Australian workers at the peak of construction and also guarantee a major boost to Australia's export income with contracts to sell about \$300 billion worth of LNG to customers in the Asia-Pacific over the next 20 years. At home, Gorgon will deliver at least 150 terajoules/day of domestic gas into the WA market no later than 2015."

www.envirocentre.com.au e-News : CO2 News, 06 Aug 2008

Oil will run out so we have to embrace new energy sources : "Despite all appearances, the reasons that Australia must – and will – adopt the plan (*Rudd's CPRS & ETS*) are very simple. First, the world is running out of oil, the source of 80% of all world energy. Smart countries will start preparing for this now. Dumb countries will keep postponing the adjustment. We can't foresee the precise day and the hour when we squeeze the final drop out of the planet. But we have some educated guesses. The International Energy Agency, a specialist research body set up by 28 of the governments of the world's rich countries, calculates that the known reserves of oil will run dry in about 40 years at current rates of consumption. The big oil cartel OPEC predicts that world demand for oil will rise by about 40% over the next 20 years in the absence of major policy change. This of course would bring forward the day of reckoning. While there is plenty of room for error and uncertainty in forecasting, there is only one certainty : 'One day, we will run out of oil, it is not today or tomorrow, but one day we will run out of oil and we have to leave oil before oil leaves us', the IEA's chief economist and formerly an economist with OPEC, Dr Fatih Birol, said this week."

"The countries that set a future-minded policy framework will get the most forward-looking investment. As Barack Obama's chief climate negotiator, Todd Stern, told the Herald : "The more you delay, the more you say we aren't going to do it until those guys do it, the more you keep building high-carbon infrastructure that's going to last for 30 and 40 years, the more you're going to dig yourselves into a hole. We don't think that's good for us. The move from burning wood to burning coal helped fuel the industrial revolution. Now, the world confronts the next great fuel transition. Once again, there are likely to be enormous consequences. It is an inevitability. Australia's choice is to embrace change or to hide from it. So even without believing in the reality of climate change, there are three powerful points in favour of Rudd's plan – the great transition away from a carbon-intensive economy is inevitable, even desirable, and Rudd's plan gives Australia a manageable beginning."

"The Government's standing is high, it can claim climate change as a mandate issue, and polled support for Rudd's emissions trading system is at a decisive 65%, according to a June Nielsen poll. Strikingly, public support has remained rock-solid throughout the economic downturn and despite the concerted scaremongering of the mineral lobby and the Opposition. So Rudd's scheme will pass, one way or another. The question for the Opposition and the Greens is whether they hand Rudd the trigger (*blocking legislation on successive occasions can lead to a double-dissolution of Parliament*) with which he can arm the electoral gun to blow their brains out before getting his way in the Senate. Of course, Australia is one of the world's carbon-fuel superpowers. It is entirely natural that there should be serious resistance to change. But the Australian public has seen beyond the bested interests to the national and international interest. The Opposition will stand in the way at its peril. And that's about as clear as it gets in Canberra."

Peter Hartcher, Political Editor, SMH Article : Sydney Morning Herald (Page 9), 08 Aug 2009

Renewables target 100 years away : "ExxonMobil Australia chairman John Dashwood has expressed scepticism at federal laws requiring 20% of electricity be sourced from renewable sources by 2020, saying such a transformation was likely to take 100 years. Mr Dashwood said the transformation would take a mammoth effort. Renewable energy growth is unlikely to even match the forecast growth for the overall electricity market, Mr Dashwood told an American Chamber of Commerce in Australia business luncheon on Friday. History shows that transforming the primary sources of energy require enormous investments in infrastructure and is likely to be a 100-year challenge, he said. However, energy needs must be met in the interim with available and affordable options. Mr Dashwood said ExxonMobil's own research had shown that by 2030 fossil fuels would still supply about three-quarters of the world's total energy demand."

"Critics often suggest that companies like ExxonMobil are too keen on promoting fossil fuels over alternatives, he said. Mr Dashwood said natural gas could result in less than half the greenhouse emissions of coal but was unfairly treated by the amount of tax that it attracted. What we have instead is a tax system and plans under the government's current CPRS (*Carbon Pollution Reduction Scheme*) approach that makes Victoria's brown coal the cheapest source of new power generation in Australia. Meanwhile, Mr Dashwood also brought those in attendance up to speed on the company's final investment decision regarding the Gorgon project, suggesting it may be made before the end of 2009. Mr Dashwood told journalists the company was undergoing a process to fund its share of the project, which would see Australia's biggest ever trade deal."

"Optimistically we are going to fund Gorgon before the end of the year, Mr Dashwood said. We are still going through that process. Asked whether the company could meet within the next month, he said: 'it could be'. ExxonMobil holds a 25% stake in the Gorgon project off Western Australia's Pilbara coast. It was recently announced that the yet-to-be-developed Gorgon gas field will supply China with \$50 billion worth of LNG during the next 20 years. There are a lot of considerations that go into these things, Mr Dashwood said. Yes, environmental approvals are all in place, but there is a whole swathe of technical and engineering considerations, costings and that sort of thing, that come into this as well. We feed all of that into our decision making, it is not a single issue, he said."

John Dashwood, Chairman, ExxonMobil Australia e-News : WA Business News, 28 Aug 2009

BP unveils giant Mexico oil discovery : British energy major BP has made a 'giant' oil discovery in the Gulf of Mexico after drilling one of the industry's deepest-ever wells, it said Wednesday. BP announced today a giant oil discovery at its Tiber Prospect in the deepwater Gulf of Mexico, the company said in a statement. The Tiber well was drilled to a total depth of approximately 35,055 feet (10,685 metres) making it one of the deepest wells ever drilled by the oil and gas industry. The announcement sent BP's share price rising 3.42% to 537.15 pence on London's benchmark FTSE 100 index, which was down 0.61% nearing the close. BP's discovery comes as the industry this week marks 150 years since crude was first recovered from a drilled well, and days after Scottish group Cairn Energy began pumping oil in India as exploration in the North Sea dwindles. The discovery is larger than BP's Kaskida find, which contains around three billion barrels, in the same geological area three years ago. The industry definition of a 'giant' oil find refers to a field from which more than 500 million barrels of oil or gas equivalent can be recovered. Much oil found is never extracted because bringing it to the surface is too expensive. Peter Hutton, an analyst at NCB Oils, said Wednesday's announcement would be seen as 'confirmation of BP's strong focus on Gulf of Mexico' exploration.''

"Energy groups are increasingly drilling in the Gulf of Mexico and elsewhere as North Sea oil fields dry up. Cairn Energy on Saturday began pumping from a vast oilfield in the Indian desert state of Rajasthan that is set to increase India's total output by 20%. Cairn's field, India's largest onshore and the biggest find in over 20 years, will increase India's oil output by a fifth once it hits its initial peak production target of 175,000 barrels a day in 2011. This is in contrast to the North Sea, where expenditure on exploration was down 70% at the start of 2009, according to industry body Oil & Gas UK. In the Gulf of Mexico, BP operates Tiber, in which it has a 62% stake. Its co-owners are Brazilian oil giant Petrobras, with 20% and US group ConocoPhillips with 18%. Tiber represents BP's second material discovery in the emerging Lower Tertiary play in the Gulf of Mexico, following our earlier Kaskida discovery, said Andy Inglis, BP chief executive for Exploration and Production. These material discoveries together with our industry leading acreage position support the continuing growth of our deepwater Gulf of Mexico business into the second half of the next decade. BP is the biggest producer of oil and gas in the Gulf of Mexico with current net production of more than 400,000 barrels of oil equivalent per day, the company said in its statement. This could rise to 650,000 barrels daily within the next 15 years thanks to the Kaskida and Tiber wells."

Andy Inglis, CEO Exploration & Production, BP e-News : WA Business News, 03 Sep 2009

View on nuclear power to be tested : "The public's view on nuclear power will be tested in a study paid for by the federal government. The research has been backed by the Australian Research Council, a government authority, and conducted by the National Academies Forum despite Prime Minister Kevin Rudd's opposition to the country going nuclear. Project leader and Professor of Sociology at Perth's Curtin University of Technology, Daniela Stehlik, has told *The Australian* newspaper the study will test whether concerns about climate change is changing attitudes to shift towards the more emissions-friendly option of nuclear power. The study will cost \$134,000."

Daniela Stehlik, Professor of Sociology, Curtin University of Technology e-News : WA Business News, 11 Sep 2009

Giant US windfarm starts up : "German utility E.ON has switched on the world's biggest windfarm in the US (*United States of America*), generating enough electricity for 230,000 homes. After two years of construction, 627 wind turbines (~120m high) with a combined generating capacity of 780MW were now operating over an area of about 400 km², E.ON said. The farm in Roscoe, Texas, is about twice the size of the company's home city of Düsseldorf. The turbines were made by three international conglomerates : Mitsubishi, General Electric and Siemens. With large-scale projects like Roscoe we are helping renewables to achieve a faster breakthrough in economic and technological terms, E.ON said. E.ON wants to reach a generating capacity of 10,000MW from renewable sources by 2015. Despite higher operating costs than electricity generated from traditional fuels like coal and gas, renewables are gaining momentum because of the global push to curb greenhouse gas emissions."

Frank Mastiaux, CEO, E.ON Climate & Renewables Article : West Australian (Page 84), 03 Oct 2009

Political cowardice on carbon : "The debate over whether Australia should or shouldn't pass the *Rudd* government's Carbon Pollution Reduction Scheme ahead of the Copenhagen conference in December is a red herring when it comes to climate change. Why? Because whether we do or don't will make little difference to Australia's capacity to reduce carbon pollution so long as both main parties aren't prepared to get serious and have a mature debate about nuclear power. The most internationally proven way to address energy needs in an environmental and sustainable way is to go nuclear. Rudd likes to extol the virtues of the Group of 20 nations, but I can't recall hearing him comment on their overwhelming dependence on nuclear power as a means of carbon pollution reduction. Nineteen of the G20 nations already have nuclear power in their energy mix or are planning the construction of reactors : 15 and 4 nation-states respectively. Only Australia has shied away from the nuclear energy option and only for cowardly political reasons. Whether climate change is real or not (I have no idea), only time will tell. Given that most respected climatologists tell us it is occurring and humans are contributing to it, it is a good idea to look at ways of curbing carbon pollution just in case. Nuclear power has to be part of the plan."

Peter van Onselen, Assoc. Professor Politics, Edith Cowan Uni Extract : Weekend Australian (Page 14), 10 Oct 2009

We disagree – Uranium Mining : "Alarm about the risks of mining uranium, as expressed by Judy Blyth (Nuclear power not the only option, 20/10) and Jo Vallentine (Cynical stance, 20/10), are misplaced because mining uranium is no more CO_2 intensive than mining iron ore, nickel, copper or gold, and producing the 'yellow cake' uranium oxide concentrate requires almost no energy because it is a leaching and ion-exchange (IEX) process. Therefore, producing uranium oxide mine product is a very low CO_2 -emitting process. Uranium is actually almost non-radioactive. It is the short-lived radioactive decay products which produce the radioactivity which makes uranium deposits relatively easy to find. Every geologist knows this. After treating the ore these

daughter products remain at the mine site in the tailings, and these radioactive tailings are rendered harmless by covering them with about 20cm of soil. By removing the uranium source of these short-lived elements in mining it, you are stopping the further generation of radioactive decay products."

"These writers should also relax about enriching civil-reactor-grade uranium fuel to weapons-grade – it is easily prevented by adding a contaminant. This is what the Russians have done to the reactor fuel they exported to Iran, and at huge cost Iran has found that it is impossible to enrich this fuel to weapons grade. And don't worry about high-level waste from reactor cores because the new fourth-generation reactors end up consuming all the plutonium and waste they produce, thus leaving almost no waste at all. These reactors were developed from the experimental fast-breeder reactors such as that at Dounreay in Scotland during the 1960s and 1970s and they produce about 800 times more energy than conventional reactors. You can therefore relax about uranium mining because in about 30 years there will be no market for newly mined uranium."

Stan Yeaman, Retired Uranium Geologist, City Beach Extract : West Australian (Page 22), 21 Oct 2009

Whisper is nuclear is the go: "Let not thy will roar, when thy power can but whisper. Dr Thomas Fuller, 1732."

"Nuclear energy is one such whisper power source, but a roar when applied to non-peaceful uses. The world's hunger for energy climbs unabatedly and nuclear energy is increasingly considered as part of the medium to long-term solution. The fundamental factors provide for a scenario where coal-fired power stations will continue to dominate the world's thermal power supply and increase in use, with a somewhat smaller increase in the construction and commissioning of gas-fired thermal stations. These sources of heat for electricity generation come at an ever-increasing cost – the price of dealing with the planet's carbon footprint. The necessary move to cleaner sources of electricity has initiated technological advancements in clean coal, including carbon sequestration technologies, geothermal energy and other renewable sources such as solar photovoltaic, solar thermal, wind, tidal, wave, biomass and biofuel. However, most of those sources cannot be relied on to provide electricity supply to a country's base load because they are either erratic or simply do not have the generation scales to provide adequate reliable power. It is also unlikely that major rivers can still be dammed for significantly more hydro-power."

"It is practically impossible for the world to increase its demand for power at the absolute exclusion of nuclear energy, which reduces or avoids about 2.5 billion tonnes of CO_2 emissions a year. By combining the demand for energy with the increased focus on clean energy sources, research suggests it is possible to achieve both through the application of cleaner technologies, including carbon sequestration, as well as increasing our reliance on nuclear and renewable energy. About 16% of electrical energy is derived from nuclear sources, with 372,000MW a year produced from 436 nuclear reactors. The International Atomic Energy Agency estimates that another 45 reactors are *currently* being built for an additional 39,948MW, while 112 *reactors* accounting for 131,145MW are planned, and a further 276 *reactors* with a further 299,405MW of capacity are proposed."

"Given current uranium demand, another 82,723 tonnes a year will be needed to feed this increase in reactor numbers. These new reactors could be operational over the next 25 years, meaning global uranium demand is likely to expand to nearly 150,000 tonnes a year by 2035. This takes into account older reactors discontinuing production and being decommissioned. Suggested global resources indicate that there is enough uranium to last at least for the next 85 years, mining at ever-increasing rates. The opportunity for Australia as a uranium producer cannot be over-stated. This country has abundant uranium resources and is well positioned, geographically and geologically, to capture a significantly greater piece of the global uranium pie. If Australia is to start moving towards its own (and first) commercial nuclear reactor able to provide a cleaner source of energy, it will need to resolve this debate sooner rather than later."

Dr Eric Lilford, Energy & Resources, Deloitte Australia Article : West Australian (Page 52), 21 Oct 2009

Biofuels in the air : "New Delhi – The International Air Transport Association will approve biofuels for commercial (*Regular Passenger Transit*) flights by next year to reduce the industry's carbon footprint. Paul Steele, head of IATA's environmental initiatives, said biofuel would be certified 'by the end of next year'. Certification was regarded as a first step to eliminating investment uncertainty about use of high-quality biofuels in aviation. Air transport now has the possibility of an alternative to traditional jet (*A1-Aviation*) fuel, IATA chief Giovanni Bisignani said."

Giovanni Bisignani, Director-General, IATA Article : Sunday Times (Page 48), 25 Oct 2009

ARF, Wesfarmers in biodiesel supply deal : "Australian Renewable Fuels is pleased to announce that it has reached agreement with Wesfarmers Premier Coal regarding the programmed supply of Biodiesel for use in the coal mine. The product will be supplied from the Company's Picton Biodiesel facility, with the product to augment volumes that have previously been supplied. We are very pleased with the continued support from Premier Coal in regard to the use of renewable fuel in their mining operations, said ARF Managing Director Tom Engelsman. Our Picton plant is the only industrial scale Biodiesel production facility in WA, and the support from Premier Coal will further demonstrate their commitment to the environment. We look forward to being able to support the coal industry in possibly broader use of renewable Biodiesel. Australian Renewable Fuels is a manufacturer of Biodiesel, with plants located in Picton (WA) and Largs Bay (SA). The total capacity of the plants is in excess of 90 million litres per year, with the feed stock being based on renewable and non-food sources."

Tom Engelsman, Managing Director, Australian Renewable Fuels e-News : WA Business News, 28 Oct 2009

Clean coal will mean high power bills : "Clean coal technology will face extraordinary price hurdles over the next ten years, a major stock-take of all the world's carbon capture and storage projects has found. The report, prepared by the Global Carbon Capture and Storage Institute, finds the cost increase to coal electricity generation if fully fledged clean coal technology is installed will be up to 78%. If the technology is rolled out widely price increases in generating electricity are likely to increase household power bills significantly. The report, which looked at all global carbon capture and storage projects around the world,

found CCS in coal plants will only be competitive with other energy sources if a high carbon price exists. That would mean a carbon price of between \$61-112 a tonne and between \$80-90 a tonne for large-scale technology needed for the massive NSW and Victorian coal plants."

"The *Federal* Treasury estimates that under the Government's emissions trading scheme of a 15% Year 2020 emissions reduction target, the carbon price will hit \$80 a tonne in real terms in 2038. The institute's chief executive, Nick Otter, said yesterday it was crucial for a commercial-scale clean coal project to be operating by 2014, with fully commercialised plant existing by the early 2020s. As more demonstration projects led to fully commercial projects, the costs for CCS should come down as technology blips were ironed out. Governments need to provide short-term incentives to investors, Mr Otter said. But in the long term there will have to be a long-term framework and that will include things like a carbon price. The Rudd Government will spend \$2.4 billion (of Australian taxpayers' funds) over the next nine years developing up to four commercial scale carbon capture projects. A shortlist of projects is to be released by the end of the year."

Nick Otter, CEO Global Carbon Capture & Storage Institute Article : West Australian (Page 6), 29 Oct 2009

We must deal with global peak oil : "In response to Ross Gittens (As crisis unwinds, will we reap whirlwind, 4/11), I pose the following as something not mentioned and quite frankly will have the greatest impact on Australia in the near future and will make Ken Henry's problems become insignificant – global peak oil. I am not talking about the world running out of oil, but for anyone with a reasonable grasp of oil investment, extraction and production, this means that growth and society as we know it will be constrained by this unchangeable fact. All those in the know, including experts like America's Matt Simmons, have concluded that worldwide oil production peaked in 2005-2008 or is about to peak. Modern Western societies rely and require economic growth for their economies to work effectively."

"An increase in oil production and use is critical for economic growth to continue. Peal oil will constrain this and as decline rates continue (currently about 5% annually worldwide), economic activity will be constrained, and the world will contract in terms of growth. We are already seeing and will continue to see the death of globalisation as trade declines because of its uneconomic imbalance. We are in the early stages of re-localisation and a shift in the way our lives will be lived. Population has always been the elephant in the room; there is simply no way Australia can sustain the population growth being proposed by Dr Henry. Likewise, climate change must be addressed. However, peak oil and its factual implications will strongly mitigate much of the forecast damage that this problem. Politicians and big industry are well aware of peak oil, but terrified of making the public aware of its impact because we need growth to sustain our current consumptive way of life."

"A recent quote is worth noting – '(Steve Chu, US Secretary of Energy) was my boss. He knows all about peak oil, but he can't talk about it. If the government announced that peak oil was threatening the economy, Wall Street would crash. He just can't say anything about it.' – David Fridley, scientist at Lawrence Berkeley National Laboratory. It is time our politicians were honest with the community and addressed real issues rather than ponder the unknowable. Peak oil and Australia's energy future are more important than climate change, population growth and issues in China. It's time to be honest and deal with these issues. We have time to adapt, the limits to growth are known – we just need strong leadership."

Geoff Botting, Baldivis Resident & Taxpayer Article : West Australian (Page 22), 09 Nov 2009

Why coal must make way for nuclear power: "There is one question we should ask ourselves in the face of a new scare campaign over the use of nuclear power in Australia. Why are so many other nations doing it, but we can't? New Liberal leader Tony Abbott probably didn't need to invoke the nuclear debate on the first day in the job but, true to form, he got the rabbits running right away. Prime Minister Kevin Rudd and Environment Minister Peter Garrett didn't dig too deeply into their intellects with knee-jerk demands that Mr Abbott say where he intended to build the reactors. Mr Abbott actually only called for a debate on nuclear power. But this was quickly transformed by the Rudd spin machine into a fear campaign that nuclear plants would be popping up in people's backyards. Mr Garrett clearly forgot his own widely ignored calls for an informed nuclear debate as far back as March 2005."

"The key problem with Mr Rudd's ETS is that it seeks to pay billions of *(taxpayers')* dollars to the country's worst polluters to allow them to continue polluting. That money would be much better spent developing alternatives. As of December 1, there were 436 nuclear power reactors operating in 30 countries, supplying 372,707 MW – some 15% of the world's electricity. They were all built without a world price on carbon emissions. What really dents the cost arguments against nuclear power are the energy plans of the world's major emerging economies. China has 11 operating plants, 18 under construction, 35 planned and another 90 in long-term proposals. India currently has 17, is building 6, has 23 being planned and proposes another 15. Just like Australia, both have heaps of cheap coal – and no ETS."

"Some figures for other countries, which must be living in a different world than Mr Rudd's Australia, are : Canada (18 operating; 2 under construction; 4 on order or planned; 3 long-term proposed); Indonesia (0,0,2,4); South Korea (20,6,6,0); Russia (31,9,7,37); South Africa (2,0,3,24); Thailand (0,0,2,4); Ukraine (15,0,2,20); Britain (19,0,4,6); United States (104,1,11,19); and Vietnam (0,0,2,8). Overall, according to the World Nuclear Association, there are 488 new plants in the pipeline, with a capacity of just over 500,000 MW. Far-sighted, practical governments made those decisions. But what will eventually drive nuclear and renewables in this country will be a political decision to stop, or dramatically limit, burning coal. It's that simple. It should not be left up to an easily rorted derivatives market to make the critical decisions in our energy future."

"The Rudd Government has invested far too many eggs in the carbon capture storage basket, wishing against hope that it will save the coal industry. That's also a political decision – a bad one. A March 2008 technical report from the Co-operative Research Centre for Coal in Sustainable Development, funded by the coal industry and Federal taxes, examined how Australia could reach the Rudd Government's 60% cuts by 2050 target if carbon capture and storage proved unworkable. It's a scenario

politicians don't want to talk about. The report concluded that nuclear power would have to come into play by 2025 with about 15% of market share and with hot rocks surprisingly supplying around twice that amount by 2050. But the boffins responsible for that report noted that if hot rocks were also unviable, then nuclear would have to pick up that quota too. Then we would be relying on nuclear for more than one-third of our power demand. That nuclear horizon is only 15 years away. Anyone interested in hitting the sort of emissions targets needed to cut atmospheric CO_2 growth must have hot rocks in their head to rule out nuclear power now."

Paul Murray, The West Australian Newspaper Extract : West Australian (Page 20), 08 Dec 2009

Following up – For a predicable response, refer Senator Scott Ludlam's (Greens WA) letter to the Editor in 09 Dec 2009 (Page 22).

Rising demand fuels energy concerns : "A return to economic growth raises the spectre of a serious energy problem : meeting transport fuel requirements from overseas at a growing rate. The issue was summed up by federal Resources and Energy Minister Martin Ferguson soon after the Rudd Government took office : 'We've got huge problems on the trade front and ... in terms of energy security and our economic future by 2015.' With concerns about a global recession receding, the oil demand challenge can be expected to re-emerge in the front rank of national issues. The trigger was pulled in 2004-05 when domestic crude production began a steep decline as the Bass Strait fields – providers of nearly four million barrels of oil during four decades – started to run down significantly. Annual liquid fuel imports, largely crude oil and diesel, are now pushing beyond \$15 billion a year and are expected to rise sharply."

"The unknown factor is the future global oil price. Analysis undertaken for Queensland Energy Resources, a company striving to launch an oil shale business, by consultant EnergyQuest suggests the import bill for Australia by 2030 could range from about \$90bn, assuming today's relatively subdued prices, to almost \$130bn if the cost takes off again towards the heights reached in 2007-08. The Australian Petroleum Production and Exploration Association argues that addressing the worsening fuel gap – domestic production is expected to suffer another downward lurch about 2011 unless significant new fields are discovered – requires the government to support exploration more strongly in deeper waters offshore, where larger crude oil discoveries are possible but the search and production costs are much higher and the risks of failure are much greater."

"It also calls for more attention to liquefied natural gas development to ameliorate the trade gap. Some APPEA members urge serious attention be given to converting natural gas from abundant reserves to transport fuels. But analysts argue that in a world thirsty fro LNG, where export gas prices will rise alongside crude oil prices, gas-t-liquids is not a particularly attractive option for investors. Converting coal to liquid fuel is another possibility. South Africa and Qatar-run CTL operations and Monash Energy, a joint venture of Anglo-American and Shell Gas and Power, has been investigating developing a plant in the Latrobe Valley. Last year's slump in oil prices and the economic crisis have left the project parked in 'an extended concept phase'.

"In Queensland, QER is pursuing a new industry based on the State's substantial oil shale resources. Chief executive officer Pearce Bowman says a commercial-scale shale-to-liquids industry could deliver 73 million barrels of oil a year by 2030 and cut the annual import bill by more than \$12bn at today's prices. The capital outlay would be about \$20bn over a decade. LincEnergy has launched a demonstration plant near Chinchilla, Queensland, using underground gasification to turn coal into liquid fuel, and in Western Australia Wesfarmers is in a joint venture to develop a coal-to-liquids project near Esperance. A \$3bn development to convert coal to synfuel also has been mooted for Wintinna in South Australia. Ferguson says technologies able to produce alternative supplies of diesel and jet fuel have the potential to make Australia self-sufficient again in transport supplies, but there is a catch – the success of synfuels is 'absolutely linked' to resolving the commercial development of capturing and burying carbon dioxide."

Hon. Martin Ferguson MHR, Min. Resources & Energy Article : Weekend Australian (Page 2), 12 Dec 2009

In short – The Nuclear / Renewable Debate : "With respect to (Greens WA Senator) Scott Ludlam's argument about the location of a nuclear power station (Letters, 9/12), site selection is not just a problem for nuclear power. Suppose, for example, we want wind power to replace one quarter of Western Australia's generating capacity of 5500MW. Verve's wind turbines at Albany produce 8.8MW from 92 hectares of land. Presumably that site is one of the best available. If the typical site is half as good as the best, these windmills will need 29,000 ha of coastal land, not too far from centres of population and industry. I invite the advocates of wind power to show us their list of proposed sites."

Robert Blackham, Leeming Resident & Taxpayer Extract : West Australian (Page 50), 12 Dec 2009

Following up – refer The Weekend Australian dated 05 Dec 2009 (Resources Page 6), and an article titled **Setback for NZ windfarm project** in respect to the New Zealand Environment Court's decision to refuse a – \$NZ2bn, 630MW, 92km², 176 turbines – proposal by Meridian Energy for Central Otago's Lammermoor Range 75km from Dunedin (described as 100% pure vandalism if you know the campaign).

MacTiernan queries Labor's U-mining ban : "High-profile Labor frontbencher Alannah MacTiernan (*MLA, Armadale*) has broken with the State ALP's total ban on uranium mining, calling for the issue to be put back on the table in response to climate change concerns. Ms MacTiernan surprised an ALP State executive meeting two weeks ago when she argued that countries such as India and China had to consider nuclear power as an alternative to coal on the way to a renewable energy future. The WA Labor Party supports a complete ban on uranium mining but Labor leader Eric Ripper has been forced to gag some of his MPs, including pro-uranium mining shadow treasurer Ben Wyatt (*MLA, Victoria Park*), from discussing the issue."

"Ms MacTiernan told *The West Australian* on Christmas Eve that the world had to consider greater use of nuclear power in light of evidence that climate change is gathering pace. My assessment is that (with) climate change now, and I certainly don't think that nuclear energy should be the preferred option but as a transition it may be the only way we can reduce our carbon footprint rapidly enough, Ms MacTiernan said. There is a question that we have to be prepared to contemplate, that this may be a regrettable but a necessary step to avoid an even greater danger to our communities. It's a question of making an assessment of what actually poses the greater threat at this particular point in time."

"Ms MacTiernan said the argument about uranium mining was not as clear cut as it used to be. I'm not talking about nuclear for Australia, it's a question of whether we should be mining and exporting uranium to places like China, she said. Ms MacTiernan is contesting the seat of Canning for the ALP at the next Federal election and, unlike the WA Labor Party, the Rudd Government supports uranium mining. Ms MacTiernan's comments have created another headache for Mr Ripper after he was forced to mediate in a bitter dispute between senior frontbenchers Margaret Quirk (*MLA, Girrawheen*) and John Quigley (*MLA, Mindarie*) over the party's handling of the Barnett Government's stop and search powers. He then copped a blast from the Greens' Adele Carles (*MLA, Fremantle*) on Wednesday over his attitude to her in State Parliament."

"Ms Carles told *The West Australian* that Mr Ripper (*MLA, Belmont*) had picked on her and said Labor held a grudge against her because she won the blue-ribbon seat of Fremantle. Ms MacTiernan's call for a rethink on uranium mining also comes as shadow mines minister Jon Ford (*MLC, Mining and Pastoral*) and shadow environment minister Sally Talbot (*MLC, South-West*) – who are partners and share an apartment in Perth – are preparing to fly to France, Sweden and Britain on a nuclear fact-finding mission for Mr Ripper. After being contacted by *The West Australian*, the pair said they would fund the trip out of their own pocket and not claim it on the taxpayer. Mr Ripper pointedly said this week that only the ALP State conference could consider the policy. The WA Labor Party policy on the export and mining of uranium is clear, he said."

Hon. Alannah MacTiernan MLA, Shadow Minister Climate Change Article : West Australian (Page 1), 26 Dec 2009

Emirates in \$20bn South Korean Nuclear deal : "The United Arab Emirates (*UAE*) has signed a US\$20 billion (A\$22.5 billion) deal with a South Korean consortium to build nuclear reactors as the oil-rich Persian Gulf nation races to meet its booming energy needs. Korea Electric Power Corporation's bid beat rival offers from more seasoned atomic power producers in France, Japan and the United States. The deal marks the first time South Korea will export a nuclear power plant. Emirates Nuclear Energy Corporation valued the deal for four 1400-megawatt reactors at about US\$20 billion – considerably less than some earlier estimates suggested."

"We look forward to a long and productive relationship as we work towards powering the future growth of the UAE with lowcarbon, peaceful nuclear energy, ENEC chief executive Mohamed al-Hammadi said. The Korean consortium includes Samsung, Hyundai and Doosan Heavy Industries. Japan's Toshiba Corporation and its Westinghouse subsidiary will also play a role. The UAE is one of the world's biggest oil exporters but must import natural gas to run many power plants. It says its energy needs are expected to almost double by 2020. The Emirates has said it plans to begin construction on its nuclear plants in 2012. ENEC said the first reactor should begin providing electricity in 2017, with the remaining units coming on-line by 2020."

Mohamed al-Hammadi, CEO, Emirates Nuclear Energy Corp, UAE Article : West Australian (Page 38), 29 Dec 2009

Venezuelans fuming over power cuts : "In Caracas, power cuts would take place on alternate days, in specific sectors at certain times, the head of the State-run Electricidad de Caracus said. The rest of the country also faced power cuts that could last until the start of the rainy season in May. Venezuela is flush with oil, the country's chief export, and natural gas, but meets domestic energy demand with electricity generated by its massive Guri Dam hydroelectric complex (3^{rd} largest facility in the world – 10 turbines – 10,200MW – 87 billion kWh/a – generates 73% of national electricity demand from renewable resources) on the Orinoco River. With drought affecting big swathes of Latin America, water levels at the Guri dam (162m high) have dropped to a critical 9m below normal and are still falling at a rate of 10cm daily, experts said. The Government blames the drought on the cyclical El Nino climate pattern. Left-wing president Hugo Chavez fielded public complaints over the new measures. It hasn't rained. Neither Chavez nor the Government is to blame. It just hasn't rained, he said."

President Hugo Chavez, Bolivarian Republic of Venezuela Extract : West Australian (Page 33), 15 Jan 2010

Electric car stations : "Perth gets its first charging stations for electric vehicles in 2010. Ten will be installed as part of a University of Western Australia and Murdoch University project which will be used by about 50 electric vehicles from the Australian Electric Vehicle Association's Perth branch. They are part of the trial evaluating data on vehicle-charging habits to forecast future power grid requirements."

And from the website : "We want to know now what is going to happen in 10-15 years once you have a larger percentage of cars switching to electric, which many people believe will happen. If you suddenly have up to 50% of cars running on electricity, that's going to have huge implications for the city. The information will then be used to project whether Perth's electricity grid could handle the growing demand as electric vehicles become more widely available. Experts estimate that by 2020, 10-20% of cars on WA roads could be powered by electricity, with numbers set to shoot as high as 90% in a longer time frame. The project will run from 2010 to 2012, and project partners are UWA School of Electrical, Electronic and Computer Engineering, UWA Business School, Murdoch University CREST, AEVA, WA Dept of Transport, Gull Petroleum and CO2Smart."

Professor Thomas Braunl, University WA (Robotics) Article : Sunday Times Magazine (Page 21), 17 Jan 2010

Italy plans 10 N-plants : "Italy will announce sites for new nuclear plants next year (2011), an official said on Wednesday. Under-Secretary for Economic Development Stefano Saglia said the sites in the controversial program would be chosen in consultation with regional governments. The Berlusconi Government wants to build between eight and ten plants, with the first reactors set to be operational by 2018-19."

Stefano Saglia, Italian Under-Secretary for Economic Development Article : West Australian (Page 42), 22 Jan 2010

Build 35 nuclear plants to meet ETS : "Australia will have to build about 35 nuclear power plants or resort to creative accounting to meet unrealistic targets set by Labor's emissions trading scheme, a US study found. The analysis by Roger Pielke, professor of environmental studies at the University of Colorado, warns it is impossible to predict how fast economies can 'decarbonise'. He urges governments to shift from unrealistic targets and timetables to measurable goals such as developing clean (*coal & gas*) technologies. Professor Pielke says Australia would have to become as carbon efficient by 2016 as Japan was in 2006 to meet the 25% targets. It would have to reach this aim by 2018 for a 15% reduction target or by 2020 to achieve a 5% cut. To think Australia could achieve Japanese levels of decarbonisation within the next decade strains credulity, the paper says."

"Professor Pielke has examined climate change legislation in several nations, including Japan and Great Britain. His critique of the *(proposed)* Australian legislation uses the same methodology as his analysis of Britain's Climate Act, published in Environmental Research Letters last year. He said Australia's energy use was dominated by petroleum (32%), natural gas (18%) and coal (44%). To cut carbon dioxide emissions over the next decade as implied by the 2020 targets would require 'nearly all Australian coal consumption be replaced by a zero-carbon alternative' such as nuclear or renewable. The analyses show the effort needed to decarbonise Australia and meet the ETS targets was 'Herculean'. This did not mean it could not be done, but impossible targets risked provoking public cynicism. Climate Change Minister Penny Wong said yesterday the paper ignored the important role of international permits in Australia's low-cost transition to low pollution."

Professor Roger Pielke, University of Colorado, USA Article : West Australian (Page 19), 13 Feb 2010

Following up – Senator the Hon. Penny Wong – Minister for Climate Change & Water; Member for South Australia, has declined on no less than three occasions to be briefed on the Rainbow 2000° Project (including our discussion paper Peak Oil Gas & Nuclear Power) – notwithstanding several direct requests from the Hon. Greg Hunt MP – Shadow Minister for the Environment to address our proposition.

Obama turns to nuclear energy : "US President Barack Obama has announced US\$8.3 billion (A\$9.2 billion) in loan guarantees to build a new nuclear power plant in Georgia as part of a push by the White House for new jobs from clean-energy technology. Mr Obama said the move was the beginning of his administration's efforts to increase the use of nuclear power. My budget proposes tripling the loan guarantees we provide to help finance safe, clean nuclear facilities and we'll continue to provide financing for clean-energy projects here in Maryland and across America, Mr Obama told a gathering of unionists in Maryland. Mr Obama called for an end to the clash between environmental concerns and the economy, saying the US needed new energy jobs such as the ones created by a new nuclear plant. We cannot allow those differences to prevent us from making progress, he said. Other nations were racing ahead with nuclear power, generating jobs and expertise outside the US, he said."

"White House officials said the Federal loan guarantees would help Southern Co. build two new reactors at an existing plant in Burke County, near the city of Augusta (*the State of Georgia's capital city*). When finished, the reactors would be able to power 550,000 homes, providing electricity to a total of 1.4 million people. In his speech, Mr Obama cast his plan to build a new generation of nuclear power plants as part of a series of difficult choices during a transition to cleaner energy that would also include development of biofuels and so-called clean coal technology. He said the Federal loan guarantees would help break ground on 'the first new nuclear power plant in our country in three decades'. By comparison, there are now 56 nuclear reactors under construction around the world, 21 of them in China."

President Barack Obama, United States of America Extract : West Australian (Page 36), 18 Feb 2010

Following up - also from The West Australian (Page 21) of 18 Feb 2010 - Maturity needed in nuclear debate (Murray, WAN).

Air NZ to miss target on biofuels: "Air New Zealand plans to convert its domestic ground handling equipment to use either electricity or biodiesel, but says it may take longer than first thought to reach its goal of replacing 10% of the jet fuel it uses for its aircraft with biofuel. The airline took part in a biofuel test flight at the end of 2008 and spent much of last year focussing on how to introduce the greener energy option to its operations. The carbon penalty involved in moving fuel long distances meant the carrier spent much of last year looking at New Zealand options for feedstocks before settling on cellulose and algae as the two main contenders. Air NZ chief executive Rob Fyfe said the algae developments looked promising in the longer term, with potential rollout in five to 10 years. A lot of people will tell you that they can generate a very high quality biofuel out of algae, and they can, but it's the scalability and commercialisation of the process that presents major challenges, he said."

"Mr Fyfe said cellulose feedstock basically involved wood pulp and there were a number of initiatives under way around the world that looked feasible in the next one to two years. Air NZ expected to use biofuel initially on its domestic network, where a 70-80% market share justified installing the necessary infrastructure, Mr Fyfe said. Our goal originally was that we were hopeful we could get to that stage by 2013. It's clear now that the development of the feedstock is not going to move at that speed. So it will be the development of the feedstock that will be the constraining factor. Until we've chosen the feedstock and we've determined what the scalability of that feedstock is, then it's hard to lock down a specific target. But I'm still looking at that 3-5 year horizon. You've got to keep this stuff in the near term. The use of biofuels on international routes would depend on the dominant players in various areas but was likely to involve a 10-year, rather than a 5-year, horizon, Mr Fyfe said."

Rob Fyfe, Chief Executive Officer, Air New Zealand Article : The Australian (Page 32), 19 Feb 2010

Restart N-debate : "Worley Parsons chief executive John Grill yesterday called for fresh debate on nuclear energy, saying the discussions should not be dominated by the 'uninformed'. Mr Grill told over 300 people at an Engineers Australia breakfast that bipartisan support for a more candid discussion on the role of nuclear energy in domestic (*presumably Australian urban*) supply was needed. And he accused Australia of lagging behind other nations in its knowledge on the power source. Two-thirds of the world's population is receiving energy from grids with nuclear power connected to them, Mr Grill said. Nuclear power is part of the global energy solution. This is poorly understood in many countries – including Australia."

"But he stopped short of pushing nuclear as an essential renewable source, listing wind, solar and carbon storage capture technologies as just as valid in reducing the population's dependence on oil. As we move to a future where energy sustainability and security has a greater influence on decision making, it appears inevitable that we turn to clean forms of electricity, Mr Grill said. Nuclear should be there as one of the contenders and it shouldn't be ruled out by people having uninformed opinions, relating to things that might have happened 30 to 40 years ago."

"Generating energy using nuclear technology is banned in Australia (except for research), but the country is an exporter of uranium. Uranium hopefuls have urged the Rudd Government to consider nuclear energy as Australia looks to dramatically reduce the country's carbon footprint. Mr Grill dismissed concerns a second resources boom would create a new skills shortage, instead talking up WA's economic strength. It is easy to forget in Western Australia that there aren't that many places around the world where these sorts of projects are being contemplated, he said."

John Grill, Chief Executive Officer, Worley Parsons Article : West Australian (Page 48), 26 Feb 2010

Breath of life for wind power : "The Rudd Government's wind energy back-flip will unlock billions of dollars worth of investment in new windfarms, the wind power industry says. Wind energy companies Pacific Hydro and AGL nominated more than \$6 billion worth of stalled projects in five states that could be revived after the federal government's decision to rejig its renewable energy scheme. Proposed windfarms across the country had been put on hold amid an investment strike caused by the commonwealth's controversial inclusion of solar panels in the scheme. The price of the certificates issued under the scheme has since crashed from \$60 per *Mega-Watt-hour* (MWh) to about \$35 because the heavily subsidised solar panels and heaters have distorted the market. A lobbying campaign from the wind industry, which hit its peak when AGL boss Michael Fraser labelled the scheme a 'fraud', finally caused the Rudd government to buckle last week."

"Climate Change Minister Penny Wong announced that domestic solar panels and water heaters would be stripped out of the large-scale renewable market, a move the wind industry says will drive up the price of renewable certificates and hence the viability of projects. The certificates, along with the power, are on-sold by producers to retailers, who are mandated to buy a certain proportion of renewable energy. Pacific Hydro's Australian general manager, Lane Crockett, said the industry had been at the crossroads, but now had a future, as long as the changes passed through parliament. The investment will flow, the jobs will be kept and created and we will end up with a better energy system as a result of broader energy security, he said. We will be assessing all of our (stalled) projects. Mr Crockett said Pacific Hydro had \$1.7bn, or 560MW, of projects at an advanced stage and another \$1.2bn, or 400MW, in the pipeline."

Lane Crockett, General Manager Australia, Pacific Hydro Extract : The Australian (Page 23), 01 Mar 2010

Breath of life for wind power : "AGL (Australian Gas & Light) – which has an estimated 1365MW, or \$3bn, worth of projects under renewed consideration – also welcomed the changes. We will obviously need to see the detail, but at face value it looks like a proposal that will see us make those investment decisions we have been holding back on, chief executive Michael Fraser said. AGL also has several billion dollars worth of wind projects in the pipeline, including the Macarthur windfarm in western Victoria, expected to be Australia's largest if it goes ahead. The \$800 million project, with 365MW capacity, is one of four that AGL has in advanced stages with at least another three further away from development, but under renewed consideration."

Michael Fraser, Chief Executive Officer, AGL Energy Ltd Extract : The Australian (Page 23), 01 Mar 2010

Breath of life for wind power : "The *Rudd* governments about face came after the chief executive of Vestas – the largest producer of wind turbines in the world – joined the lobbying efforts, meeting Penny Wong in Canberra last week. Vestas's Ditlev Engel, speaking after the meeting, said Australia had enormous wind energy potential and said not utilising it was 'like going to Saudi Arabia and not drilling for oil'. Some of the best wind resources in the world are in Australia, Mr Engel said. It's got to be harvested, it's commonsense. We understand you have a lot of coal, but look at what you have in terms of wind resources and it's an energy resource that doesn't consume water at all."

Ditlev Engel, Chief Executive Officer, Vestas Wind Systems (Denmark) Extract : The Australian (Page 23), 01 Mar 2010

Wind projects back under consideration (as a function of government policy and lobbying) :

<u>Pacific Hydro</u>		
Portland, Vic -	Cape Nelson, Care Sir William Grant	54MW
Nilgen, WA -	Lancelin (inland), 150km north of Perth	50MW
Crowlands, Vic -	Ararat, Western Victoria	126MW
Yaloak South, Vic -	Ballan, near Ballarat	30MW
Carmody's Hill, SA -	200km north of Adelaide	140MW
Roaring 40s		
Musselroe, Tas -	Gladstone in NE Tasmania	168MW
<u>AGL</u>		
Macarthur, Vic -	Hamilton, Western Victoria	365MW
Barn Hill, SA -	Hallett, 180km north of Adelaide	140MW
Hallett Three, SA -	Hallett, 180km north of Adelaide	80MW
Crows Nest, Qld -	Toowoomba	150MW
World End, SA -	Burra, 150km north of Adelaide	180MW
Ben Lomond, NSW -	Armidale, New England	150MW
Coopers Gap, Qld -	Kingaroy	300MW

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We must invest in nuclear : "Australia needed to invest now in training nuclear engineers, select sites for nuclear power stations and set up regulatory structures, a leading energy academic told a uranium conference in Adelaide yesterday. Tony Owen told the Paydirt 2010 Conference the enabling investment would allow Australia to have a serious debate on a nuclear industry. He said nuclear power was likely to be the nation's best option after 2030. Professor Owen, who heads the Australian energy campus at University College, London, said new power generation plants over the next 20 years would be fired by gas and renewables, the latter driven by government support and eventually a price on carbon. But after that the energy debate will switch focus to the question of nuclear versus carbon capture and storage (CCS), neither of which had gained public acceptance at this point."

"There is a high expectation that by 2030 CCS will be leading technology in reducing domestic emissions of carbon, Professor Owen said. But we have to keep our options open between CCS and nuclear, because public reaction to CCS might be adverse in years to come. CCS is likely to generate significant public concern around safety issues. Professor Owen said this would centre on the political problems associated with piping highly toxic carbon emissions from coal-generated power stations in New South Wales and Queensland to secure storage sites interstate. There are no suitable storage sites in NSW and not many in Queensland, so you're going to be piping this stuff long distance, Professor Owen said. The communities along those pipeline routes won't be happy about it, not to mention the native title issues that could arise."

"Professor Owen said the federal government was putting all its eggs in one basket by funding initiatives such as the Global Carbon Collection and Storage Institute and not making similar strategic investments in the nuclear industry. From 1961-86 there was a school of nuclear engineering at UNSW, but nothing since, Professor Owen said. Our youngest graduates from there are now in their 40s. Many of the oldest are now retired, or worse. That's not a good situation to be in when establishing a nuclear power industry. Professor Owen noted that by 2030 the addition of CCS technologies would raise the cost of coal-generated power to near the cost of nuclear, both in terms of the capital cost of new plant and in construction timelines. Alliance Resources chief executive Steve Johnston also told Paydirt he expected a substantial increase in forecast production levels at the Four Mile uranium ore body in South Australia."

Professor Tony Owen, University College, London, UK Article : The Australian (Page 20), 02 Mar 2010

Nuclear debate won't go away : "Nuclear power is the issue that won't go away in Australia's climate change policy debate – and recent public opinion polls suggest that as many as one in two of the voters would support the federal government considering its use in pursuing a goal of cutting 140 million tonnes a year out of national greenhouse gas emissions by 2020. Prime Minister Kevin Rudd, however, does not see nuclear energy as part of Australia's contribution to dealing with global warming. He has a mantra that has been produced a number of times in recent months in media interviews : This is an energy-rich country. We have multiple sources of energy. We are working on clean coal initiatives, solar PV initiatives, large scale solar initiatives and renewable energy initiatives. The challenges are to make sure we use these resources as effectively, as environmentally sensitively and as cost effectively as possible. Some countries have no alternative but to use nuclear power. This is not the case in Australia."

"Former New South Wales Premier Bob Carr, however, says there is a need for a more clear-headed debate on the nuclear question in Australia. Those who came of age in the 1980s have closed their minds on the issue, he told a radio program late last year, but younger people are more open to it because they can see the damage that carbon dioxide is doing. It's coal that's the poison and there's been impressive progress in the handling of nuclear waste and reactor safety. The issue of building nuclear power stations is particularly relevant to NSW and Queensland. Together, including the ACT, they make the eastern seaboard the largest electricity market that serves all of Australia except Western Australia and the Northern Territory. The Energy Supply Association projects that the demand in NSW and Queensland will rise to more than 150,000 GWh (Gigawatt Hours) annually by 2018 and industry analysts have forecast that the two states and the ACT will have demand exceeding 250,000 GWh a year by 2030, reflecting population increases and the rise in commercial activity and services needed by larger cities."

"Total national annual demand today is 252,000 GWh and is projected by the Australian Bureau for Agricultural & Resource Economics to exceed 400,000 GWh in 2030. The dominant fuel for power generation by far in NSW and Queensland is black coal, with 52 million tonnes being burned each year to make electricity. Replacing the coal plants and meeting the surge in demand in the region over the next 20 years from renewable energy and gas – while a prospect that excites wind farmers, would-be geothermal generators and solar thermal developers as well as gas suppliers – is perceived in some quarters of the supply sector and politics as being too large an ask. Nuclear power is put forward as the obvious bridge to a heavily decarbonised future in Australia and, in particular, in the black coal states. The Australian Nuclear Science & Technology Organisation (ANSTO) told the Senate fuel and energy select committee last year that, with national power demand rising by 2% a year and 93% of electricity currently coming from fossil fuels, the problem was so serious that all technologies should be under active consideration. Australia's energy security from a trade and economic point of view will be severely compromised if nuclear energy is not actively considered, ANSTO argued."

The Hon. Bob Carr, Ex-Premier of New South Wales Article : The Australian (Climate Change Page 3), 04 Mar 2010

Aussie crude oil output dribbles to 40-yr low : "Australian production of crude oil has hit its lowest level in 40 years as oil fields start maturing, according to a leading industry report card. Energy economics group, Energy Quest, said oil production throughout Australia fell 17% in 2009 from 120.6 million barrels to 99.5 million barrels. Graeme Bethune, chief executive of Energy Quest, said while levels had not been as low since 1970, production should by higher in 2010 because of new projects starting. The recent start-up of BHP Billiton's Pyrenees oilfield and Apache's Van Gogh field – both situated off Western Australia's North-West coast – will provide a boost in the short-term, however the long-term trend is for production to keep falling, he said. Last year's lucrative liquefied natural gas export deals from the North West Shelf propelled total gas production

in Australia up 10.1% during 2009 to a record 1897 petajoules. Australian LNG exports grew strongly in 2009, even though demand in Asia, Australia's major market, was down 7%, Dr Bethune said."

"Australia gained market share at the expense of suppliers from the Atlantic Basin such as Algeria, Egypt and Nigeria. Australian petroleum production also hit a record 488 million barrels of oil equivalent in 2009, up 3.4% on the previous year. The multi billion dollar deals that beat record after record in 2009 will help increase gas production in coming years. Energy Quest says 18.8 million tonnes a year worth of Australian LNG deals were signed in 2009 to be delivered from new projects being built or planned locally. That equates to almost as much as Australia's total LNG production capacity at present. Domestic gas production hit a record 1028 petajoules in 2009, up 1.9%, with WA production responsible for most of that rise. Gas production on Australia's east coast fell 1.4% from 2008 with lower production from the Gippsland and Cooper basins. Coal seam gas production grew 34% to 178 petajoules and now supplies 27.3% of total east coast gas production."

"The two major issues in the oil and gas sector a year ago were the impact of the global recession and climate change, Dr Bethune said. As it turned out, it is not even clear whether Australia had a recession and upstream gas investment continued at record rates. Twelve months on, policy directions on climate change are more uncertain, Dr Bethune said. What is clear though is that the role of gas in reducing *greenhouse* emissions is being marginalised by the desire to encourage renewables. The Federal Government forecasts that *by 2030*, imports of liquid fuels will equate to 75% of domestic consumption compared with 40% now. This has important economic and energy security implications, Dr Bethune said. While there has been much focus on the recession and climate change, there is still relatively little interest in the continuing fall in Australian oil production. *Rather than recession, the major issues that are emerging are resource shortages, cost increases and industrial action. There is clearly strong demand for Australian LNG – the challenge is meeting the demand on time and on budget."*

Mr Graeme Bethune, Chief Executive Officer, Energy Quest e-News : WA Business News, 05 Mar 2010

Mr Graeme Bethune, Chief Executive Officer, Energy Quest Article : West Australian (Page 69), 06 Mar 2010

Nod for coal power stations : "The State's environmental watchdog has given conditional approval to two more coal-fired power stations in WA – even though it said it was unlikely carbon capture technology would be commercially viable in the near future. The Environmental Protection Authority yesterday gave a tentative go-ahead to troubled coal giant Griffin's plans for its Bluewaters III and IV power stations. Griffin has said it intended its third and fourth 229MW power stations to be 'carbon capture ready' rather than pay for carbon (credits) offsets. But the EPA was critical of Griffin's plans to be carbon capture ready. The EPA has concluded that the proponent has not provided sufficient information to enable competent authorities to judge the proposal to be CCS ready, it said in its report yesterday. The EPA has also expressed doubt about when CCS technology will become available. CCS technology is now technically feasible but the full chain of CCS – capture, transport and storage of carbon dioxide – has yet to be demonstrated for the full capacity of a coal-fired power station in Australia, it said."

Dr. Paul Vogel, Chairman, Environmental Protection Authority WA Article : West Australian (Page 17), 09 Mar 2010

Central Australia to get nuclear waste dump : "The Northern territory is set to house a national radioactive waste dump, after the federal coalition resolved to support government legislation. Opposition energy spokesman Nick Minchin (Senator South Australia) today said the coalition had long recognised the need for a central repository, but when in government, had its efforts frustrated by state Labor governments. It is much more sensible for waste, resulting from medical and research procedures, to be stored in a secure, specifically designated facility rather than in an ad hoc fashion in various locations across the country, as is currently the case. Labor kept an election promise by repealing the coalition's Commonwealth Radioactive Waste Management Act 2005. It is now considering Muckaty Station, 120 kilometres north of Tennant Creek, in the Northern Territory, as the site for the facility. The former coalition government also considered the site after it was volunteered by its traditional owners."

Senator the Hon. Nick Minchin SA, Shadow Minister for Energy e-News : WA Business News, 09 Mar 2010

Hansen keen on next-generation nuclear power : "Renewable energy won't save the planet so it's time to go nuclear, according to one of the world's most high-profile climate scientists. We should undertake urgent focused research and development programs in next generation nuclear power, said atmospheric physicist James Hansen, head of NASA's Goddard Institute for Space Studies and adjunct professor at Columbia University's Earth Institute in New York. While renewable energies such as solar and wind were gaining in economic competition with coal-fired plants, Professor Hansen said they wouldn't be able to provide baseload power for years to come. Even in Germany, which pushed renewables heavily, they generated only 7% of the nation's power. It's just too expensive, said Professor Hansen, an expert in climate modelling, planetary atmospheres and the Earth's climate. Right now, fossil fuels are the cheapest form of energy, except for operating nuclear plants, he said on the first day of a lecture tour in Australia."

"Current nuclear plants are the second generation. The third generation is ready to build now, he explained, pointing to conventional light water reactors, which generated heat by the fission of uranium fuel. Two fourth generation technologies are on the drawing board. Fast reactors use liquid sodium metal as a coolant for the fission metallic solid fuel, including existing nuclear waste and weapons-grade uranium and plutonium. Thorium reactors use fluoride salt as the medium for the energy-producing nuclear reaction, so they don't require production of fuel rods. Professor Hansen admitted he was a late convert to advanced nuclear power. But fourth generation solves two of the problems that made me sceptical, he said. One is nuclear waste. It uses over 99% of the fuels, while second and third generations use less than 1%, leaving a waste pile with a half-life of 100,000 years. Fourth generation burns almost all the fuel and waste has a half-life of decades. No commercial scale fourth-generation plants exist, but seven nations, including Japan, France and China, have expertise or research and development projects. Which will get there first? That's an open question, according to Professor Hansen."

James Hansen, Director, Goddard Institute of Space Studies, NASA Extract : The Australian (Page 23), 10 Mar 2010

15.12.2011 Rainbow 2000[©] Project – Peak Oil, Gas & Nuclear Power Page 56 of 85

EPA approves stalled Coolimba plant : "The state's Environmental Protection Authority has recommended conditional approval of its third coal-fired power station this week, giving a preliminary nod to Aviva Corporation's proposed 450 megawatt Coolimba power station near Eneabba. The recommended approval, which is contingent on a number of conditions being met by the proponent, follows Monday's similar approval of Griffin Energy's proposed Bluewaters 3 and Bluewaters 4 power plants at Collie. The timing of the approvals is ironic, with the prospects for all three plants looking grim in the wake of Griffin's \$1 billion collapse and Aviva's virtual shelving of Coolimba after it was passed over for a critical baseload supply contract with retailer Synergy."

"In October last year, Aviva said it would seek a buyer to take on the \$1 billion Coolimba proposal after Synergy chose to procure new supplies from state owned generation sibling Verve Energy. Aviva had been relying on a contract with Synergy to make the project bankable. In January it said it had received several expressions of interest in the venture, and would continue to advance key elements of the proposal, such as environmental assessment, while it considered these expressions of interest. Aviva's rights to the nearby Central West coal deposits also expired in November, though it has continued to work with the owner of the deposits to ensure the reserves remain available to the project. The project also envisages 350 MW of gas-fired generation capacity."

"Releasing its report on Coolimba today, the EPA said it believed the project could proceed without compromising the agency's objectives provided several key conditions were met. One of the key recommendations included amending the route of the associated infrastructure corridor so that it does not encroach on the South Eneabba Nature Reserve, in which several threatened or rare species of flora were found. It also recommended strict conditions associated with the project's claimed 'carbon capture ready' status. The EPA said it did not believe the proponents had demonstrated Coolimba's adherence to the International Energy Agency's definition of carbon-capture-ready, largely as it had not fully assessed the availability and suitability of carbon dioxide transport routes to proposed sequestration sites."

"The EPA noted the proponents had identified depleted gas reservoirs in the region able to store up to 40% of its proposed carbon emissions and estimated deep saline reservoirs could potentially contain all the plant's carbon emissions. Consequently, it recommended that the proponents report regularly to the EPA on progress toward implementing carbon capture and storage at the site. It also recommended that Coolimba be required to retrofit the plant to make it CCS ready within five years of such technology becoming commercially viable, and that the thermal efficiency of the plant be improved to meet world best standards for coal-fired generators. The EPA said while it distinctly preferred gas-fired capacity over coal, it recognised the limited short term availability of new domestic gas supplies in Western Australia, and that reliance on coal seems to be unavoidable for some period of time."

Dr Paul Vogel, Chairman, Environmental Protection Authority e-News : WA Business News, 10 Mar 2010

Only a carbon tax and nuclear power can save us : "Australia will suffer if fossil fuel use continues unabated. Climate extremes will increase. Pole-ward expansion of the subtropics will make Australia even hotter and drier, with stronger droughts and hotter fires, as the jet stream retreats southward. But when ocean temperature patterns bring rain, the warmer air will dump much more water, causing damaging floods. Storms will become more devastating as the ice sheets on Antarctica and Greenland begin to disintegrate and cool the neighbouring ocean, as I describe in [my book] *Storms of My Grandchildren.* Ice discharge from Antarctica has already doubled in the past five years. Science has shown that preservation of stable climate and the remarkable life that our planet harbours require a rapid slowdown of fossil fuel emissions. Atmospheric carbon dioxide, now almost 390 parts per million, must be brought back to 350ppm or less, That is possible, with actions that make sense for other reasons."

"But the actions require a change to business-as-usual. Change is opposed by those profiting from our fossil-fuel addiction. Change will happen only with courageous political leadership. Leaders must draw attention to the moral imperative. We cannot pretend that we do not understand the consequences for our children and grandchildren. We cannot leave them with a situation spiralling out of their control. We must set a new course. Yet what course is proposed? Hokey (*fraudulent*) cap-and-trade with offsets – aka, an emissions trading scheme. Scheme is the right word, a scheme to continue business-as-usual behind a fig leaf. The Kyoto Protocol was a cap-and-trade approach . Global emissions shot up faster than ever after its adoption. It is impossible to cap all emissions as long as fossil fuels are the cheapest energy. There is zero chance India and China will accept a cap. And why should they? Their emissions, on a per capita basis, are 10 times less than those of Australia or the United States."

"Fossil fuels are not really the cheapest energy. They are cheap because they are subsidised, because they do not pay for damage they cause to human health via air and water pollution, nor their environmental damage and horrendous consequences for posterity. An honest effective approach to energy and climate must place a steadily rising price on carbon emissions. It can only be effective if it is a simple flat fee on all carbon fuels, collected from fossil fuel companies on the first sale, at the mine, wellhead or port of entry. The fee will cause energy costs to rise – for fossil fuels, not all energies. The public will allow this fee to rise to the levels needed only if the money collected is given to the public. They will need the money to adapt their lifestyles and reduce their carbon footprint. The money – all of it – should be given as a monthly 'green cheque' and possibly in part as an income-tax reduction. Each legal adult resident would get an equal share, easily delivered electronically to bank accounts or debit cards, with half a share for children up to two children per family."

"Sure, some people may waste their green cheque on booze or babes. Such people will soon be paying more in increased energy prices than they get in their green cheque. Others will make changes to keep their added energy cost low, coming out ahead. There will be strong economic incentive for businesses to find products that help consumers reduce fossil fuel use. Every activity that uses energy will be affected. Agricultural products from nearby fields will be favoured, for example, as opposed to food flown in from half way around the world. Changes will happen as people compare the price tags. The rising price on carbon will spur energy efficiency, renewable energy, and nuclear power, all sources that produce little or no carbon dioxide. Belly-aching

howls from coal moguls must be ignored. Let them invest their money in renewable energies and nuclear power. Australia is blessed with abundant nuclear fuel as well as coal. Nuclear power plants are the ideal base-load power for Australia – their excess power in off-peak hours can be used to desalinate water. Power stations can be sited near coastlines, where cooling water is plentiful."

"But all potential energy sources must compete, with each other and with energy efficiency. If renewable energies can do the whole job economically, as some people argue, that would be great. Put a price on carbon and let all parts of the private sector compete. Fee-and-green-cheque is simple, designed to do an honest job. Emissions trading, in contrast, is designed by big banks that expect to make billions out of the carbon market. That means out of your pocket – every dollar will come via increased energy prices to the consumer, with no green cheque to soften the blow. I mentioned that cap-and-trade will never be accepted by developing countries. But why would China accept a carbon price? China does not want to become a fossil fuel addict, with the requirement of protecting a global supply line. It wants to clean up its atmosphere and water. It is investing as fast as it can in wind and solar energy and nuclear power."

"China knows that these clean energies will boom only if they put a rising price on carbon. It seemed willing to negotiate that approach in Copenhagen, but was handed a cap-and-trade edict. Results were predictable. What the world needs is a nation that will set an example, stop pandering to special interests, and do what is necessary for the people and the rest of the life on the planet. It is a moral issue. We can not turn our backs on our children and grandchildren. It is possible that Australia could provide that example, that moral leadership?"

James Hansen, Director, Goddard Institute of Space Studies, NASA Article : The Australian (Page 12), 11 Mar 2010

World cool on Rudd's clean coal funding : "Australian taxpayers are the only financial backers for Kevin Rudd's \$100 milliona-year global clean coal initiative, as world leaders have failed to match their resounding endorsement of the idea at the G8 meeting last July with a single dollar. Praised by US President Barack Obama as a significant announcement, the Global Carbon Capture and Storage Institute (GCCSI), which is charged with speeding the development and take-up of clean coal technology, has attracted more than 200 of the world's biggest economies and companies as members. But to date their only financial commitment is to guarantee \$10 in the event of the institute goes broke."

"Mr Rudd's spokeswoman said it was anticipated CCS technology would be discussed during the US President's mid-year visit to Australia. The Australian government is pleased that the GCCSI is coordinating and helping fund international work to deploy and commercialise CCS, she said. Investing in clean energy and energy efficiency remain key planks of the government's climate change policy, including our \$4.5 billion Clean Energy Initiative. Dale Seymour, the institute's senior vice-president of strategy, to *The Australian*: The fact we've got 30-odd national governments and some sub-national governments as members is a great first-up indication that they support (the institute)."

"It's not about the money in the first instance. Someone had to come out and provide the leadership and direction in the first instance and the Australian Prime Minister has done that. Mr Seymour said one of the institute's medium-term agendas was to create a value proposition sufficient that others will see value in investing in us. Their obligation to be a member was that they would promote and facilitate and actively engage in the acceleration of CCS projects and they've all agreed to do that, he said. The institute expects this year to hand out \$50m in funding in direct support for global carbon capture and storage projects around the world. Mr Seymour said the institute had received about \$500m in applications for the funding, which would be used to burst through the barriers to their implementation. It is also commissioning detailed work on how to overcome financial, commercial, policy, regulatory and legal issues to enable projects to proceed."

"Mr Seymour said that, although the timing was tight, he was confident the G8's goal of launching 20 carbon capture and storage demonstration plants by the end of this year could be met. There were a significant number of large-scale proposals around the world being assessed in Europe, the US and Canada in addition to the \$2.5bn CCS flagships initiatives in Australia. Mr Obama has announced a taskforce aimed at getting up to 10 plants up and running by 2016 and EU nations have \$6.3bn set aside in order to develop CCS and renewable energy projects."

Dale Seymour, Global Carbon Capture & Storage Institute Extract : The Australian (Page 1), 29 Mar 2010

World cool on Rudd's clean coal funding : "Opposition energy spokesman Ian Macfarlane said the failure of world governments to make a financial contribution to the institute reflected the fact that everyone from Rudd down knows there is not going to be one of these commercial plants commence for at least 20 years. At the G8 meeting in L'Aquila last year, governments had been looking for an announcement that sounded great, but everyone has done their sums and the technology was too expensive, he said. Mr Macfarlane said Mr Obama's announcement of US\$8bn (A\$8.9bn) in government guarantees for nuclear power plants in the US, announced last month, showed the President's thinking. If the Australian government were serious it would look at nuclear power for base load electricity generation."

The Hon. Ian Macfarlane MHR, Shadow Minister for Energy Extract : The Australian (Page 2), 29 Mar 2010

Demand for oil market transparency : "World energy producers and consumers pledged greater cooperation and called for transparent markets here (*Mexico*) on Wednesday to tackle oil price volatility seen as damaging to economic recovery. With regard to energy market volatility, energy markets should be as transparent as possible, said a joint declaration issued by the International Energy Forum at the end of a two-day meeting in the beach resort of Cancun. It also agreed to strengthen dialogue between leading oil producers – such as Saudi Arabia and Russia, and key consumers including the United States and China – in a bid to eliminate the risk of excessive price volatility. Oil prices surged to all-time peaks of above US\$147 a barrel in July 2008, before the severe global economic downturn saw them crashing to just US\$32. They have steadily recovered, trading in recent months mostly between \$US70 and \$US80 – a level deemed acceptable by producers and consumers."

"However the price of crude surged close to US\$84 on Wednesday, hitting the highest level since October 2008 in response to the falling dollar and weaker-than-expected US jobs data, traders said. In Cancun meanwhile, the ministerial declaration 'decided to strengthen consumer-producer dialogue ... for reducing the volatility in energy markets,' Saudi Arabia's oil minister Ali al-Nuaimi told a press conference. British junior energy minister Philip Hunt, also attending the biennial IEF – the world's biggest forum for energy ministers – said 'oil price volatility has very negative consequences for the world as a whole'. He added on Wednesday: 'We need stable and efficient energy markets. We need them both in terms of ensuring future investment and development. But we also need them in helping the globe as a whole recover from the financial problems that we've seen in the last two years. That's why I believe this declaration is so important,' said Mr Hunt."

"The Organisation of Petroleum Exporting Countries – whose member nations together pump about 40% of the world's oil – blames speculators for pushing crude futures to record highs nearly two years ago. As well as OPEC and non-OPEC producers, the IEF was attended by the International Energy Agency, a body representing consumers as the energy-monitoring arm of the OECD grouping of the world's 30 leading industrialised nations. IEA head Nobuo Tanaka told *AFP* in Cancun that while speculators played a role in creating excessive oil price volatility, major energy consumers such as China did not help matters by failing to provide transparent data on their oil stockpiles. The IEF began the process of improving inventory and energy demand data in 2001 with the launch of the Joint Oil Data Initiative (JODI), whose member organisations include OPEC, the IEA and Asia-Pacific's top economic club APEC."

"In its declaration on Wednesday, the forum pledged to improve the work done by JODI. The IEF also proposed creating its own charter that would help to improve its transparency and dialogue and ultimately its influence on the world stage. The IEF has also used this week's gathering to mull the outlook for renewable energy sources such as biofuels. As it wrapped up proceedings on Wednesday, US President Barack Obama announced plans to open some offshore waters to oil drilling. Obama said that in order to wean the United States off sources of foreign oil, the world's biggest energy consumer had to fully exploit some of its own untapped resources, even as it seeks to develop new forms of energy. The latest IEF set out to build on the last forum in Rome in 2008 and two ad hoc meetings in Jeddah and London later that year when oil prices endured their roller-coaster ride."

The Hon. Philip Hunt MP, UK Ministry of Energy e-News : WA Business News, 01 Apr 2010

Carbon capture focus diverting Australia's energy potential says expert : "The pre-occupation with carbon capture and storage (CCS) by Australia's political and climate change leaders is forestalling the nation's potential transition from fossil fuels to optimal renewable energy, according to a visiting United Kingdom academic. He has warned Australia that the world cannot wait the two centuries it took the UK to achieve the transition from wood fuel in the 1600s to a coal-based energy system in order to move to one dependent on large scale CCS – a system which does not offer the same upsides as alternatives such as renewable sources of energy, better use of carbon dioxide waste and the manufacture of chemicals direct from coal and gas. The claims were made by Professor Stefaan Simons, Professor of Chemical Engineering at University College London and Director of UCL's Centre for CO₂ Technology."

"One has to question whether carbon capture and storage from fossil-fuel fired power stations is the best way forward to achieving a low carbon economy, Professor Simons said. It is potentially a dangerous diversion, soaking up time, resources and funding that could be better and more readily applied to achieving a low carbon future. If we are to achieve the CO_2 emission reductions necessary to avert catastrophic climate change, we need to initiate the next industrial revolution – a transition from a low efficiency, high carbon energy system to one that is high efficiency, low carbon. This will require a complete replacement of the current fossil fuel energy system with electricity generated by renewable sources of energy – accompanied by massive reductions in energy demand."

"I challenge our energy policy makers and providers to reassess whether large-scale deployment of CCS makes sense and whether we should continue to use fossil fuels as our primary energy source, or use these fossil resources to produce higher value forms of energy and chemicals. We could then replace fossil-fuel electricity production with that from renewable sources, at the same time reducing the need for CCS. We also need to mature our thinking, our innovation and our chemical industry so that CO_2 becomes a valuable resource, rather than a waste product in need of disposal. Professor Simons said achieving the full transition to a reliance on electricity from renewable sources would require investment in research and development of ground breaking technologies and distribution systems and the support of industry and society, who will need to make behavioural changes."

"He said the challenge facing CO_2 capture from fossil-fuel power stations is that it has never been done before at such a scale from dirty flue gas streams and, hence, the technology is still not fit for purpose for post-combustion capture. Pre-combustion capture holds more promise, but requires advanced power plant technologies. In addition, CCS is costly in relation to energy inputs and infrastructure, there is a question mark over required pipeline safety and it is not possible to quantify the exact risks of leakage from geological storage sites. For these reasons, there is limited public support for CCS, Professor Simons said. Even leaks as low as 1% could negate the whole climate mitigation effort of CCS. More respected estimates suggest that for CCS to deliver meaningful CO₂ reduction levels by 2050, six thousand projects worldwide, each sequestering on average one million tonnes per annum of CO₂, would be required. Professor Simons said part of the solution lay in greater process and product innovation in the (petro)chemicals sector, to increase the use of renewable electricity (thereby reducing the demand from fossil fuels) and to derive new and existing chemicals from CO₂ so that CO₂ becomes a valuable feedstock rather than a waste product."

Professor Stefaan Simons, Director CO₂ Technology, University College London, UK e-News : CO₂ News, 07 Apr 2010

Creativity, new markets key to long-term future : "Australia needs to become increasingly creative, thinking outside the square and ticking new trade and research boxes if we are going to maintain our competitive advantage and standard of living by 2050.

We cannot just put all our eggs in the one basket of resource exports without a long-term strategy of value-adding. That's why this week there were two good signs for Australia's long-term future. Firstly, Boeing *(Corporation)* hosted the second Aero Environment Summit in Sydney on Wednesday. The summit brought together airlines, engine manufacturers academics and regulatory bodies to consider the next steps in the development and rollout of sustainable aviation biofuels."

"Boeing now believes that viable and environmentally sustainable biofuels van be a reality by 2015. Airbus is just as optimistic. A number of test flights have shown that jet fuel derived from algae can be burned safely, reliably and efficiently and can even be done without having to make modifications to existing jet engines. By all indications, the major aviation authorities are set to start certifying biofuels for jets this year. Queensland is leading the way on this, through the creation of an aviation biofuels consortium out of the University of Queensland.

"The consortium includes Boeing, Mackay Sugar and IOR Energy and is working with a who's who of the global aviation and energy industries : the likes of Airbus, Virgin Blue, Qantas, Air New Zealand, Honeywell, GE Engines, Pratt & Whitney, CFM, BP and Caltex, legendary US research institutions like Clemson University, Savannah River National Laboratory and Pacific Northwest National Laboratory working alongside the James Cook University at Townsville – they are all involved one way or another. The Queensland government is directly funding researchers to work on it, and US companies like Amyris and Boeing are pumping big dollars into it. This technology is well advanced. It is happening and Australia is well positioned to be a key player in an entirely new industry. It will be an industry underpinned by great research and innovation with enormous potential to commercialise the intellectual property and create jobs."

Hon. Peter Beattie, Queensland's Commissioner for the Americas Extract : The Australian (Page 26), 19 Apr 2010

It's essential to keep productivity growing : "The long-term outlook for agriculture is promising, but productivity growth is essential as the terms of trade continue to fall. These were the messages from the Australian Bureau of Agricultural & Resource Economics (ABARE) Regional Outlook Conference held in Albany last week. Every year, ABARE surveys 2500 farmers face-to-face on business performance to gauge individual, regional and State trends. The results and commodity forecasts are presented to the public at capital cities and one regional venue per State. Terry Sheales, chief economist for ABARE, said it was only by being smarter and lifting productivity that farmers would stay viable. Having confidence long-term meant WA would benefit. Russell Pritchard, from the Great Southern Development Commission, said that once the Bunbury to Albany gas pipeline was built, it would give more scope to agricultural processing for the region."

Russell Pritchard, Deputy Executive Director, GS Development Commission Extract : GS Farmer (Page 2), 04 May 2010

Iceland volcano mess good for the planet : "A halt to flights reveals a dangerous dependency. After a short respite, it seems volcanic ash is again casting uncertainty over flights into Britain and Ireland. Stranded travellers across Europe might disagree, but we might pause to say thank to the volcano that blew its stack in Iceland. When Eyjafjallajokull erupted on April 14, the diminutive but destructive Icelandic corker did us a favour. Believe it or not, all that ash swirling into the upper atmosphere was a boon to the war on global warming. About 11,000 European and international flights a day were cancelled, and grounded aircraft don't pollute. With air travel over much of Europe cut 60%, CO₂ emissions from aviation fell about 200,000 tonnes a day, according to data from the independent British research group RDC Aviation. Since the volcano was estimated to be issuing 150,000 tonnes of CO₂ daily, Europe temporarily lowered its carbon footprint by about 50,000 tonnes a day. The reduction is a mere hiccup, of course. The savings is a little more than Luxembourg's and a little less than Estonia's daily output of heat-trapping gases."

"Planes are the fastest growing source of man-made greenhouse gasses, according to a 2006 report by the European Federation for Transport and Environment. While aircraft fuel efficiency is predicted to improve by 1-2% a year, annual air traffic is predicted to rise 5% every year, pushing CO_2 emissions up. Cars cough out far more greenhouse gases than aircraft, but according to the British Aviation Environment Federation, flight emissions are growing six times as fast as car emissions. Burning jet fuel at altitude has double the damaging effect. The BAEF estimates if the growth rates in air travel continue, when added to the greater harm CO_2 does in the clouds, aviation's impacts will exceed road traffic's in under 20 years. There are not many ways, at least in the near term, that planes can become more fuel efficient or that high-octane kerosene can be replaced by more environmentally friendly fuels. For example, one alternative fuel, bio-butanol, which can be processed from sugar beet or straw or soybeans, would require farmland the size of Florida to produce just 15% of the industry's needs."

Greg Goldin, Environmental Writer & Architecture Critic Extract : West Australian (Page 21), 06 May 2010

BOC plans gas route for trucks : "German gas company BOC has unveiled a \$465 million plan for a series of fuel stops for LNG-powered trucks up the east coast (*of Australia*) from Melbourne to Brisbane. The company yesterday said it would spend \$265m on expanding its small liquefied natural gas plant at Dandenong, south-east of Melbourne, and installing eight LNG refuelling stations up the east coast. It also struck a deal with APA Group for the sale of gas over 17 years to supply the scheme. Industry sources estimated the deal was worth about \$200m. Missing from the equation, however, is a transport company willing to trial LNG-powered trucks. BOC South Pacific managing director Colin Isaac said the response from transport companies had been warm, but they were keen to see infrastructure developed before they would commit to using the new LNG highway. He said LNG would produce up to 20% less greenhouse gas emissions than diesel and would be more efficient. Prices of domestic natural gas, from which the LNG would be made, are also more stable that the international oil prices that serve as a benchmark for diesel fuel prices. The LNG highway will be sourced with LNG from the Dandenong plant (*Victoria*) and another in Chinchilla, Queensland, that was flagged last month. The Chinchilla plant is to be supplied by coal-seam gas from BG Group."

Colin Isaac, CEO, BOC South Pacific Extract : The Australian (Page 22), 07 May 2010

BOC plans gas route for trucks : "Federal Resources Minister Martin Ferguson, who attended the launch of the project, said LNG was a logical and clean alternative for the heavy transport industry. LNG is really the first alternative to diesel for the heavy transport sector, Mr Ferguson said. He also said it was one way Australia could improve its energy security, with the nation's crude oil and petrol deficit expected to grow from about \$16 billion now to \$30bn in 2015. LNG-powered trucks would fill up with LNG at the filling stations between Melbourne and Brisbane. The LNG is converted back to gas on board the truck before being used as fuel in the engine. LNG carrier trucks would take the LNG from Dandenong and Chinchilla to the filling stations. BOC has already started work on a small LNG plant in Tasmania to supply fuel to loggig trucks. The expansion of the BOC plant is expected to be finished in mid-2012. BOC is a subsidiary of Germany's Linde Group."

Hon. Martin Ferguson MHR, Minister for Resources Extract : The Australian (Page 22), 07 May 2010

Hiccups in capturing wave power : "There are so many prototypes being built or planned to capture wave energy that there seem to be as many shapes and sizes as you might find in a children's play box. But there's one fundamental choice that distinguishes the offering – should it float on the water or be installed on the sea floor? No-one has done quite enough research and testing to discover which will be the most effective, and there seems good argument for both. One thing you don't want, however, is for your floating machine to sink to the bottom, or vice-versa. The developers and financial backers of Oceanlinx's wave generation unit would have been mortified last week when its third-generation prototype, the Mk3PC, broke its moorings just off the industrial city of Port Kembla (*New South Wales*), and crashed into a nearby breakwater and sank, less than two months after the country's first grid-connected wave plant was officially launched. The company is putting on a brave face, saying that enough data had been gleaned from the unit during its short period of operations, when it had performed at and even beyond expectations, for them to move ahead with a full size model. It says the one-third scale-prototype, at 30m by 10m, and 170 tonnes, was only built to withstand 4m waves and this was easily exceeded last weekend. The fill-scale model will be built to withstand 30m waves, the company says."

"Oceanlinx is not the only wave energy developer to suffer such a misfortune. Finnevera lost its Aquaboy wave energy device in October 2007 because of a bilge pump failure. OPT, which has been chosen by the federal government to build Australia's first large-scale wave energy plant in Victoria, lost a device in 2002 – it snapped when being towed into place. Such mishaps can only be expected while new technologies are being developed, particularly in the harsh marine environment. Which is why Britain, in contrast to Australia, has gone for multiple projects, and its programs include Crown Estate's £4 billion (A\$6.9bn) investment to foster 10 different wave and tidal technologies and nursery sites at the marine energy centre in Scotland, and a new wave hub in Cornwall. Two new-generation technologies have been unveiled in the past week, including a 230m-long 1500-tonne 'sea snake' developed by Pelamis and energy firm E.ON. The extraordinary machine, which lies semi-submerged, is to be towed from London to Scotland next month. Just imagine 300 of those lying off the coast in a single array. The other model was Aquamarine's 'sea oyster' – a 26m*16m device that is attached to the ocean floor and has a large hinged flap that acts like a pump driven by ocean energy."

"Britain's fascination with offshore power can be partly explained by a report released last week that says the country has offshore energy resources, including wave, tidal, offshore wind and floating wind, equivalent to its North Sea oil and gas reserves. The report, prepared by Boston Consulting and backed by the Offshore Valuation Group, a coalition of industrial and government organisations, paints three different scenarios – one, where enough (*offshore resource*) is developed to satisfy one half of Britain's energy needs – a second, where it becomes a net electricity exporter via a European super grid – and the third, where it becomes a net energy producer. Wave and tidal energy sources would contribute a small but critical amount of this energy of up to 45 gigawatts – comparable to Australia's total current energy capacity – with most coming from floating offshore wind turbines. The UK is now most of the way through its first great offshore energy asset, our stock of hydrocarbon reserves, the report says. The central finding of this report is that our second offshore asset, of renewable energy, could be just as valuable. Britain's extensive offshore experience could now unlock an energy flow that will never run out."

"The dream of Adelaide-based Windesal to build a \$1bn network of wind-powered desalination plants through South Australia has moved a step closer after German industrial giant Siemens signed a memorandum of understanding with the company. Windesal and Siemens believe the technology has the potential to effectively drought-proof the State, using lower costs and less energy than most large-scale desalination plants. The MOU calls for the establishment of a water technology hub in Port Pirie that could emerge as a showcase for global water technologies. Siemens sees water technology as a major business opportunity in Australia, and included a \$2.3bn spending proposal as part of its *'Picture the Future'* blueprint for Australian water and energy supplies for 2030."

Giles Parkinson, Greenchip, The Australian Article : The Australian (Page 26), 24 May 2010

Oil spill fuels clean energy vow : "US President Barack Obama has tapped into public outrage over the Gulf of Mexico oil spill to push the case for imposing a price on carbon pollution in a bid to hasten the US economy's transition to clean energy. Mr Obama pledged to fight for votes in Congress to secure the passage of a 'comprehensive energy and climate Bill', though its exact shape remains subject to wrangling between Democrats and Republicans. As the Gulf crisis entered its 44th day yesterday, Mr Obama acknowledged that fossil fuels could not be phased out overnight, but said it was folly to ignore the inherent risks of drilling four miles (6¹/₂ km) beneath the surface of the Earth in the hunt for oil (*this could mean both marine and terrestrial*). While offshore oil production was part of the energy mix, it could be used only as a short-term solution during the transition to clean energy. The time has come to aggressively accelerate that transition, he said in Pittsburgh in a speech ostensibly to talk up his administration's economic credentials."

"The time has come, once and for all, for this nation to fully embrace a clean energy future. Mr Obama mapped out as a solution more energy-efficient homes, businesses and vehicles, greater reliance on natural gas and nuclear power, and the elimination of

tax breaks for dirty energy sources. But the only way the transition to clean energy will ultimately succeed is if the private sector is fully invested in the future – if capital comes off the sidelines and the ingenuity of our entrepreneurs is unleashed, he said. And the only way to do that is by finally putting a price on carbon pollution. The House of Representatives passed a clean energy Bill last year that included a 'cap and trade' plan to reduce harmful emissions. Mr Obama insisted he would find votes in the coming months, but with mid-term elections imminent, Republicans are certain to play hard-ball on the legislation's contents."

President Barack Obama, United States of America Extract : West Australian (Page 34), 04 Jun 2010

Deepwater drilling ban is unnecessary : "US oil industry executives have sharply criticised President Barack Obama's sixmonth ban on deepwater drilling, saying the world did not have enough other sources of oil to eliminate using deep-sea rigs. The massive oil slick in the Gulf of Mexico and the moratorium imposed by Mr Obama dominated discussions at the World National Oil Companies Congress in London yesterday, and a BP executive standing in for embattled boss Tony Hayward was heckled by protestors. Transocean president and chief Steven Newman, owner of the destroyed Deepwater Horizon rig that has spewed millions of litres of oil into the Gulf, said Mr Obama's ban, which is being reviewed by a US federal judge, was unnecessary. There are things the administration could implement today that would allow the industry to go back to work tomorrow without an arbitrary six-month time limit, Mr Newman said. Chevron executive jay Pryor said the US government's move would constrain supplies fro world energy. It would also be a step back for energy security, Mr Pryor, global vice-president for business development at the US company said. BP chief-of-staff Steve Westwell, who was heckled during a speech in which he was standing in for Mr Hayward, said regulators around the world will obviously want to know what happened to cause the blownout well in the Gulf and change their procedures accordingly. But he said deepwater drilling – an expensive, risky and largely unchartered process – was needed as supplies of land and shallow water oil diminished."

Steve Westwell, Chief-of-Staff, BP Article : West Australian (Page 50), 23 Jun 2010

Crunch time looms for energy-hungry Perth: "If Perth is to move into the future with confidence, the city must become much more resilient so it can deal with the threats posed by dwindling oil reserves and the effects of climate change. The Australian Conservation Council recently proclaimed Perth to be the least sustainable city in the country. Its Sustainability Cities Index looked at environmental performance, quality of life and resilience – and Perth came in a clear last. Energy in WA is becoming ever more expensive. The reason for this energy price rise is twofold – carbon constraints to tackle global warming and peak oil. Peak oil is the point where demand for oil permanently outstrips supply due to declining production, and since even small differences between supply and demand can send prices sky-high, this is a real problem."

"In the worst case scenario, a relatively small country such as Australia could get squeezed out of reliable oil supply as the big players in global markets, such as the United States and China, secure what's left for themselves. There are basically three scenarios for change as peak oil takes hold. Under the most benevolent change scenario prices will rise steadily but not too fast allowing constant price signals to facilitate a change to other energy sources and time to do it in. In a worse scenario, prices will ratchet up, stabilise or even fall a little, then go up again, the volatility undermining attempts to achieve orderly change. In the worst case scenario, prices will rocket and a situation of genuine emergency will apply as businesses collapse and governments enact emergency laws to secure basics like food and water."

"How imminent is peak oil? Some say it has already arrived, but a consensus of between three and five years is emerging among knowledgeable experts. For instance, the US military, supposedly the biggest single user of oil in the world, has just concluded it will start to take effect in three to five years. So it could happen soon and it could happen fast. Climate change poses two main problems for energy supplies. First, any attempt to control greenhouse gas emissions must put a hefty price on carbon emissions, say \$40-\$100 per tonne, which means a flow on (*cost*) to oil, gas and coal prices (*and as a consequence everything produced with the support of such energy sources*). Most importantly we need to develop resilience, and though this implies effective use of information and transportation systems as basic infrastructure, it also relies on a knowledgeable and appropriately skilled population who can work together to overcome adversity."

Dr. Peter McMahon, Director WA 2020 Project, Murdoch University Extract : West Australian, 05 Jul 2010

Mr. John Davis, Lecturer, School of Sustainability, Murdoch University Extract : West Australian, 05 Jul 2010

Risky oil search : "Oil exploration off the South Coast is too risky, according to Greens Senator for WA Rachel Siewert. Instead, the Senator wants the region's potential as a world leader in new energy technology to be promoted. Ms Siewert will visit Albany this Saturday for an open forum to examine a proposal for oil and gas exploration in the Bremer Basin. The Bremer Basin is considered a frontier deep-water oil exploration area with depths to 4000m. The risks associated with exploration and drilling increase exponentially as we go deeper. The proposed drilling could take place in up to three kilometres of water – nearly twice the depth of the Deepwater Horizon rig in the United States. The Gulf of Mexico is a mill pond in comparison to the Southern Ocean. She said the Greens believed in utilising the state's natural resources and geographical position to lead the way in new technology power generation."

Sen. Rachel Siewert, Greens Member for Western Australia Article : AGS Weekender (Page 5), 15 Jul 2010

Parties urged to face up to nuclear : "Business leaders are demanding that Julia Gillard and Tony Abbott tackle nuclear power as part of the policy debate amid fears industry faces blackouts and further hikes in power prices. As the business community is increasingly worried that both Labor and the Coalition are baulking at politically difficult reforms, it is urging the major parties to stop playing 'Pontius Pilate' on the issue of nuclear power. Groups such as the Business Council of Australia want it included as a long-term option in the white energy paper promised by *Federal* Energy Minister Martin Ferguson in 2008. Uncertainty about greenhouse policy has caused carbon-intensive electricity generators to slash their capital spending on new capacity – despite the growth in demand from the mining boom and population growth – raising fears about the future reliability of the

15.12.2011 Rainbow 2000[©] Project – Peak Oil, Gas & Nuclear Power Page 62 of 85

electricity supply system. The mandatory target of 20% renewable energy by 2020 is expected to put further upward pressure on power costs, adding to business demands that nuclear power be considered as a long-term option to promote energy security and reduce greenhouse emissions."

"Nick Greiner, Valemus and Citigroup Australia chairman, said ruling out nuclear power because of concerns about the impact on particular electorates was 'really juvenile'. The fact that we are incapable of having a sensible debate on nuclear is very sad, Mr Greiner, a former New South Wales premier said. It reflects very badly on us as a nation and the political debate. It also, frankly, tells you that the body politic is not serious about climate change as they often claim. It's painfully obvious that if you wanted a rational approach, nuclear would have to be part of the armoury. It's just got to be part of it."

"Malcolm Broomhead, the chairman of Asciano and BHP Billiton board member, said he could not see how ambitious carbon reduction targets could be met without having nuclear in the mix. I just have always had great difficulty as to why there hasn't been a rational debate in this country. It's got to be part of the mix, said Mr Broomhead, a former chief executive of North, whose then subsidiary, ERA, is a major uranium producer. For governments to say they are committed to substantial reductions to our carbon emissions, then in the same breath say that nuclear is off the table, is just totally unrealistic in my view."

"Hugh Morgan, the former head of Western Mining and chairman of the Business Council of Australia, said that both sides of politics seemed to be taking a 'Pontius Pilate' approach to the issue. There was a necessary and overwhelming case for the immediate construction of civil power projects, he said. We seem incapable of having a rational, bipartisan debate. The work on environmental and regulatory procedures to enable nuclear power would take years. Mr Morgan, along with fellow businessmen Ron Walker and Robert Champion de Crespigny, applied to deregister their company Australian Nuclear Energy last year because of the government's hostility towards nuclear power."

"CSR chairman Ian Blackburne said business was facing an incredible range of uncertainties in energy security. We are certainly seeing that more and more oil is having to come from more and more difficult terrain, he said. We just don't have an answer to a guaranteed supply of oil, much less a guaranteed price of oil. You don't necessarily have to take a position of picking winners – that we're going to achieve it (*CPRS*) all by gas or all by carbon capture technologies. Quite frankly, I think nuclear needs to be in that mix. It's just good prudent management to accept it in the mix and to put the appropriate policies in place. He said nuclear needed to be considered over 20 years, given the lead times involved."

"Mr Walker, a Melbourne businessman and former Fairfax Media chairman, said that nuclear power was part of the new world energy supply. It is a clean fuel, yet the Australian government is blind-sided and ... a captive of its old fears of uranium. He said the Prime Minister and her cabinet (*the Leader of the Opposition and his cabinet, and the Greens as the potential custodians of the balance of power in both the House and the Senate*) need to look at this in the context of what is good for the world rather than the politics of uranium in Australia."

Hugh Morgan, Chairman, Business Council of Australia Article : The Australia (Page 35), 21 Jul 2010

Don't believe the Greens, we'll be running on gas : "If you thought Kyoto and Copenhagen were nonsense on stilts, wait until you see what the Greens have in store next with their global oil depletion protocol. The big parties may be converging on significant policies, but that is not an indication of a lack of serious consequences at the election outcome. Parking a vote with an irresponsible minor party – the Greens – is not a mature choice, and here is why. The Greens support the 'development and ratification of a global oil depletion protocol'. This is based on a deep peak-oil belief : that oil and gas extraction will peak and decline terminally in the near future. Trouble is, it seems Armageddon has been delayed yet again. The global oil depletion protocol is a retreat from human ingenuity, an admission that the world is a scary place and that humans are not up to the job."

"This non-thinking assumes there is nothing to do but accept the cupboard is about to be found bare. And the strange thing is the Greens seem to want to increase the chances of peak oil by locking up future oil and gas resources. Hence the Greens' call for a national marine reserves plan to protect (read lock up) 30% of Australian marine reserve areas from oil and gas exploration. I note the Labor candidates for Dobell and Robertson were similarly craven by claiming a victory this week in delaying Advent Energy from drilling for gas and oil off (*the coast of*) Newcastle. Jumping on the tragedy of the Deepwater Horizon oil spill in the Gulf of Mexico that killed 11 people, a fact almost forgotten in the rush to show pictures of oil-fouled sea birds, the Greens would have us believe the world can do without such mining. Think again."

"As of May this year, 703 mobile offshore drilling rigs were in existence, a 19% increase in the fleet size since 2006. And 126 new offshore rigs are still under construction, most for delivery by the end of 2012. Deep water drilling is not going away. The International Energy Agency begs to differ with the Greens' pessimism. It outlook this year suggests demand for oil and gas will expand by nearly 70% in the next three decades, but that as output from the world's existing production sources inevitably declines, probably at 5% a year, this decline will be compensated with new supplies. For example, last year the Potential Gas Committee (members work in the natural gas exploration, production and transportation industries) found the US's natural gas resources were the highest in the committee's 44-year history. The United States has total future recoverable natural gas resources approximately 100 times greater than present annual consumption. Further, the US Geological Survey estimates the Arctic holds about 22% of the world's undiscovered conventional oil and natural gas resources. Compared with 2006, traditional resources increased by nearly 40%."

Gary Johns, Ex-MHR & Minister in Keating Labor Govt 1995 Article : The Australian (Page 16), 05 Aug 2010

Don't believe the Greens, we'll be running on gas : "In 2006, Peter Odell, professor emeritus of international energy studies at Erasmus university in Rotterdam (Netherlands), set out his insights into the long-term future of the oil and gas industry. According to Odell, oil and gas will account for more than 40% of world energy supplies in 2100. Natural gas will become the

prime energy source by the second quarter of the 21st century, 'streets ahead of renewables'. He remarked that the ultimate physical sufficiency of global oil and gas resources is not in doubt, so one can ignore the present-day Jeremiahs. Their predecessors in the 1960s, the 70s and the 80s were all quickly proven wrong and a like fate will overcome the so-called '*peak-oilers*' by the end of the present decade. He and scores of other resource economists and technologists argue that post-2020, an ordered gas market will emerge, with continuing long-term benefits based on the near-limitless supplies available from a range of gas-rich locations, including Russia, the Caspian region, the Middle East, North Africa and Norway."

"Further, consuming countries overwhelmingly prefer natural gas over the high-cost alternatives of renewables and/or nuclear power and the carbon dioxide emission levels from the use of oil and coal. Addressing an Organisation of Petroleum Exporting Countries meeting, Odell predicted the establishment of a greater European strategic gas authority, which he said would be the precursor to similar developments in Latin America, sub-Saharan Africa, South-East Asia and the Western Pacific rim in the first quarter of the 21st century. While the Greens want to wrap the world in cotton wool and indulge in undergraduate denialist protocols, the rest of the intelligent world is getting on with the business and solving problems, not wishing them away."

Professor Odell, Erasmus University, Rotterdam, Netherlands Article : The Australian (Page 16), 05 Aug 2010

State government sets up uranium panel: "An independent group of experts has been appointed by the state government to provide high-level advice on how to employ a world's best uranium sector regulatory framework. Mines and Petroleum Minister Norman Moore said the tender was awarded to the Australian Centre for Geomechanics, a joint venture of The University of Western Australia (*UWA*), Curtin University and the Commonwealth Scientific and Industrial Research Organisation (*CSIRO*). A group of 10 experts will provide advice to the Department of Mines & Petroleum (*DMP*) on its regulatory framework for uranium mining. The group includes Professor Phil Dight, Professor Andy Fourie, Professor Carolyn Oldham and John Chandler from UWA; Ian Gipps, Dr Mike Trefry and Anna Littleboy from CSIRO; and Professor Ronald Ripple and Associate Professors Ron Watkins and Bob Loss from Curtin. The independent experts will also provide the DMP with third-party 'peer review' and assessment of uranium mining proposals during the (*Planning & Environmental*) assessment stage of the development. This independent expert advice will help the DMP ensure uranium mining in WA is undertaken in accordance with world's best practice, said Mr Moore."

Hon. Norman Moore MLC, Minister for Mines e-News : WA Business News, 23 Aug 2010

Skywest posts \$7.46m profit – 1.10 Singapore cents per share dividend : "Risks faced by the business remain the normal commercial risks and typical airline industry related risks. The Company and its shareholders must anticipate a possible slow down in the rate of growth due to the global crisis of confidence in the broader economy associated with the credit institutions. This year has demonstrated the impact of significant rapid changes in exchange rate and fuel costs. These two factors still represent a significant risk to the business. Australian domestic fuel prices, when combined with a lowering in the value of the Australian dollar, cause increased overall costs to the Airline's operations. The Company does attempt to mitigate changes in fuel costs by way of hedging, however, rapid and massive changes can quickly impact the finances of the Group with significant consequences. The policies of the Western Australian Government may impact access to some of the airports that the Airline currently serves. In the worst case, the Government could potentially restrict access to certain ports or introduce unsustainable levels of competition to airports that cannot support competition. Overall, the Board is unable to provide shareholders with any exact guidance about future profit expectations in light of the unstable global economic outlook, uncertain passenger demands, volatile exchange rates and fuel prices that impact on the Airline's business."

Jeff Chatfield, Executive Chairman, Skywest Airlines e-News : WA Business News, 26 Aug 2010

Following up – the Hon. Simon O'Brien MLC – Minister for Transport is currently considering deregulation of the Perth-Albany sector, and Qantas Airways have made significant overtures toward servicing the growth market of WA regional centres during the mining boom.

Sector warns of new tax battle : "Mining chiefs have voiced strong concerns that a Labor-Greens ruling alliance could lead to a more punitive mining tax and the potential demolition of Australia's coal and uranium industries. Australian Uranium Association chief executive Michael Angwin yesterday wrote to Ms Julia Gillard (*Caretaker PM*) seeking an assurance that the *proposed* MRRT (*Mineral Resources Rent Tax*) would not be extended to uranium, a move he claimed the Greens had previously supported. He also asked Ms Gillard to provide assurances that Labor's alliance with the Greens would not result in Labor abandoning its support for uranium mining and exports. The fact that this agreement allows them (the Greens) to raise those issues seems to introduce some uncertainty into the future of the Australian uranium industry, Mr Angwin said. It also introduces uncertainty for our customers, particularly in China and Japan, which are seeking to secure long-term uranium supplies. We think the Prime Minister who made this deal needs to say the future of the uranium industry is not on the table here."

Michael Angwin, CEO, Australian Uranium Association Article : The Australian (Page 4), 02 Sep 2010

Following up – Well might the Australian Greens seek to prevent the mining of uranium in Australia, the discontinuation of uranium export contracts (with loss of export sales), and prohibit nuclear power generation – but in so doing, they will materially exacerbate global greenhouse gas emissions as well as erode Australia's economic and environmental standing while encouraging coal exports.

CME slams Greens uranium threat : The WA Chamber of Minerals and Energy has slammed reports the Greens are threatening to use their alliance with federal Labor to stop all new uranium projects from securing government approval. Greens nuclear spokesman Scott Ludlam told **The Australian** newspaper his party would use its power to attempt to stop planned uranium mines, including those proposed by BHP Billiton and Cameco, one of the world's largest publicly traded uranium companies. Senator Ludlam also said he would be seeking to phase out Australia's three existing uranium mines as soon as possible and put a halt to exports. We don't believe another kilogram of this material should come out of the ground," he told the newspaper. It is

one of the most volatile and destructive trades that there is. If the uranium mining industry is feeling nervous about the fact that 1.7 million Australians voted for that explicit position, then they should feel nervous," he said."

Senator the Hon. Scott Ludlam, Member for Western Australia (Greens) e-News : WA Business News, 14 Sep 2010

CME slams Greens uranium threat : "But CME chief executive Reg Howard-Smith said the bid was drive by outdated ideology and a disregard for regional jobs and investment. In the last financial year, more than \$55 million was spent by companies exploring for uranium in Western Australia, adding another string to the bow of WA's resource sector, he said. If just one mine results, it will mean hundreds of news jobs. We urge Federal Labor to maintain its support for the development of new uranium mines, provided they meet environmental and safety requirements. Uranium mining has been carried out successfully and safely for decades in Australia – and it's time the Greens recognised the environmental and sociological benefits of the industry."

Reg Howard-Smith, CEO, Chamber of Minerals & Energy WA e-News : WA Business News, 14 Sep 2010

Row on U-mine ban splits Labor : "WA Opposition Leader Eric Ripper and his heir apparent, Ben Wyatt, have again clashed over Labor's uranium policy as deep divisions over it split the party. Mr Wyatt – tipped by party insiders to take the top job from Mr Ripper, possibly by the end of the year – yesterday said he stood by claims that a future Labor government would not shut down any uranium mines established under the Liberal-National's rule. But Mr Ripper released a statement and a copy of Labor's platform yesterday, reaffirming its opposition to uranium mining and export. Mr Wyatt believes society's attitude to uranium mining and nuclear power has changed and, if elected leader, he would change Labor's no-uranium policy. The latest stoush came after Mr Wyatt and Mr Ripper clashed over uranium mining last year, with the leader gagging his likely replacement from publicly speaking about it. Mr Ripper said yesterday the party's uranium policy could only be changed at its state conference. At this stage, it is not possible to know what approvals the Government may implement and when. It is likely that individual party members will seek to have this matter debated at state conference."

Hon. Eric Ripper MLA, Opposition Leader WA Article : Sunday Times (Page 39), 19 Sep 2010

Nuclear option deserves our most objective gaze – We need a serious debate about our energy strategy for the next 40 years : "The World Nuclear Association held its annual conference in Westminster, London, last week. Police patrolled the area, traffic was diverted, people lined the streets, but only because Pope Benedict XVI was making his way to Westminster Abbey just across the road from the well-signposted nuclear association conference. The nuclear meeting itself attracted no controversy or spirited protests as would be expected in a country that had recently emphasised its commitment to nuclear energy, and plans to progressively replace its ageing fleet of 19 reactors with a new nuclear network that would produce one-third of Britain's electricity in the 2030s, with a minimum of climate-affecting emissions."

"Delegates represented many of today's 31 nuclear-powered countries, as well some of the 25 countries that have flagged new civilian nuclear programs to produce clean electricity by 2030. Australia, which continues to attend such conferences and provide key personnel and case studies in topics such as uranium mining, nuclear medicine and non-proliferation, remains an increasingly puzzling anomaly without a domestic nuclear power program. Interest in the nuclear fuel cycle grows because of factors such as :

- Many countries need to double their generation capacity by 2050 but avoid the increased use of fossil fuels
- Electricity is strategically important everywhere and a diverse, stable secure domestic power system is a priority
- Import substitution, especially of oil and gas
- ♦ Global warming and climate change; and
- The pursuit of lower energy bills in a carbon-costed world."

"Here are some key messages that emerged at the conference :

- Today's 440 reactors, which generate 14% of global electricity, are expected to all be progressively replaced and beyond 1000 by 2050. The majority of new building is in Asia, especially China and India.
- At mid-century, nuclear power will contribute 24% of global electricity generation, producing more than coal or gas or oil and all other renewables, but all energy options will play important roles.
- New reactors are usually generation three designs (today's fleets are mainly gen two). They are more efficient, smaller in footprint, generate less radioactive waste and have important passive safety features. France, the United States and Japan lead the technology but will be overtaken by China, Russia and South Korea in the next 10 years, and India thereafter.
- Striking commitments to nuclear power are seen in the Middle East and North Africa, where it will provide clean and cheap energy domestically, including for their desalination plants, but enable continued export of fossil fuels at attractive prices. United Arab Emirates, Jordan, Egypt, Morocco, Algeria, Israel, Saudi Arabia, Kuwait, Libya, Bahrain, Tunisia and Iran all expect to have nuclear power in the next 20 to 20 years. A similar situation exists in central Europe.
- Kazakhstan, with 16% of the world's uranium reserves, produces 28% of global production. In contrast, Australia, with 38% of recoverable uranium, produces 16% and is sliding towards fourth position in the global ladder to the bewilderment of the world's uranium customers."

"But even as nuclear momentum builds, challenges remain. Countries are finding that decommissioning old plants while building new reactors exposes serious skills shortages. Without government support, project financing for new reactors remains a challenge in the West. The risks of cost overruns are greatest during the construction phase, so impressive progress is being made to compress this phase from 60 months to 27 months, thereby reducing such risks."

"The generation four breeder reactors, which will effectively solve the issue of finite availability of fissile uranium, won't be ready until 2040, although India has a more ambitious timetable. And too many governments do not have clear energy strategies that include an outlook for carbon costs. This handicaps the planning for all energy options."

"Against the background of a global industry focusing on technology innovation, experience sharing, international expansion and enhanced safeguards, WA Greens senator Scott Ludlam's commentary (The Australian, September 17) on Australia's uranium mining and the nuclear industry reveals the mindset that prevailed before he was born: the period of the Cold War, our concerns with weapons testing in the southern hemisphere and proliferation. But time has moved on. No nuclear weapon has been fired in anger since 1945, new better reactor technologies have been accredited, safety and security continue to be strengthened, and this 55-year old industry sets standards within the global energy industry for power station productivity, employee and community safety, and integrity of the fuel supply chain. Whole economies rely on their national nuclear energy platforms."

"Still, I don't expect people to take my word on this, or that of any critic or other commentator promoting their specific ideology. That is why I join Ludlam in appealing to Australian fair-mindedness and interest in evidence-based policy debate, and urge the government to frame appropriate terms of reference and require the Productivity Commission or a white paper process to undertake an objective analysis aimed at defining our optimum energy strategy for 2050. I'd be surprised if, as so many other countries have concluded, nuclear power does not emerge as a large part of our energy future."

Dr Ziggy Switkowski, Chairman, ANSTO Article : The Australian (Page 12), 21 Sep 2010

Deciding future energy needs : "Much has been said promoting the modern technology and benefits of electric cars, mainly praising the performance, clean fuel aspects and lack of greenhouse gasses. However, one burning question (excuse the pun) of which nothing seems to have been said, is the source, availability and cost of electrical energy for these (*and other*) vehicles. When a conventional motor vehicle is replaced with an electrically powered one, every megawatt of energy now obtained from petrol / diesel will have to be replaced by an equal amount of generated electrical energy."

"The question is : How will an electricity supply system, which is currently unable to maintain sufficient supply to keep airconditioners running in the summer without rolling blackouts, be able to supply these extra millions of kilowatts of power when everybody plugs in their electric cars? You can't ring the supplier and order a power station to be delivered next week! These facilities take years to design, build and bring on-line, not to mention the huge costs involved (and we all know who'll be paying that bill). When one considers the currently skyrocketing cost of energy, the future prospects for the supply and cost of energy for both domestic use and motor vehicles are positively frightening. We may well one day recall wistfully the good old days when fuel was a tiny \$1.50 a litre, and we could afford to switch on out electric stove or refrigerator."

David Wild, Albany Resident & Taxpayer Article : AGS Weekender (Page 8), 14 Oct 2010

Following up – Petrol was \$0.16¢ per litre in 1976 when I first started driving – and the analysis doesn't factor in the cost of a carbon tax, emissions trading schemes, carbon pollution reduction and / or geo-sequestration of carbon emissions.

We disagree – Challenging carbon talk : "There are a number of aspects of the thee letters – Clean air, Gilda Davies; No more coal, Kamala Emanuel; and Autism link? Judy Blyth (Letters 12/10) – which must be challenged. Firstly, carbon dioxide is not a pollutant. A glance at the clear sparkling bubbles of CO2 in a glass of soda water will confirm this. CO2 acts as a fertiliser for plant growth and is the basis for nearly the entire planetary food chain. It is currently at near starvation levels. CO2 does have a mild warming effect but because of the logarithmically decreasing warming effect that accompanies increasing CO2, reducing the rate of increase is likely to have little, if any, discernible effect of future global temperature or climate. There is ample scientific evidence that there is no link between CO2 and temperature."

"Secondly, modern coal-fired power stations are not 'dirty'. They are in fact 96% efficient and the exhaust heat is captured by economisers and re-heaters. The very slight amount exiting the stack is moist, as in condensation and CO2. There is virtually no fly ash because this is removed by the precipitators or bagging plant that are 88.98% efficient. Thirdly, with the possible exception of hydro-electric power, none of the other renewable energy initiatives is economically viable. Until research and development of these sources can bring them to the stage of cost parity with fossil fuels, Australia will be seriously disadvantaged if fossil fuels are scrapped in favour of renewables."

"Fourthly, Australia's vast reserves of coal, both black and brown, can provide the basis of fuel for our heavy haulage and long distance transport industries in the future. This will be critical when the world's reserves of oil and gas are exhausted. The development of 'coal to liquids' fuel would make Australia self-sufficient in transport fuel. It follows that for Australia to impose a carbon tax or ETS would be economically foolish and would achieve no environmental gain."

Denis J. Whitely, Council for the National Interest (WA) Article : West Australian (Page 22), 18 Oct 2010

Uranium to Russia hypocrisy : "The opposition has accused the Government of hypocrisy and diplomatic bungling by selling uranium to Russia while refusing to negotiate a supply deal with India. Julia Gillard and her Russian counterpart, Dmitry Medvedev, exchanged notes in Seoul on Thursday night ahead of the G20 Summit meeting, allowing for Australian uranium to be enriched in Russia and used in its nuclear reactors. The agreement will help Russia to meet its expanding energy needs as it seeks to reduce its greenhouse emissions by diversifying its energy sources and shifting away from a reliance on fossil fuels, the Prime Minister said."

"Opposition resources spokesperson Ian Macfarlane welcomed the announcement but added that if the government wanted to help other nations cut greenhouse gas emissions, one of the most effective things it could do would be to agree to export uranium to India for use in electricity generation. Coalition foreign affairs spokesperson Julie Bishop said it was highly insensitive of Ms Gillard to make the announcement on the sides of the G20 meeting when the Indian Prime Minister was also in Seoul."

"The decision to announce Australia will supply uranium to Russia while maintaining a ban on sales to India exposes the hypocrisy of Labor's stance on uranium exports, Ms Bishop said. Julia Gillard has effectively said at the G20 meeting that the government trusts Russia to use our uranium for peaceful purposes but that it doesn't trust India."

"The Greens spokesperson on nuclear matters, Senator Scott Ludlam (*Western Australia*), described the announcement as a disappointment, saying the government had gone against 2008 advice from a House of Representatives committee by selling to Russia. Trade Minister Simon Crean said at the time that the government and the International Atomic Energy Agency (*IAEA*) were satisfied safeguards are in place to ensure the uranium is not used in weapons, but the IAEA has not inspected Russia for almost a decade, Senator Ludlam told the Weekend Australian."

"Australian National University lecturer in international relations Michael McKinley said while the decision would offend India, that country was not a signatory to the (*United Nations*) Nuclear Non-Proliferation Treaty, unlike Russia. If Russia is to be regarded as part of the responsible global community, why not sell them uranium? Dr McKinley said. Russia is supplying oil and gas to Western Europe. It makes good political and commercial sense to sell uranium to Russia. Russia is a Pacific power, and if you take the American view, then there's the question of the balancing of China, and China is going to receive uranium anyhow."

Hon. Ian Macfarlane MHR, Shadow Minister for Resources Article : Weekend Australian (Page 6), 13 Nov 2010

China acts to curb inflation fears : "China is banning the hoarding of oil, coal and other key commodities, seeking to ensure supplies and 'cool' prices that have surged to politically volatile levels despite repeated moves to curb inflation. The measures reported by State media yesterday are Beijing's latest effort to counter unease over inflation that jumped to a 25-month high of 4.4% last month. Authorities want to reassure a nervous public that the Government can handle inflation pressures that some worry could spiral out of control. The National Development and Reform Commission, China's main economic planning agency, forbade provinces from limiting shipments of coal beyond their borders, ordering them to ensure stable supplies. The Commerce Ministry meanwhile, ordered local authorities to crack down on hoarding of oil, gasoline and other fuels, on bogus bids meant to drive prices higher, and other illegal practices."

"Authorities say soaring food prices – which jumped more than 10% last month – are mainly to blame for the current bout of inflation, but costs for fuel and other necessities have also jumped, as supplies have run short. Coal, which fuels about threequarters of the country's electricity generation, is of special concern, especially in winter months when it also is used in heating systems in the north. Much of the coal is mined in north-central China and then shipped to big cities, utility plants and factories in the eastern coastal regions. The planning agency complained that some areas, which it did not name, were requiring coal traders to obtain special permits before they can ship coal. Coal production in some places is rather chaotic and supplies from small mines are unstable, the NDRC said."

"Seeking to counter widespread shortages of diesel, the Commerce Ministry issued a raft of orders aimed at improving monitoring of supplies and what it calls 'market order'. Oil is important to the people's livelihood strategies for goods and materials. Local competent commercial departments at all levels should fully understand the market supply of refined oil security, stability and the importance of oil prices, a notice posted on the ministry's website said. It urged officials to show a 'stronger sense of responsibility'. The Government has already ordered state-owned refiners to step up production amid signs they were holding back in anticipation of a rise in retail prices. Diesel supplies were already running low after thousands of factories bought diesel generators to cope with power cuts imposed by authorities to meet energy-saving goals, further boosting demand. Stable fuel supplies are a crucial link in the Government's war on inflation, because farmers need diesel fuel to run tractors and other farm equipment."

National Development & Reform Commission, PRC Article : West Australian (Business Page 12), 24 Nov 2010

Emission cuts hard without nuclear : "The International Energy Agency has warned it will be very difficult for Australia to meet its 2050 emissions target if it loses its high-risk gamble on carbon capture and storage (CCS) technology. IEA executive director Nobuo Tanaka said in Canberra yesterday Australia would face major adjustment costs in achieving greenhouse emissions cuts of 60% by 2050 if it did not have nuclear power for back-up. If CCS is not readily available and if you don't use nuclear, totally renewable energy is very, very expensive, and also it is fragile in terms of its productivity. Mr Tanaka said. So it's very costly if CCS doesn't work out. Mr Tanaka made the remarks after the launch of a government technical paper comparing the costs of electricity generation technology, including nuclear *power*."

"Resources and Energy Minister Martin Ferguson, who launched the (University of Adelaide's Environment Institute) report, has acknowledged it will take another five to 10 years before Australia (and the rest of the world) will know whether carbon capture and storage is viable. Since taking office, Labor has committed \$2 billion to build up to four industrial scale carbon capture and storage projects in Australia, but has stood by its long-standing ban on nuclear power generation. Mr Tanaka said it was up to Australia whether it should go nuclear, but nuclear power (*which is pointless without uranium mining*) should be on the table for the global community. Mr Tanaka said Australia (*and the rest of the world*) needed a carbon price but could achieve it either explicitly, through a tax or cap-and-trade emissions scheme, or implicitly, through regulation."

Nobuo Tanaka, Executive Director, International Energy Agency Extract : The Australian (Page 5), 26 Nov 2010

Waterfront warrior sails against the wind: "John Coombs, the former maritime union heavyweight who spent two decades refusing to let radioactive waste cross the nation's docks, has experienced a change of heart. He reckons it's time Australia went nuclear. And that's the message he wants to send to the man who stood beside him during the waterfront dispute – former ACTU secretary, now Climate Change Minister, Greg Combet. His conversion is part of a new world of climate change politics, in which unlikely alliances are being formed and long-held positions being revised. Mr Coombs, long retired as national secretary

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of the Maritime Union of Australia, now finds himself in the same camp as Australian Broadcasting Corporation chairman and former Australian Securities Exchange chair Maurice Newman. Both own property at Crookwell on the NSW southern tablelands, a couple of hours south-west of Sydney (*and north of Canberra*)."

"And both have serious doubts about the wisdom of a planned explosion of wind-power development in the area. There is a view that wind power will turn out to be for electricity generation what the Zeppelin (airship) was for air transportation, Mr Newman said. It looks promising but was not the answer. The concerns expressed by Mr Coombs and Mr Newman mirror doubts being expressed in South Australia and south-west Victoria about the cost, efficiency, social impacts and health effects of the new-generation wind turbines that cost more than \$2 million each and are as tall as a 45-storey building with blades that take up more than one hectare of sky and create enough turbulence to tear apart any bird that strays too close. With billions of dollars earmarked for wind power, which costs more than twice as much as electricity from coal or gas, Mr Coombs said the sensible thing was to consider nuclear energy."

John Coombs, Ex-National Secretary, Maritime Union of Australia Extract : The Australian (Page 1), 27 Nov 2010

Emissions reductions are not just blowin' in the wind : "If the government puts a price on carbon, as it seems genuinely committed to do, the electricity industry will be one of the first industries to feel the effect. Two important questions are yet to be answered, however. What is the carbon price that will encourage a widespread shift to technologies which will actually reduce emissions? And, what will those technologies be? To find answers, we conducted a meta-review of 25 authoritative peer-reviewed studies of electricity generating technologies, which was published in the international peer-reviewed scientific journal *Energy*. We focused on base-load generation which account for more than 75% of the electricity generated in Australia. We concluded that technology options for replacing fossil fuels, based on proven performance and reliable cost projections, are much more limited than is popularly thought. We identified only five proven low-emission technologies that met a set of objective fit-for-service criteria to supply base-load power."

"They were :

- Pulverised fuel (PF) with carbon capture and storage (CCS)
- Integrated (coal) gasification combined cycle (IGCC) with CCS
- Combined cycle gas turbine (CCGT) with CCS
- Nuclear; and
- Solar thermal with heat storage and gas turbines (back-up)."

"IGCC is relatively new technology not yet in operation in Australia. CCS is still only in pilot stage anywhere in the world. It might come as a surprise to some that wind, solar photovoltaic and engineered geothermal systems (EGS), also known as hot rocks, did not qualify to be fit-for-service for base-load. Wind and solar PV need either extensive gas backup or large-scale energy storage for base-load operation. The associated extra costs will depend on plant location and are difficult to assess accurately. The standout technology, from a cost perspective, is nuclear power. From the eight nuclear cost studies we reviewed (all published in the past decade, and adjusted to 2009 dollars), the median cost of electricity from current technology nuclear plants was just above new coal plants with no carbon price. Having the lowest carbon emissions of all the fit-for-service technologies, nuclear remains the cheapest solution at any carbon price. Importantly, it is the only fit-for-service base-load technology that can deliver the 2050 emissions reduction targets."

"Nuclear fuel costs are relatively low compared to coal or gas (very little fuel is used in a nuclear plant) and these plants typically have a long life and high availability. These factors lead to a low electricity cost over the nuclear plant's lifetime. The results of this survey represent the scientific / engineering / economic consensus of the worldwide, authoritative, peer-reviewed energy literature. Given the importance of reducing electricity generator emission, and the economic imperative to keep electricity costs at a minimum, it seems essential that the Australian government rethink its nuclear power strategy, as much of the rest of the world has already done. All the arithmetic adds up to nuclear *power*."

Martin Nicholson, Energy in a Changing Climate Article : The Australian (Page 18), 29 Nov 2010

Tom Biegler, Australian Academy Technology Science & Engineering Article : The Australian (Page 18), 29 Nov 2010

Barry Brook, University of Adelaide Environment Institute Article : The Australian (Page 18), 29 Nov 2010

Let's lift nonsensical nuclear power ban : "The politics of fear all too often override good policy and the desire of the majority of the community. The nuclear debate is a classic example of this. I led the debate with a speech to Federal parliament in March 2005, advocating at the very least critical examination of the merits of nuclear-generated power. This led to an almighty fear campaign in the 2007 election, where voters were threatened with a supposed coalition plan to build a nuclear power station somewhere near you. In that period I was misrepresented in the media as saying I would be happy to have one built in my electorate of Tangney (central metropolitan Perth south of Swan River). This is ludicrous – there is nowhere within my electorate that would meet the requirements of a nuclear power station. The result was fewer than 10 negative communications and one person who protested outside my office in an anti-nuclear suit."

"In fact, McNair Ingenuity research between 1979 and 2009 shows support for nuclear power increasing from 34% to 49% in favour of the construction of nuclear power stations, with about 10% undecided. More people are in favour of nuclear power than opposed. We continue to get scaremongering despite critical power generation infrastructure issues. The generators are reluctant to make a decision on what sort of power station to build *(or maintain)* without knowing the outcome of the carbon dioxide debate. Prime Minister Julia Gillard asserts that a carbon price is needed to provide certainty but a decision not to tax carbon would obviously also provide this certainty."

"There is stasis (actually, no there isn't in Western Australia) on the construction of power stations, because a price on carbon would favour gas, whereas no price would favour coal. Nuclear power would get past this impasse. Nuclear power is the least carbon intensive, not that I am arguing on the basis of carbon dioxide mitigation as a reason fro nuclear power, never have and most likely never will. The fact is, a nuclear decision can be made regardless of the policy framework on carbon. Former Telstra boss Ziggy Switkowski (the Chairman of the Australian Nuclear Science & Technology Organisation) conducted a study about four years ago into the economics of nuclear power. He found nuclear would only be competitive with coal with a \$30 a tonne price on carbon. However, power prices have shifted significantly since then, and are now more closely aligned with economic reality. This hurts householders, but the reality is similar to that in the United States, South Africa and other markets with abundant cheap coal – nuclear is competitive with any other method of power generation."

"The only thing counting against it is a nonsensical ban on generating power using nuclear energy. Labor and the Greens cannot continue to say anthropogenic global warming is the most important issue to confront our society, but then say that the one method capable of making a massive dent in carbon emissions should have a legislative ban associated with it. They also cannot continue to argue for this ban as it is economically too expensive. If they really6 believe this, they would allow a repeal of Section 10 of the Australian Radiation Protection and Nuclear Safety Act 1998, knowing power generators would not build a nuclear power plant if it was economically uncompetitive. I applaud those in labour movement who have had the courage of their convictions to look beyond the petty party politics and declare that the nuclear option should be a tool in our electricity generators' toolkits. Let's ensure we do what's best for the nation and not hamstring one of our most important industries for the simple expedient of gaining votes using the politics of fear."

Dr Dennis Jensen MHR, Member for Tangney, WA Extract : West Australian (Page 20), 06 Dec 2010

When will oil be too expensive? "What would Albany look like if fuel cost \$3 a litre? What would Albany look like if fuel cost \$10 a litre? We rely on food trucked in from Perth that has been transported from all over the world. Nearly all products we use from TVs and clothing to plastic and shampoo are all made with oil and use oil to be transported from their place of manufacture to Albany. The implications are obvious – will we be able to afford the things we take for granted today? Will they even be available in Albany? These are interesting questions but who says fuel will ever cost \$10 a litre? This is where the study of Peak Oil comes in. Peak Oil is a point in time when global production of oil (and therefore its derivatives) reaches its highest point. It does not mean that it is the point we run out of oil. It simply means that on global terms we will never discover or produce a larger quantity of oil."

"So, that sounds OK doesn't it? Except that oil is a finite resource and we have used the easy half. Oil is becoming harder and more costly to extract. We may never run out of oil but what will we do when it takes the energy of one barrel of oil to produce one barrel of oil? The solution is to build a resilient and strong local economy and community. Albany already has a vibrant local food industry and some renewable energy options. We need to support those wholeheartedly. If nothing else, educate yourself on these issues and make your own mind up. Transition Albany is a group of Albany community members who get together to discuss and come up with some actions on a wide range of issues from food security, peak oil and global warming."

Sarah Hilder, Rainbow Coast Neighbourhood Centre, Albany Article : AGS Weekender (Page 8), 09 Dec 2010

Chief quits clean coal project, citing inaction : "The internationally renowned scientist recruited by the Queensland government to head its clean coal research has resigned in protest against whet he sees as a downgrading of the area. Kelly Thambimuthu, who has strong international connections in clean coal research through his chairmanship of the International Energy Agency's greenhouse program, resigned from the State government-run ZeroGen project last month. The Queensland government announced at the weekend that it would pass the project – which aims to build a zero-emission coal-fired power station – on to the industry-run Australian Coal Association. This would delay the construction of such a power station by at least five years. Dr Thambimuthu told *The Australian* yesterday he had resigned as he felt there was not enough government commitment to finding an effective clean-coal technology. It's absolute nonsense for Queensland to export so much coal and make money from it and yet do nothing about reducing emissions, he said."

"Queensland Premier Anna Bligh said that while the technology existed to run such a plant, the cost of at least \$4.3 billion was excessive. But Dr Thambimuthu said if the government could not provide enough funding, there was no reason for the private sector to fund further exploration. There is an incentive for research for oil, gas and coal-seam gas because there are returns there, but there are no immediate returns in this area (*clean coal*). He said the ZeroGen project had not tried hard enough to get money from other sources, and an offer from the Japan-based Mitsubishi Corporation to provide cash in return for part-ownership of the project had not been followed up. Mitsubishi did not respond to inquiries yesterday. Dr Thambimuthu has also resigned from the Queensland government's Clean Coal Council."

Dr Kelly Thambimuthu, ZeroGen Article : The Australian (Page 2), 21 Dec 2010

Bligh opens door to nuclear power : "Anna Bligh has backed calls for the Labor Party to review its policy on nuclear power, warning that renewable sources cannot meet the surging demand for base-load electricity. The Queensland Premier and Australian Labor Party national president said the development of the only other viable alternative energy, hydro-electricity, had been hamstrung by resistance to new dams. Ms Bligh said pointedly that parts of the environment movement had shifted on the nuclear option and now supported it as an abatement measure for climate change. Ms Bligh's comments to *The Australian* reflect an important shift on nuclear power among Labor leaders, who now cite cost and perception issues rather than philosophical considerations as the impediment to introducing nuclear energy. She joins senior Labor figures including Federal Resources Minister Martin Ferguson, right-wing Australian Workers Union leader Paul Howes, former NSW premier Bob Carr and Labor Senators Steve Hutchins (*NSW*) and Mark Bishop (*WA*) in supporting a review of the ALP's long-standing ban on nuclear power, most likely at the party's national conference next December."

"The office of NSW Premier Kristina Keneally said yesterday she was open to a public debate on nuclear energy. As the Prime Minister has indicated previously, the Labor Party has had a long-standing policy of opposition to nuclear power, Ms Keneally's spokesperson said. National conference has always been the place to debate changes to our national party policy. Any change to Labor's long-stated policy against nuclear power would have to consider a range of issues, including safety and cost. Premier Mike Rann supports expanding uranium mining in South Australia, but his spokesman said he would not comment on whether nuclear power should be on the agenda at the national conference, which has been brought forward from 2012. By bringing the national conference forward, Labor is trying to avoid having internal policy brawling drag into the election year of 2013."

"Ms Bligh said the nation was entering an environment where people are questioning coal-fired power. With a carbon tax on the agenda, and Julia Gillard nominating 2011 as a year of decision and delivery on climate change, among other issues, Ms Bligh said it was perfectly understandable for nuclear power to be in the frame. The Prime Minister, however, has played down the push within Labor ranks for a nuclear review. The government's chief scientist, Penny Sackett, said this month that nuclear power should be considered as part of a suite of options aimed at reducing greenhouse gas emissions. Her comments came as a report by the Australian Academy of Technological Sciences and Engineering found that nuclear, combined-cycle gas turbine and wind power would provide the cheapest low-carbon electricity, and were the most worthy of investment."

"Ms Bligh said energy was one of the big policy challenges for the nation, and a carbon tax will be part of that. We have ... set ourselves renewable energy targets that almost by definition are going to be more expensive than our traditional forms of energy, and there's going to be a limit to the public appetite for that. People are increasingly loath to consider hydro-electric power because they don't want dams. Other renewable energy sources, such as wind and solar, could not produce sufficient base-load power. I think it is perfectly understandable why nuclear comes on to the agenda ... as people are genuinely looking for what is a cleaner alternative, she told *The Australian*. And I think it is quite interesting that's now coming as much from some parts – not all, but some parts – of the environmental movement as it is from other parts of the energy sector. As we move towards a carbon tax, then that price differential might well start to play out differently."

"However, Ms Bligh cautioned that any discussion about nuclear power for Australia remained theoretical, and not just because the cost was prohibitive. I don't know of any suburb that would want it, she said. I think there are still very genuinely held concerns about safety, and in an environment ... where we have other alternatives then I think the prospect of a nuclear power plant in an Australian context in the near future is very slim."

Hon. Anna Bligh MHA, National President, Australian Labor Party Extract : The Australian (Page 1), 24 Dec 2010

Bligh correct to call for a debate on nuclear power – Uranium can produce the clean alternative energy we need : "Good for Anna Bligh in pointing out the obvious, that alternative energy cannot match coal-generated power as a base-load electricity source, and that means we should consider adding nuclear power to our energy options. On Thursday, Queensland's Premier called for a review of Labor Party policy, which does not permit nuclear energy now. She joins other Labor leaders, notable federal Resources Minister Martin Ferguson, in calling for the party to at least argue out its position on nuclear energy rather than continue a decades-long ban. Calls for debate are immensely unpopular with old Left Loyalists, who are still fighting the Cold War and conflate nuclear energy with nuclear weapons. Strangely enough, while they keep on condemning all but medical uses of uranium, they never mention France, which sources 75% of its power form nuclear power plants. The ban, dating from days when fluorocarbons destroying the ozone layer was the fashionable threat to the environment, ignores the obvious: coal-fired power stations are a major contributor to greenhouse gas emissions; nuclear plants are not."

"Hatred of nuclear energy runs so deep among environmentalists that many will not face the flaw in their argument, that if coal is unclean, producing power from uranium should at least be considered as a way of cutting our carbon emissions at a price the community can afford. Instead, they point to the potential of power produced by wind and the sun. But the arguments for alternative energy do not cut it. When it comes to pumping out enormous amounts of electricity to meet peak demand, solar power simply cannot compete on cost or capacity with big power stations fuelled by coal, or even uranium. The green dream of home owners becoming peasant energy farmers, producing power from rooftop solar panels, is already occurring, but at such an enormous cost that schemes are being scaled back. In NSW, subsidies meant home-produced solar power was pumped into the grid for \$6000 a megawatt hour, compared with the \$52 hourly rate that coal-fired power costs. A national subsidy scheme started by the Howard government cost taxpayers \$1 billion, but solar power still accounts for only 0.1% of the electricity market."

"As for wind power, the tall towers, with gas generators used to power turbines in still weather, produce electricity for anything between \$350 and \$1100 a tonne of carbon not emitted, stratospherically above the charge of \$14 that the Rudd government's carbon reduction plan put o the agenda at the beginning of the year. Ideology, not economics, is at the core of the environment argument. Rather than being especially interested in the cost of power, even including a carbon price, the green extreme wants us to consume less electricity, considering the lifestyle our abundant coal and gas make possible an insult to the environment. That many dismiss nuclear power makes the point. Nuclear generators are expensive to build, produce waste that must be safely stored forever and on straight-forward production costs cannot compete against power stations using Australia's abundant coal and gas reserves. But nuclear power plants are vastly cleaner in terms of carbon than coal, and produce effectively endless electricity."

"Environmentalists are right to argue that we need a suite of energy sources to reduce carbon pollution. It's just they leave out coal, which we need to clean up, and its only alternative in any world where electricity costs include a fee for emitting carbon, uranium. Certainly it will not be easy to make coal greener and nuclear power popular. Last week, Ms Bligh shut down a \$150 million clean-coal research project, which was turning out to be expensive and inefficient. And while accidents at nuclear power plants are few and far between, Australians want one near them even less than they want a noisy intrusive wind farm. But we

cannot do without coal, which produces 80% of our power, and we should consider uranium. In calling for a debate while refusing to discuss lifting the Queensland ban on uranium mining, Ms Bligh is having a bob each way, demonstrating how difficult a debate on nuclear power will be for Labor. But it is a debate that everybody serious about effective ways to reduce greenhouse gas emissions knows we need (*and have to have*). "

Chris Mitchell, Editor-in-Chief, The Australian Editorial : The Australian (Page 13), 27 Dec 2010

Oil shortages could turn outer suburbs into slums : "AUSTRALIA will be forced to rely on huge quantities of imported oil unless it radically overhauls its transport and urban policies, according to a study by the Planning Institute of Australia. It warns that without urgent national action the trade deficit will spiral and many outer suburbs will become slums. The study comprises a series of papers in the latest edition of the journal *Australian Planner*. One of the authors, Professor Peter Newman of Curtin University, who is also an adviser to the federal government, said the most compelling finding was that urban sprawl is finished. If we continue to roll out new land [releases] and suburbs that are car dependent, they will become the slums of the future, he said. Professor Newman, who serves on the board of the federal agency Infrastructure Australia, has begun briefing the Council of Australian Governments on the need to test all future urban development against the potential for an oil shortage. He said every state should duplicate a Queensland law that requires local councils to conduct an "oil dependence study" when approving new developments. The Queensland approach has to become the national approach and it's quite possible that COAG will adopt it as the standard, he said."

Professor Peter Newman, Infrastructure Australia Extract : Sydney Morning Herald, 28 Dec 2010

Oil shortages could turn outer suburbs into slums : "The study's co-ordinator, Dr Jago Dodson of Griffith University, forecast a grim future, with Australia's trade deficit, which was \$9.3 billion in 2008-09, due to hit \$25 billion by 2015, largely because of oil imports. Australia possesses huge energy reserves in coal and gas but only modest petroleum reserves, holding just 0.3% of the world's oil, he writes. Australia's oil production peaked in 2000. His paper finds the transport sector accounts for 70% of the country's petroleum consumption. Road vehicles accounted for 75% of Australian transport fuel consumption and passenger vehicles comprise 62% of this total. With Australian cities so clearly exposed to the effects of depleting global oil supplies, our urban planning should ... turn its attention to mitigating oil vulnerability and adapting Australian cities to an oil-constrained world. Some cities are expected to record big increases in the number of vehicle kilometres travelled. In south-east Queensland, a 48% increase by 2026 is forecast, a big factor in the state government's decision to build the Gold Coast light rail network. Cities will be among the most significant areas where the social and economic impacts of declining global petroleum security will be experienced, Dr Dodson writes."

Dr Jago Dodson, Griffith University Extract : Sydney Morning Herald, 28 Dec 2010

Oil shortages could turn outer suburbs into slums : "For metropolitan planners who are tasked with ensuring cities are resilient to future threats of all kinds, the mitigation of oil vulnerability should be a major planning concern. Professor Newman said the cost of building public transport to remote suburbs on the urban fringe would ultimately become prohibitive, and Australian policymakers were about 30 years behind the times in wrestling with the problem. The *national* president of the Planning Institute *of Australia*, Neil Savery, said the need for a national policy was critical. There is no question that oil supplies, beyond a certain point, will become increasingly rare that we will have to develop alternatives if we are to enjoy the level of mobility we enjoy now, he said."

Neil Savery, National President, Planning Institute of Australia Extract : Sydney Morning Herald, 28 Dec 2010

Barnett pushes nuclear future : "West Australian Premier Colin Barnett has stepped up his call for the nation to start planning for a nuclear future, saying work should commence now to identify potential sites to build a nuclear power plant. Mr Barnett told The Australian nuclear power was a proven and safe source of energy that could no longer be ignored. Amid rising concern over climate change, he said nuclear was environmentally clean and its use in this country was inevitable. Therefore, Australia should begin work on addressing the planning issues around it, he said. The Liberal Premier's comments coincide with growing pressure on federal Labor to review its long-standing opposition to nuclear power."

"On Friday, Queensland Premier and ALP national president Anna Bligh added her voice to a chorus of Labor leaders seeking a review of the party's ban on nuclear power, most likely at the ALP national conference to be held next December (2011). Mr Barnett – who opened the door to uranium mining in Western Australia as one of his first acts on becoming premier in 2008 – said it was now time to take the next step. He renewed his call for a nuclear power planning commission to be created. Identifying potential sites in Australia for a reactor would be one of its primary tasks, he said. It would examine technology issues and work on safety and regulation. Most developed nations around the world draw between 20-30% of their energy from nuclear power. Australia should also begin planning to have nuclear power as part of its energy mix."

Hon. Colin Barnett MLA, Premier of Western Australia Extract : The Australian (Page 4), 28 Dec 2010

Barnett pushes nuclear future : "State Labor leader Eric Ripper strongly rejected the push, and in a message to Ms Bligh said there would be little support from WA delegates if the issue was debated at the national ALP conference. Even setting aside the environmental and waste disposal arguments, nuclear power is just too expensive, Mr Ripper said. Australia is the world's third-largest producer of uranium – the key ingredient for nuclear power – ensuring that any reactor would have a ready fuel supply. Uranium mines in South Australia and the Northern Territory export more than \$1 billion of yellowcake (Uranium Oxide U_30_8) a year, and WA, which has up to 10% of world uranium reserves, expects its first mine to be operating in two years."

"BHP Billiton (Yeelerie), Cameco (Kintyre), Toro Energy (Lake Way Centipede) and Mega Uranium (Lake Maitland) are all advanced with plans for uranium mines in WA. Mr Barnett did not nominate a preferred site for a reactor but has previously

ruled out WA, saying the state's energy grid was too small to cope with the massive injection of power a nuclear power station would bring. WA Labor remains opposed even to uranium mining, although this could change in June when the issue is debated (*or a new Leader / Shadow Cabinet is elected*) at its State conference as the party grapples with the reality that mines may be operating before the next election, due in 2013."

Hon. Eric Ripper MLA, Leader of the Opposition, Western Australia Extract : The Australian (Page 4), 28 Dec 2010

Going with the flow – Oil may last a lot longer than we were first told : "Read a 20-year-old newspaper and today we should be living in a world without oil. The Doomsday predictions shouted that oil was running out – fast – and soon the car industry would die, personal freedom would expire and only the wealthy would find comfort in tiny battery-powered vehicles. Obviously it hasn't happened. In fact, in 2009 world consumption of oil actually reversed by 1.7% - the biggest decline since 1982. Global reserves, according to BP's 2010 Statistical Review of World Energy, rose by 700,000 million barrels to 1.33 trillion barrels. The *'peak oil'* forecast – measuring when production will reach its maximum as oil supplies start to diminish – was reported around 2005 but since has been put between 2013 and 2037 (International Energy Agency)."

"But it comes as carmakers – accused of polluting the world by governments who point accusations with one hand, and take billions of tax dollars with the other – react to emission and fuel economy issues with sparkling technology based on existing concepts that make dramatic reductions in fuel use. The most significant issue surrounding the future of the car is the price of fuel. Fuel remains around current price levels mainly because of demand. If the price goes up by, say 15%, people buy more economical cars. If the price rises 50%, people buy smaller-engined cars and start using alternative transport. If the price doubles, carmakers will immediately kick-start alternative-fuel vehicles – including electric, hybrid and *hydrogen* fuel-cell – and they may be in showrooms within 12 months. Carmakers will not invest billions of dollars in new technologies when they can satisfy market demands – in this case, fuel economy – by tweaking existing technologies."

Neil Dowling, Motoring Writer, The Sunday Times Extract : The Sunday Times (Page 62), 02 Jan 2011

Going with the flow – Oil may last a lot longer than we were first told : "The chief executive officer of Caltex Australia, Julian Segal, speaking at an Australian Institute of Energy seminar in Adelaide in October 2010, said petrol consumption was affected by population, vehicle ownership, distance travelled by vehicles, fuel efficiency and the fuel price. But the number of cars per head of population is stable, the average distance travelled is stable, car fuel efficiency is improving and we have seen a change from petrol (unleaded) to diesel and LPG by Australia's light commercial fleets, he said. Australian petroleum sales in 2009-10 were 36% petrol, 37% diesel, 13% jet fuel and the remainder (14%) was LPG, bitumen, lubricating oils and speciality products such as those used in chemical manufacture. Australian sales of petrol, diesel and jet fuel were about 44 billion litres in 2009-10 and about 30% of these products were imported. Mr Segal said the import mix varies. About 22% of petrol is imported fuels will grow to 42% of our petroleum requirements by 2020."

"While global oil reserves are stable, Australian reserves are running out. The Federal Government's Australian Energy Resource Assessment, published in March 2010, states that :

- Crude oil production from known oil (Australian) fields will dramatically decline 85% over the next 10 years.
- This decline is offset by condensate from wet gas (mainly in LNG projects) but because of a lack of condensate splitters in Australian refineries, 95% of this is exported.
- The prospect for new oil discoveries is not very good.

Mr Segal reports that Australia's useable oil reserves are mainly off the coast of Western Australia and are considered too far from an Australian refinery. He says that, in effect, oil could be categorised as South-East Asian oil. A further problem is that Australian refineries are geared for light, sweet crude, a variety that processes relatively easily into petrol and that was once in good supply in Australian waters, such as Bass Strait. This crude is becoming harder to source. Offsetting that is the increase in world oil reserves, the decrease in production and weaker demand for petroleum."

"The world is oversupplied with petroleum products, he said. Asia has 30% of the world's refining capabilities and two refineries in India combine to produce 1.2 million barrels of petroleum products a day – 60% more than the entire Australian refining industry. Though Mr Segal sees a greater use of diesel for vehicle propulsion in the future, he says changing lifestyles and attitudes to car use are reducing transport oil demands. We see diesel demand increasing at about 3.5% a year, he said. Diesel is the workhorse of Australian industry and is used in just about every sector of the economy, from road transport to mining to agriculture and construction. For example, diesel demand in the Pilbara region alone is expected to increase by more than 50% by 2020. Diesel now makes up 25% of all new passenger cars, but Mr Segal isn't sure about that trend continuing. Technological change to improve vehicle fuel efficiency seems likely to accelerate, driven by (government carbon) regulation, as well as manufacturers' perceptions of future oil and carbon process and customer demand, he said. Longer-term regulatory policies – such as the recently announced mandatory carbon emissions targets for vehicles – could have a significant impact."

Julian Segal, Chief Executive Officer, Caltex Australia Extract : The Sunday Times (Page 62), 02 Jan 2011

Qantas hopes biofuels bid will fly : "Qantas is planning to build a \$300 million commercial jet biofuels plant in Sydney which will burn 500,000 tonnes of rubbish a year in an effort to power the airline's fleet with greener fuel. The airline has teamed with US fuel supplier Solena to investigate the construction of the world's second commercial waste biofuel plant in Sydney, a move that could create 1200 jobs. It is one of two biofuels projects Qantas is assessing as it moves to cut its carbon emissions and meet

airline industry guidelines of improving fuel efficiency by 1.5% a year to 2020 – or even a tougher United Nations target of 2%. It is understood the project involves using crops to make biofuel in what Qantas hopes could become a sustainable industry."

"Airlines, which account for about 2% of global man-made carbon emissions, want to be carbon neutral from 2020 and have set a target to halve 2005 emission levels by 2050. The Solena joint venture would aim to convert commercial waste to biofuel using the Fischer-Tropsch (F-T) method – a 1920s German process used to produce synthetic jet fuel from coal in South Africa and gas in Qatar. Unlike synthetic fuels, however, biofuels produced by the F-T process from waste have a lower carbon footprint over their production lifecycle than traditional jet fuel. A similar plant being built with British Airways in London, due to come on line in 2014, will convert up to 500,000 tonnes of waste a year into 73 million litres of green jet fuel – enough to power 2% of BA's Heathrow fleet. The plant will use scraps and other household material such as grass and tree cuttings and agricultural and industrial waste as a feedstock for the fuel."

"Solena estimates the process offers lifecycle greenhouse gas (*emissions*) savings of up to 95% compared with fossil-fuel derived kerosene (*Jet A-1 Aviation Fuel*). It says the annual CO_2 savings from the fuel it produces will be the equivalent of taking 48,000 cars off the road. Projected CO_2 savings of 550,000 tonnes a year include 250,000 tonnes from a reduction in waste sent to landfills, 86,000 tonnes from 20 megawatts of electricity a year generated from tail gas produced by the F-T process and 72,000 tonnes from a by-product, naptha. The plant will emit oxygen plus small quantities of nitrogen, argon, steam and carbon dioxide but will be CO_2 -neutral. There will be added advantages to the airline because it will be able to use its own waste to produce fuel. Qantas has had a long-standing interest in biofuels and is a member of the global Sustainable Aviation Fuel Users Group."

"Spokeswoman Olivia Wirth said the airline was closely involved with other industry stakeholders in a 'road map' study into sustainable aviation fuel development in Australia. Under an agreement with Solena Fuels, we have committed to investigate the feasibility of a waste-based aviation fuel production plant in Australia, Ms Wirth said. We expect to produce a business case for such a plant within 12 months. While we are still in the early stages of this project, the possibilities are exciting. Qantas will also be talking to governments about their involvement in its alternative fuel plans."

Olivia Wirth, Executive Director Corporate Affairs, Qantas Airlines Article : The Australian (Page 2), 04 Jan 2011

Following up – The whole point of flying is to get from point A to point B quickly and safely – and if point B doesn't have any fuel, and is beyond the safe travel limits (in terms of distance) for an aircraft, then the aircraft won't chance the destination – there is also a requirement for flight plans to include an alternate destination in the event of mishap (risk management), and things do happen in-flight.

Following up – Something suggests to me that this statement is more public relations than scientific rigour, but the intention is good. The question is whether you would invest millions of dollars in transport aviation infrastructure and billions of dollars in tourism assets world wide on the expectation that a future aviation fuel will be developed (refer the 25 Oct 2009 statement by Giovanni Bisignani of IATA).

Nuclear industry has no future, Mr Barnett : "Mr Colin Barnett (*the Liberal Premier of Western Australia*) and Ms Anna Bligh (*the Premier of Queensland and National President of the Australian Labor Party*) have lined up with some senior coalition and ALP figures pushing nuclear power as an answer to both dwindling fossil fuel supplies and the challenge of reducing carbon emissions. In reality, there is no global nuclear renaissance, and we should hope there never will be. Since the early 1980s, the industry has been sinking under the weight of the vast costs of this obsolete and risky technology. Coal, gas and all renewable energy technologies that I'm aware of are getting less expensive with each new generation as expertise develops and economies of scale kick in. Nuclear power, on the other hand gets more expensive with every generation. Why? By 2020, offshore wind farms, solar thermal and solar photovoltaics are all projected to be less expensive than nuclear power. A key challenge for the nuclear industry is water. Water scarcity is already a serious problem for power generation in Australia, particularly with our over-dependence on water-intensive coal-fired power plants. In 2007, the Roxby Downs mine in South Australia was using 35 million litres of water daily."

Senator the Hon. Scott Ludlam, Member for Western Australia (Greens) Extract : West Australian (Page 20), 13 Jan 2011

Following up – Adelaide and South Australia are probably the most water sensitive capital city and State in Australia, with a Greens member in the Senate representing that State's interests – and yet they still mine Uranium but do not produce desalinated water with nuclear power.

Woodside, BP get exploration go-ahead : "The federal government has granted offshore petroleum exploration permits to four companies, including Woodside Petroleum and BP, which have committed to invest \$682 million over the next three years. Resources Minister Martin Ferguson announced three permits, awarded to Woodside, Finder No. 4 and Riverina Energy, in Western Australia's Carnarvon Basis, Australia's leading offshore petroleum producing area. The other four permits were awarded to BP for exploration in South Australia's Ceduna sub-basin. Increasing exploration levels in our un-explored and under-explored frontier basins is essential to finding Australia's next offshore petroleum province, Mr Ferguson said. Australia has a \$16 billion trade deficit in crude oil, refined products and LPG which is expected to rise, possibly as high as \$30 billion by 2015. Our energy security will be greatly enhanced by opening up new geological frontiers and reducing our dependence on imports. Exploration permits were last granted in frontier basins in 2000."

"Mr Ferguson said additional conditions had been attached to the permits, emphasising the need for oil field best practise by the operator. BP's exploration activities, and indeed those of all operators in Australian waters, will be undertaken in accordance with our stringent environmental and safety standards, he said. Australia already has one of the world's most effective petroleum regulatory regimes and it will be further strengthened as we progress legislation to put in place a national offshore petroleum regulator by 1 January 2012, at the same time as we continue to implement recommendations from the Montara report. The safety of our workers and environment is fundamental and will remain the priority as we progress the responsible development of our natural resources – both on and offshore. I am satisfied that we have put in place the appropriate safeguards and note BP's commitment to work with government and regulators to ensure the highest possible safety standards as they carry out this work."
Hon. Martin Ferguson MHR, Min. Energy & Resources e-News : WA Business News, 17 Jan 2011

Globe heading for oil drought : "By 2050, the world's demand fro energy may have tripled. The global appetite for energy is likely to swell far more rapidly than available supply in coming decades as oil production hits a plateau and emerging markets see rampant economic growth, Royal Dutch Shell has said. The oil giant predicts that by 2050 world energy demand may have tripled compared with 2000 levels, based on historical patterns of development, However, energy supplies may grow by only 50% in the same period – improvements in energy efficiency could curb demand by 20% - but the world still needs to figure out how to bridge a looming gap between supply and demand equivalent to the global energy industry's entire output in the year 2000, Shell calculated. By the end of this decade the world will run into a plateau in oil production, a development that will put **'upward pressure'** on oil prices. Jeremy Bentham, the vice-president for Business Environment at Shell, said the coming surge in energy demand reflects the surge in developing nations. China will be continuing through its industrialisation period over the next 10 years, and India is probably 10 years behind that. This will be followed by the likes of Indonesia, Vietnam, and so on. These successive waves of development will cerate a surge in underlying demand for energy. This is leading us to a vast zone of uncertainty. The projections came in a report updating energy scenarios that Shell published in 2008."

Jeremy Bentham, Royal Dutch Shell Extract : The Australian (Page 29), 15 Feb 2011

Exxon steps on gas as new oil dries up – Deepwater oil is available, but there is a long lead time : "Exxon Mobil, the world's largest publicly traded oil company, is struggling to find more oil. In its closely watched annual financial report released yesterday, the company says that for every 100 barrels it has pumped out of the earth over the past decade, it has replaced on 95. It's a conundrum shared by most of the other large Western oil-producing companies, which are finding most accessible oil fields were tapped long ago, while promising new regions are proving technologically and politically challenging. And the shift towards gas is troubling some investors, because gas sells for less than the equivalent amount of oil. Many observers feel the move toward gas – a trend across the oil industry – is dictated more by shrinking access to oilfields than by a strong desire to emphasise gas production. The good old days are gone and not to be repeated, says Fadel Gheit, an analyst with Oppenheimer. Bringing additional reserves from gas is not going to give you the same punch that oil would, he said. Finding the equivalent, in either oil or natural gas, of a barrel in the earth fro every one the company produces – a 100% reserve replacement rate – has become extraordinarily tough. Investors look at these reserve figures as an important gauge of future profitability and strength."

Fadel Gheit, Analyst, Oppenheimer Resources Extract : The Australian (Page 22), 17 Feb 2011

Bandt to vote against government and force a vote on nuclear dump : "For the first time Greens MP Adam Bandt will vote against a government bill in Federal Parliament today and seek to highlight the government's failure to properly consult traditional owners about plans for a nuclear waste dump in the Northern Territory. The National Radioactive Waste Management Bill 2010, which sets up the legal regime for a radioactive waste dump at Muckaty north of Tennant Creek, will be debated today. The planned law overrides all State and Territory legislation that could affect the dump plan and exempts Resources Minister Martin Ferguson from compliance with key Commonwealth environment and Indigenous protections. The Greens in the Senate have previously strongly opposed the legislation. Mr Bandt will move an amendment to delay passage of the Bill until Minister Ferguson consults with Traditional Owners who are opposed to the dump. This pre-requisite recommendation from an earlier Senate Inquiry into the dump laws has been completely ignored by Minister Ferguson."

"It is a year since this Bill was first introduced yet the Minister has still not met with the traditional owners who are the target of this legislation. If Minister Ferguson wants to dump nuclear waste on their land, he should have the courtesy and the courage to first front the community, Greens MP Adam Bandt said today. Instead the government is attempting to ram this Bill through the Parliament before legal proceedings by Traditional Owners opposed to the dump begin in the Federal Court this Friday. The truncated House committee inquiry into this legislation conducted over the summer break was a cynical whitewash. There were no public hearings. No public input and no proper investigation into the implications of this Bill. Martin Ferguson's nuclear agenda was on display last week with his push to sell uranium to India and today he is again riding roughshod over proper process. There is enormous disquiet about this whole process in both my electorate and Minister Ferguson's seat of Batman. The Minister risks his reputation with Batman voters if he fails to meet with the traditional owners."

Adam Bandt MHR, Federal Member for Melbourne Media Statement : Australian Greens, 20 Feb 2011

Two ways to avert catastrophe that may be on its way : "Since the first Arab embargo of 1973, there have been five global oil shocks, in which oil prices have doubled in the space of a few months. All these shocks – in 1973, 1979, 1990, 1999 and 2008 – have been followed by global recessions. After this experience, it is hard to avoid a frightening conclusion. If the recent escalation of oil prices continues much longer, the world will soon face another financial catastrophe even worse than the one of 2008, since governments and banks are much more vulnerable today than they were three years ago. What can be done to avert this disaster? Conventional wisdom suggests that all we can do is pray for a quick transfer of power in Tunisia, Egypt, Libya and perhaps Algeria, followed by a loss of interest in democracy in other Arab states. Until the wind of change dies down, the price of oil can only go up. Luckily, however, the non-Arab world is not quite as powerless to protect itself from the consequences of Middle Eastern upheaval as this conventional wisdom implies. There are, in fact, two broad strategies for America, Europe and Asia to protect their economic interests."

"The first is to force the Saudi regime, as long as it survives, to push down prices by supplying the market with every barrel of oil that it can produce. The second is to act much more boldly against the demand for oil, not just in the long term but in the here and now. Starting with supply, Saudi Arabia has 3-3.5 million barrels a day of spare capacity. There is another 0.5 million barrels available in the neighbouring sheikdom of Abu Dhabi. Their combined spare capacity of 3.5-4 million barrels would be enough to replace the entire output of Libya (1.6 million), Algeria (1.3 million) and Oman (0.8 million), even in the unlikely event that all three of these countries completely stopped pumping oil at the same time. Since such a total cessation of oil output

has never happened, not even during the Iraq war or the Iranian revolution, there is no reason for global oil supplies to be reduced by the recent upheavals in North Africa."

"There is even less reason to worry about oil supplies in the long term, since a democratic Libya that attempts to meet the aspirations of its people will try even harder to sell every barrel of oil than the kleptocracy catering to the whims of a single family, however extravagant and greedy. Why, then, are oil prices so high? On the supply side, Saudi Arabia, far from stabilising the market, as it has loudly and frequently promised, has been careful to sell less oil than was needed to compensate for the losses from Libya, Algeria and Oman. Why have the Saudis behaved in this unhelpful way? Perhaps it was simple greed. More likely, the royal family hoped to signal the economic disaster that would unfold if democracy ever touched Saudi shores. Whatever the Saudis' motivation, the West can now call their bluff, for we have something the Princes need even more than we need their oil. That is protection for their personal wealth and safety."

"With the rest of the Muslim world now polarising into democracies and terrorist theocracies that hate the Saudis almost as much as they hate America, the Princes can no longer rely on comfortable exile among their neighbouring dictators and despots. If they have to flee their country, they will rely entirely on the goodwill of Western nations. That goodwill should depend on how cooperatively the Saudi rulers behave. If the Saudi Princes treat their own citizens humanely and co-operate to stabilise the world economy, they can hope for a comfortable exile if they are eventually overthrown. On the other hand, if they defy global political norms and economic interests, they should expect treatment similar to that facing Mubarak and Gaddafi. If they are deposed, their homes, shares and financial assets in America and Europe should all be subject to confiscation as property of the post-monarchical Saudi state. Such arguments should be sufficient to persuade the Saudis that their interests now lie in relieving the oil shock rather than making it worse."

"Just as important as increasing the supply of Saudi oil is action to reduce demand. It should now be clear that long-term demand reduction is needed, not only for environmental and geopolitical reasons but also because of the economic instability created by oil. Ratcheting up oil taxes and using part of the revenue to subsidise other energy sources is the best way to achieve this. The right objective is not a *'level playing field'* between oil and other technologies. Instead, nuclear power and alternative energy should be heavily subsidised. An even higher priority is demand reduction in the short term – and the key is to prevent financial institutions from hoarding oil. Numerous academic studies, mostly funded by banks, have claimed that financial speculation has no effect on demand for oil. For every buyer in the futures markets, there has to be a seller, they argue. But this specious argument deflects attention to the wrong issue. The financial activity pushing up oil demand is not short-term speculation in futures markets, but long-term investment by pension funds and other permanent hoarders, not only of oil but also of gold, copper and even agricultural commodities."

"In addition to the warehouses and tankers in Rotterdam, Singapore and elsewhere that are stuffed with potentially productive commodities taken off world markets by financial investors, enormous paper bets have been placed by these institutions with investment banks. The banks in turn have hedged these bets in futures markets by buying continuously and regardless of price, in a process closely analogous to the sub-prime mortgage boom. And just as rising house prices pulled more money into mortgages, driving up prices still further, the recent rise in oil prices, instead of reducing demand, has led to more financial hoarding, pushing up both prices and demand. If pension funds want to bet on higher commodity prices, they should do this by buying shares in productive businesses such as oil companies, agricultural businesses or mines. If instead they choose to hoard commodities, they should, at a minimum, lose their tax privileges and ultimately face outright bans. Ideologues will object that such intrusive measures interfere with free market forces. But the world has learnt by now that markets can sometimes be dangerously dysfunctional. Today's oil market is a frightening case in point."

Anatole Kaletsky, Journalist Article : The Australian (Page 24), 04 Mar 2011

Underground coal gasification produces cheap diesel : "It's 40 degrees on a windless day in a shimmering dry field of brigalow scrub in western Queensland, but for Peter Bond, this is a field of dreams where he can produce petrol that will power him to the other side of the continent for 20c a litre. Bond, the head of coal miner Linc Energy, will set out this morning from Brisbane to Sydney, then Canberra, Adelaide and Perth, in a Volkswagen Golf powered by diesel petrol produced by the controversial method of underground coal gasification. Bond sees the drive as a 'grand gesture' to highlight what he sees as the commercial viability and environmental soundness of UCG, a method not so much of mining as creating energy, and radically different from what has gone before. UCG involves burning an underground coal seam to produce synthetic gas. The Linc team has taken the syngas from its tenements near Chinchilla in western Queensland and used the wonderfully named Fischer-Tropsch process to convert it into crude oil, and then used the standard oil refinery process to convert that into diesel. Linc says petrol produced this way has superior emission properties to conventional diesel, with almost none of the sulphur or aromatic hydrocarbons that contribute to air pollution. Their pitch is a simple one: this fuel is cheaper and it's better for the environment."

"Linc Energy is one of three UCG projects that were being trialled in Queensland, but another, run by Cougar Energy, has been shut down by the Queensland government amid loud community protests. Another of the companies, Carbon Energy, will press on with trials in Queensland, while Linc has also received the all-clear from a panel of state government scientists, who will report by the end of next year on whether UCG is environmentally sustainable. New Queensland Mining Minister Stirling Hinchliffe appeared at Chinchilla on Wednesday to reinforce the message of the scientific panel, saying Linc is following world best practice environmentally. The mood is strongest in Queensland, but not confined there. CSG exploration in NSW's Hunter Valley has also given grief to the Keneally government. In this politically charged environment, when early tests in the middle of last year showed a leakage of poisons from Cougar's Kingaroy plant, there was a huge community outcry, and Cougar's operations were shut down. The investigation found that the offending chemicals such as toulene and benzene were in such minute doses they were well within health guidelines, but the political stench lingered. UCG's main advantage over conventional mining is that it can use coal that is otherwise difficult to reach."

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"In Bond's field of dreams at Chinchilla, for example, the coal seam is 12m thick but 125m below the surface. This is UCG's big advantage. Coal doesn't need to be mined, only burned. It can be accessed while still at depth. And coal seams vary greatly in depth. Chinchilla is a good example of this. The only sign of human habitation around Linc Energy's holdings is about 5km away on a slight hill, where the coal-fired Kogan Creek power station is silhouetted against a cloudless blue sky. Kogan Creek uses exactly the same seam of coal as that used by Linc, only it gets its coal from closer to the surface and takes it to a power station to burn. Only a couple of kilometres south is a coal-seam gas operation run by British-owned Queensland Gas. Coal-seam gas and underground coal gasification are often confused, but as Bond is quick to point out, they have little in common. One involves pumping water out of the earth to bring gas from a coal seam to the surface; the other involves burning the coal in situ to create energy. For Linc's part, it is concentrating on tenements in South Australia and also in Wyoming and Alaska in the US, both places where the affable Bond claims UCG is better regarded. But if, as he claims, he can make petrol for 20c a litre, why is the world not beating a path to his door?"

Peter Bond, Managing Director, Linc Energy Article : The Australian (Page 26), 05 Mar 2011

Oil and troubled waters – a Chinese frigate off Libya should ring alarms about new jostling between superpowers as they move to protect their future fuel supplies : "In the beginning, wrote Hubertus van Mook in a rueful commentary soon after Japanese forces evicted him from his position as Lieutenant-Governor of the Dutch East Indies, it was difficult to piece together this whole connected movement from the apparently disconnected moves. Back in 1941, a Japanese carrier fleet tore across the oceans to what is now Indonesia, seeking control of what was then the fourth largest oil-producing state in the world, behind the United States, Iran and Romania. Oil wasn't the only reason. Japan went to war, but oil was an important reason. The country needed access to energy to fuel its imperialist ambitions, and a US embargo on oil exports to Japan imposed that July meant it had lost access to an estimated 93% of its needs."

"If the shots fired in Libya do not prove to be the first exchanges in a future world war, then now is a good time for world leaders to consider Mr Mook's unhappy story, and start making sense of 'the whole connected movement' of events in the Middle East. The big picture is this : the world's great powers are competing for an ever-diminishing oil pool making the prospect of potentially catastrophic conflicts pitting them against each other ever more likely. Late last week, the geostrategic implications of the still unfolding crisis in the Middle East began to reveal themselves, as China positioned the advanced missile frigate Xuzhou off the eastern coast of Libya – the country's first deployment in the Mediterranean. The ship, and the special forces personnel it carried, was there to make sure that the estimated 30,000 Chinese workers in Libya were safely evacuated, in the face of a rash of attacks on Beijing-owned oil facilities."

"Ji Mingkui, a professor at China's national defence university, has predicted that more such deployments will take place in the future *'to protect our national interests overseas'*. In the next year alone, China will pump \$90 billion into aircraft carriers, battleships, expanded airlift capabilities and missile systems capable of targeting US carrier fleets deep in the western pacific – all part of a gigantic military modernisation program that will enable the country to defend its sources of energy and to protect the sea lanes that carry the fuel back home. None of this is happening because there is a shortage of oil – strange as that may sound at a time when we're paying such high prices for petrol. Even if protracted strife in Libya shuts its oil production indefinitely, Saudi Arabia alone could more than make up for it. It has spare capacity of 3.5 million barrels per day, more than twice the normal pre-crisis output from Libya. In addition, the International Energy Agency has substantial strategic reserves, as do Western governments. Last week, Nobuo Tanaka, the IAE's director, assured the world it could release two million barrels per day for two years."

"We don't really have to worry too much, he said. Mr Tanaka is right : there is no immediate cause for panic. But in the longerterm, there is plenty of reason for China – and everyone else – to be concerned. Five nations now account for more than half the world's proven reserves (that is, oil known to exist but yet to be extracted) : Saudi Arabia 19.8%, Iran 10.3%, Iraq 8.6%, Kuwait 7.6%, and the United Arab Emirates 7.3% (*total 53.6%*). Oil producers outside the Middle East are running out of oil faster than these five. Russia, which today produces almost as much oil as Saudi Arabia, will run out of oil by about 2020, the Institute for the Analysis of Global Security has estimated. Key African producers such as Nigeria, whose output helps stabilise prices and meets significant parts of global demand, will run dry by 2025 or so. That means the Middle East will, in the not too distant future, be the world's principal source of oil – and there is no great imagination needed to see why betting on stability is probably unwise."

"Earlier this month, Brigadier-General Mohammad-Reza Naghdi, the commander of Iran's Basij regime protection force, told his troops that the time was coming when oil and gas fields belonging to Muslims, which are now in the hands of America, will fall into the hands of the people. He added in case anyone had missed the point : The enemy is heavily dependent on this energy and events in the region have them quite agitated, which provides us with a hopeful future. Iran's ambitions will have a direct impact on Saudi Arabia. Protests against the monarchies that rule Saudi Arabia and neighbouring Bahrain have been led by their Shia minorities, and although claims that Iran is directing their course are overblown, it will influence their intensity and eventual outcome. Moreover, nations such as Saudi Arabia have large populations of young people with little work and few prospects – a recipe, recent events in the Middle East have shown, for political instability."

"There might be some who think that vigorous foreign military intervention could secure Middle East oil even if the countries where it is located descend into chaos. The case of Iraq, though, should dispel such assumptions : the best part of a decade after Saddam Hussein was overthrown, the oil industry there is yet to recover and remains vulnerable to insurgent violence. For China, the world's second-biggest economy, this scenario is cause for concern. Oil has played a key role in powering the 9% its economy has seen every year for the past two decades. China relies on coal for up to 70% of its energy needs – in Britain, by contrast, coal makes up 17% of the fuel mix. But China is still the second-biggest consumer of oil, after the US. The IEA estimates that China's consumption will grow to 13.1 million barrels /day in 2030, up from 3.5mb/d in 2006."

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"The People's Republic of China is investing heavily in alternative sources, but even the 25 nuclear plants it's in the process of constructing will meet less than 1% of its needs. Chinese oil companies have responded by investing in oil production across the globe, from Angola and Sudan to Kazakhstan. In 2006, however, the total overseas production by Chinese-owned firms amounted to just 0.675 mb/d – less than 19% of its imports. That means China remains reliant on Middle Eastern oil, with half its imports coming from Saudi Arabia and Iran alone. Like the rest of the world, China will become even more dependent in the future. In the best case scenario, the West and China could collaborate to manage the diminishing pool of Middle East oil, apportioning resources equitably and jointly guaranteeing security. *In the worst case scenario*, ..."

"There are some reasons for optimism. The Chinese missile frigate that appeared in the Mediterranean last week was drawn from a multinational fleet positioned in the Indian Ocean to act against pirates – a common threat to a swath of Western and Eastern states with interests in the region's trade lanes (*the Suez canal*). Best-case outcomes, though, are not inevitable. China's flexing of its muscles in the South China Sea, driven by the desire to control gas and oilfields, has caused friction throughout the region. Like Japan in the build up to World War II, China is ever more dependent for its future growth on resources in distant countries – countries, moreover, where its competitors have long had a dominant role."

"In not dissimilar circumstances, the historian Howard Dick noted, Japan's military helped to create an environment in which the heroic dream of a *'southern empire'* became acceptable and, in the face of domestic and international events, harder and harder for the pragmatists in government to resist. It's not as if a world war is around the corner : nuclear weapons have raised the costs of wars between great powers to unacceptable levels, and China has much to lose from seeking to disrupt the global order. But Mr van Mook's story warns us that failing to pay close attention to the strategic environment we live in is a dangerous business. It is a mistake the world cannot afford to repeat. *Lest we forget.*"

Praveen Swami, Diplomatic Editor, Daily Telegraph, UK Extract : West Australian (Page 66), 12 Mar 2011

Following up – Handy thing that Suez Canal connecting Europe and Asia – so not only a Chinese frigate passed through, but also the frigate Alvand, flag ship of the Iranian Navy en-route to war games with Syria, and an American aircraft carrier battle group – in the best of Anzac traditions, we should mention the Battle of El Qantarah 1914.

http://www.facebook.com/album.php?aid=25844&id=126321394093790#!/photo.php?fbid=143810249011571&set=a.139864776072785.25844.126321394093790&theater

Emergency plan for WA fuel rations : "Petrol would be rationed to WA motorists at set prices and service stations eventually closed to the public under an emergency blueprint to deal with a fuel shortage. As tensions in the Middle East drive the price of oil to two-year highs, the WA Government's energy adviser is finalising a 'State Liquid Fuel Shortage' strategy to deal with a supply crisis. The plan is designed to prevent panic buying and ensure order at fuel bowsers across the State in the event of a domestic disruption, such as industrial action on the docks, a refinery problem or an international crisis such as war in the Middle East. Under the emergency plan, restrictions would first be voluntary, with the public encouraged to use public transport. For a prolonged shortage, service stations would be closed and all remaining fuel quarantined for police, ambulances, fire-fighters and key Government officials."

"A draft plan devised by the Office of Energy is being mulled over by departments and industry heavy-weights. These restrictions will initially be light-handed, voluntary, non-legislative demand restraint measures to address any supply shortfall, an Office of Energy spokeswoman said. In the event of a prolonged acute shortage, it may become necessary to consider more formal government responses, such as rationing. Under rationing, motorists would be eligible to buy a set amount of fuel each day at the benchmark price registered before the emergency. The system replaces a strategy under which motorists would have bought fuel on certain days, depending on whether their car's number plate ended in an odd or even number. WA has one oil refinery at Kwinana (BP), which produces about 80% of WA's diesel and petrol needs. The rest comes from Singapore and the Eastern States. Most of the oil the BP refinery requires comes from Pilbara (*NW Shelf*) fields but the plant needs additional supplies of heavy crude from the Middle East and Asia."

Anonymous Public Servant, WA Office of Energy Article : West Australian (Page 12), 15 Mar 2011

Thorium power the answer : "Predictably, there is a lot of uninformed screaming and shouting about the evils of nuclear power in the wake of the Japanese event (*earthquake / tsunami*), but the facts are that Japanese reactors are disasters waiting to happen because they were built in perhaps the number-one earthquake-prone part of the planet. In the case of the offending Fukushima plant, obsolescence of the technology employed is another factor at work. The question is not whether it will happen again, but when and where. My question is a simple one : why do we never hear any reference to the production of a safe alternative to uranium-powered plants?"

"I'm not referring to pie-in-the-sky renewal power, but to thorium-based nuclear-powered units. India is a leader in the race with its first reactor (*Kalpakkam, Tamil Nadu near Chennai – a 500MWe Thorium FBR*) coming on line this year."

"Australia has an estimated 25% of the world's deposits of thorium minerals from which thorium-232 can be produced. It has none of the problems associated with the China syndrome and had the plants in Japan been thorium-based, there would be no problems with radiation spill and meltdown. Thorium reactors' power can be 'switched off' almost instantly in the case of imminent natural catastrophes like tsunamis. India arguably leads the world (*China also*) in the development of this power alternative, and will derive a considerable amount of its energy requirement from it between now and 2050, perhaps as much as 30%. The technology will also provide an income source to that country in times to come. If our Prime Minister really wants to show the world the way to a less-polluted future, thorium power is a grand opportunity."

Malcolm Rowe, Swan View Resident & Taxpayer Article : West Australian (Page 22), 24 Mar 2011

Following-up – India has a so-called 'three-stage nuclear program'. In the first stage, plutonium is created in its pressurized heavy water reactors (PHWRs) and extracted by reprocessing. In the second stage, fast breeder reactors (FBRs) use this plutonium in 70-percent MOX-fuel to breed uranium-233 in a thorium blanket around the core. In the final stage, the FBR's use thorium-232 and produce uranium-233 for other nuclear reactors. This is of special significance to the Indian nuclear power generation strategy as India has large reserves of thorium – about 360,000 tonnes – that can fuel nuclear projects for an estimated 2,500 years.

Cutting edge energy promises just hot air : "The state that sold itself as the heartland of sustainability has been exposed as falling hopelessly behind its own renewable energy targets for most of the past decade. Victoria's renewable energy record was savaged yesterday by the state's auditor-general, who also highlighted how the former Labor government had failed to perform basic checks on key projects. Auditor-General Des Pearson found renewable energy generation as a percentage of power consumption had increased from 3.6% to just 3.9% over seven years. This compared with a target rate, set in 2002, of 10% by 2010. Mr Pearson found Labor had failed to properly assess or substantiate the cost and benefits of the key incentive mechanism for attracting private investment in solar energy generation. Nor was enough work done on the validity of the solar energy targets. More than \$270 million of taxpayer money has been poured into developing renewable energy or attracting investment. The documented failure of Victoria's renewable sector to supply a larger share of the state's power and reduce reliance on carbon-intensive brown coal-fired plants will increase state government and industry concerns about the impact of the proposed carbon tax on electricity security."

"The Australian revealed this week that electricity generators could be paid by the federal government to shut down highemission coal power plants such as Hazelwood and Loy Yang B in the Latrobe Valley, which together generate about 40 per cent of Victoria's electricity. The auditor-general's report noted how little of Victoria's electricity had been generated by renewable energy in 2009, with wind accounting for 1.93%, hydroelectricity 0.94% and solar a mere 0.05% of the state's power. Mr Pearson singled out for criticism two of Australia's key solar power projects, which had already attracted \$150m of taxpayer money. The Gillard government said last night it was still considering using some of the \$1.5 billion Solar Flagship Program funds to help advance one of the projects, TRUenergy's Victorian Large Scale Solar Project, south of Mildura, in northwest Victoria. This was despite Mr Pearson questioning the absence of documented evidence of why the proposed generator project was needed and a completed business case before state Labor approved a contingent investment of \$100m. He also questioned the way the government had assessed its second major solar project, the Solar Systems / Silex Project, which is in the research and development phase. While both involve public funding totalling around \$150m, neither was supported by a business case that demonstrated both the need for the project, or its alignment with government policy," Mr Pearson found."

"Mr Pearson condemned as ineffective Labor's setting of renewable energy targets, claiming that in 2002 no effort was taken to determine whether renewable energy and wind energy targets were achievable. In the absence of these key planning inputs, there was no evidence to show that planning was effective or the targets soundly based, he said. State Energy and Resources Minister Michael O'Brien will review all the systems put in place by the previous government. Labor lied to Victorian families over the cost of its poorly planned energy policies, Mr O'Brien said. The Auditor-General found Labor's solar sham would have cost Victorian families nearly 500% more than Labor claimed and every dollar of this cost blowout would have increased electricity bills for struggling Victorian households. Federal Resources and Energy Minister Martin Ferguson said the report was a matter for the Baillieu government. TRUenergy declined to comment on the report. Environment Victoria campaign director Mark Wakeham said the government's renewable energy failure had not been a surprise. It is something we've known for a long time despite a number of promises that have been made, he said."

Des Pearson, Auditor-General, State Government of Victoria Article : The Australian (Page 4), 07 Apr 2011

Downer flips on nuclear waste : "Former foreign minister Alexander Downer has reignited the uranium debate, saying it would be economically beneficial for Australia to store nuclear waste from other countries. Mr Downer's comments contradict those he made in 2007 when he said Australia would not accept waste. Speaking to The Australian before addressing University College London students in Adelaide about the nuclear industry, Mr Downer said it made sense to store waste from other countries because central Australia was geologically stable. Australia has the geology best-suited in the world, other than Russia, for the storage of nuclear waste, Mr Downer said. "It would have enormous economic benefits. Mr Downer said areas such as Maralinga, where the British government conducted nuclear testing in the 1950s and 60s, were ideal. Would you rather store it in a geologically stable central Australia, or geologically unstable Japan?, he said. Under the Howard government, Australia considered joining the Global Nuclear Energy Partnership."

"The GNEP held discussions on whether Australia could reprocess or store nuclear waste from other countries, but found there was no economic justification to introduce reprocessing technology. Mr Downer said at the time that if Australia became involved in the GNEP, the nation's co-operation would not extend to accepting nuclear waste. The Rudd government ruled out accepting nuclear waste from other countries in 2008. Mr Downer has long been a supporter of nuclear energy, and said yesterday if the federal government were to introduce a carbon tax, nuclear power would become cheaper than green technologies. He said a city such as Whyalla, 300km northwest of Adelaide, would be ideal for a nuclear power station, provided its residents were compensated. You could attach it to a desalination plant, so you could solve the problem of Olympic Dam and Roxby Downs, he said. The Upper Spencer Gulf cities, instead of using Murray River water, they could use desalinated water. And we would have a nuclear power station that would create power for the eastern states' grid."

Hon. Alexander Downer, Ex-MHR, Former Minister for Foreign Affairs Article : The Australian (Page 6), 08 Apr 2011

RAC wants probe on WA's high diesel price : "The RAC wants the Australian Competition and Consumer Commission to investigate the price of diesel in WA after an analysis showed it is the nation's highest. It said the average price in WA was 158.3ϕ a litre compared with 148.6ϕ in Melbourne last week. It said Fuelwatch showed WA retailers enjoying almost twice the retail margin on diesel than this time last year. The extra costs were ultimately passed on to consumers in higher prices,

according to the WA freight industry. RAC head of member advocacy Matt Brown said the ACCC needed to look closely at what was driving the price of diesel fuel in WA. Motorists in regional WA fork out even more for diesel with an average State regional price of 159.0¢ a litre compared with the national regional average of 155.9¢."

Matt Brown, Member Advocacy, Royal Automobile Club WA Article : West Australian (Page 9), 08 Apr 2011

RAC wants probe on WA's high diesel price : "WA Long Distance Owners & Drivers Association chairman Ray Pratt said rising diesel prices had been an issue for several months. Someone has to wear the cost eventually, whether it be the big companies, the shops or the customer, he said. Our margins are pretty tight. Not long ago it was 120.0¢ per litre and it's crept up. Mr Pratt said some transport firms had fuel levies to account for fluctuating prices but many, particularly owner-drivers, did not, and had to absorb cost increases or try to charge more for the job. He supported an ACCC investigation, having heard that retailers had increased diesel prices to capitalise on WA's strong economy."

Ray Pratt, WA Long Distance Owners & Drivers Association Article : West Australian (Page 9), 08 Apr 2011

RAC wants probe on WA's high diesel price : "Stephen Moir, of the Motor Trade Association WA, said the issue warranted investigation but he did not believe the price difference with other States was pure profiteering. WA costs, such as for labour, were significantly higher than those in New South Wales and Victoria. The RAC said that based on average prices, motorists were currently paying almost 20¢ a litre more for diesel than unleaded petrol, compared with a 2¢ difference this time last year."

Stephen Moir, Motor Trades Association WA Article : West Australian (Page 9), 08 Apr 2011

Tax will not cut emissions : "To be written to be written."

Shirley In't Veld, Chief Executive Officer, Verve Energy Article : West Australian (Page 14), 30 Apr 2011

A NUCLEAR Australia is inevitable : "if the country is serious about reducing carbon emissions, according to the chairman of Rio Tinto, Jan du Plessis. The head of one of the world's largest uranium mining companies said while it would be 'lovely' to be able to live solely off solar power, it was 'not going to happen'. Addressing the company's annual meeting in Perth yesterday, he said: "Our firm view is that for the sake of energy security ... the world is going to have to include ... a certain contribution [from] nuclear energy. If the world is serious about reducing emissions by carbon, we're going to have to look more seriously, more extensively at the use of nuclear energy. "Mr du Plessis said he supported the government putting a carbon tax on the table but warned against moving ahead of the US and China. I'm supportive of any efforts aimed at reducing emissions, he said. Having said that ... the government needs to be careful not to penalise energy intensive export businesses in Australia until such time as the big beasts such as the US and China move as well, because there is a risk [to] ... Australian businesses without actually making a big impact on carbon emissions."

"Shareholders grilled executives over the company's responsibility in the Fukushima nuclear reactor meltdown in March and the leaking of millions of litres of *'radioactive contaminated'* water from the Ranger uranium mine – operated by Rio subsidiary Energy Resources Australia – which polluted Kakadu National Park in the Northern Territory earlier this year. Tom Albanese, Rio's chief executive, said uranium from the Ranger mine had been exported to Japan, although commercial confidence prevented him from confirming whether it was being used at Fukushima. In acknowledging that the nuclear issue divided many, Mr du Plessis said it was very hard to convince the anti-nuclear believers that there is another point of view."

Jan de Plessis, Chairman, Rio Tinto Article : Sydney Morning Herald (e-News), 06 May 2011

A NUCLEAR Australia is inevitable : "Senator Scott Ludlam (Western Australia) of the Greens said Mr du Plessis's comments were 'irresponsible'. Rio Tinto is not interested in solar energy because it doesn't own the sun, so they've got no interest at all in promoting the alternative [to nuclear energy], he said. It's pure self-interest [while] pretending to be an energy policy expert. Senator Ludlam said the growth in renewable energy capacity, including from wind, biomass and solar power, had outstripped nuclear capacity each of the past 15 years and last year surpassed nuclear for the first time. The Rubicon has been crossed for nuclear power – it is a dying industry and there is no turning back, he said. Even before the Fukushima disaster, investors and insurers in the US, for example, could not be coaxed to back nuclear power."

Senator Scott Ludlam, Western Australia (Greens) Article : Sydney Morning Herald (e-News), 06 May 2011

A NUCLEAR Australia is inevitable : "The Minister for Resources and Energy, Martin Ferguson, was not persuaded by Mr du Plessis's argument, saying Australia did not need nuclear power given the country's abundance of low-cost and reliable alternative energy sources, namely fossil fuel and renewable. Mr Ferguson said the Fukushima incident had not changed the government's position on uranium exports. It would continue to support an expansion of uranium mining and the supply of the resource to countries that were signatories to the nuclear non-proliferation treaty. Global need for uranium will continue, given the dual drivers of an increasing demand for energy and the desire to decrease emissions, particularly in countries that do not enjoy the same abundance of renewable energy sources as Australia, Mr Ferguson said. Australia's uranium industry will continue to expand and my immediate priority is ensuring this happens in the proper way."

Hon. Martin Ferguson MHR, Minister for Resources & Energy Article : Sydney Morning Herald (e-News), 06 May 2011

No cheap oil, no growth : "Max Hipkins naively says at the end of his article (Who says cars are bad for a modern Perth? 5/7) : "Provided we protect the areas that need protecting, our natural vegetation and our wetlands, there is no reason why Perth cannot

continue to expand.' Well, I have news for Max, Growth is dying. A couple of simple facts. Growth depends on one simple and unavoidable thing – cheap energy. Global oil supplies are peaking and what is left to extract and refine is now being sourced from more and more remote locations, deeper water, hostile international locations and difficult natural environments (the Arctic is one classic example). Perhaps Max can explain how Perth can grow when the most basic of economic drivers, cheap oil for transport (which Perth relies on to sustain its unsustainable stretched urban growth model), cannot expand into the future."

"Growth as he defines it, relies on the guaranteed supply of cheap oil. We are rapidly running out of this and there are no substitutes that can be brought on line at the scale required to see Perth grow and expand. We can convert many vehicles to gas and continue to kick the can further down the road in terms of urban sprawl, but for how long and for what purpose? China is a train wreck waiting to happen. When it does happen, our national economy will stall and you only have to look at the issues in the US and Europe to see that global growth is waning. Too much debt and not enough cheap energy. You don't have to be a mathematician or economist to realise that the modern industrial age is coming to a close. I would like to hear how Max is going to overcome these simple facts. Substitution won't cut it. Get prepared for a very different future from the one we have learnt to live with over the recent past."

Geoff Botting, Baldivis Resident & Taxpayer Article : West Australian (Page 22), 06 Jul 2011

Following-up – Max Hipkins is a qualified City Planner and Practising Consultant, former Director of Planning & Development at the City of Perth (amongst other positions in Local Government), Councillor and Deputy Mayor at the City of Nedlands, Past President of the Local Government Planners Association (WA Chapter), and Fellow of the Planning Institute of Australia (WA Division).

For nuclear, Fukushima was just a bump : "Japan's Fukushima accident six months ago provoked major worries worldwide about nuclear power, but now that the dust has settled it is clear that atomic energy still has a rosy future. This at least was the main message of this year's 55th annual gathering of the 151-nation International Atomic Energy Association (IAEA) at the UN body's headquarters in Vienna, which was due to wrap up on Friday. With just a few exceptions, most notably Germany, governments have moved to reassure themselves that their nuclear power is safe, and that its two main advantages remain : it is not fossil-fuel based, and it is cheap. For India's nuclear chief, the role of nuclear power as a safe, clean and viable source to meet energy needs, as well as to adequately address the concerns of climate change, cannot be undermined. The fast-growing, energy-hungry Asian giant is still planning a *'major expansion'* in nuclear power, Srikumar Banerjee said, having satisfied itself with a series of safety reviews that an Indian Fukushima was highly unlikely. Fellow emerging giant China, too, ordered safety inspections and stopped green-lighting new plants in Fukushima's immediate aftermath, but state media reported Wednesday that approvals would resume in 2012."

"Fellow 'BRICS' member Brazil is also sticking with reactor-building plans, as is South Africa, having decided to conduct 'safety assessments' in light of Japan's experiences, the country's IAEA envoy Xolisa Mfundiso Mabhongo said. Informed by the Fukushima accident, South Africa undertook various activities because we were convinced, like others, that we could no longer take a business-as-usual approach to nuclear safety, Mabhongo said in Vienna. The IAEA this week also endorsed an 'action plan' encouraging the around 150 member states to conduct fresh safety assessments and invite foreign experts to conduct 'peer reviews' of reactors. South Korea, which currently produces almost 40% of its electricity with 21 nuclear reactors, plans to build more, the country's envoy to the IAEA Cho Hyun told AFP. After Fukushima, Seoul immediately took measures to enhance nuclear safety standards, he said. People know that we have to keep it. Korea is an industrialised country in need of cheap and reliable power. A substantial increase in the amount of electricity generated with renewable sources like solar or wind power requires huge investment and is not possible overnight, the ambassador said."

"The United States, which generates a fifth of its electricity with nuclear power, ordered a safety review after Fukushima but atomic energy is still a key element in President Barack Obama's plans to wean the country off fossil fuels. In Europe, Germany decided to switch off all reactors by 2022 after Fukushima, Italian voters voted 'no' to atomic energy in a referendum while Switzerland aims to phase out nuclear power by 2034. But these are exceptions. For the most part, European governments saw nothing in what happened at Fukushima, where engineers are still working to plug radiation leaks, to change their nuclear plans. France, for instance, which produces some 75% of its power with nuclear, a world record, and Britain, where it accounts for 15%, have made no fundamental changes to their energy policies. After Fukushima, the IAEA trimmed its forecasts for nuclear power usage in the coming decades, but its minimum projection is still for 90 new reactors to spring up worldwide by 2030. There may even be 350 more, it thinks. Other countries are not in the affluent situation of Germany, to be able to turn its back on nuclear power, said the agency's head of projections, Hans-Holger Rogner."

Hans-Holger Rogner, GM Projections, International Atomic Energy Agency Article : WA Business News, 23 Sep 2011

Better things to buy than offsets : "In the exuberant parlance of sport, it's the one per-centers that can make the difference between winning and losing. When it comes to greenhouse gases, Treasury modelling points to about a 1% reduction in global emissions in 2050 arising from Australia's purchases of carbon credits on the international market at a cumulative cost of more than \$600 billion (at constant 2011 dollars). These credits are foreshadowed to then offset about 45% of our predicted national business-as-usual emissions at mid-century, about 430 million tonnes of CO_2 annually. When climate change was the greatest moral challenge of our times, committing to spending the equivalent of half of one year's gross domestic product to ensure a wealthy Australia contributed its fair share towards greenhouse gas mitigation by 2050 just might have been justifiable. But there has been a loss of innocence about our climate convictions, sharp divisions in community attitudes have emerged and a gradual reordering of priorities is occurring. There remain many globally significant issues demanding attention and financial resources. These include alleviating poverty, malnutrition and famine; confronting terrorism and crime; preventing wars; addressing illiteracy; educating girls and elevating the status of women; finding cures for simple but often fatal diseases and preparing for pandemics; restoring damaged habitats, especially waterways; caring for refugees; and so on."

15.12.2011 Rainbow 2000[©] Project – Peak Oil, Gas & Nuclear Power Page 80 of 85

"Climate change is but another challenge on this list, although a whole industry will argue it's our No. 1 global issue. I do not support that assessment, even as I acknowledge the significance of anthropogenic global warming. Of course, climate change is also not a game or a contest, although scores are kept and published, albeit not always following the same rules. The one percenters make no difference to global warming and our environment unless simultaneously multiplied by many similar efforts. That is, extraordinary integrated commitment is required from all players on the planetary team. Our government is clearly confident that such collective extra exertion will occur among the world's nations in the years immediately ahead, and that Australia's example, financial investment and the sacrifice of our energy-intensive industries will help build critical momentum. Otherwise why start now and accept the serious political risk in the absence of an electoral or international consensus? The Treasury figures are for their mid-point scenarios and, as always, depend on many assumptions. The total bill for offsets could be much lower than forecast if energy demand growth is less or breakthroughs accelerate the introduction of affordable clean technologies. The opposite is also true. The price per tonne of carbon dioxide is meant to increase sixfold by 2050, but that may not be enough to deliver the greenhouse gas mitigation required. The total cost could leap. Still, a troubling question remains: is this the best way to spend all that money?"

"There is no denying the legitimacy of carbon offsets in a properly regulated international market (which the government assumes will be in place within a few years). But outsourcing our emissions obligations is vaguely unsatisfying even though such a model finds wide application among Australia's corporates. For example, India has built a very large and thriving IT services industry by performing certain back and front office systems tasks better and at lower costs than can be done in the West. And our companies, their shareholders and customers benefit from such associations usually through lower prices and stronger profits. In real terms, our GDP is forecast to grow from \$1.3 trillion today to \$3.6 trillion in 2050. At that time, the cost of carbon offsets will approach \$60bn annually, or about 1.6% of GDP. Should we be alarmed by this number? For comparison, Australia spends 0.34% on foreign aid (with an aspirational goal of 0.5% in 2015), 2.2% on research and development, and 2.7% on the age pension. (There is a certain demographic inevitability in the burden of the age pension increasing to 3.9% by mid-century and putting the federal budget under further pressure.) For reference, accumulating 1% of GDP from now until 2050 would amount to about \$1 trillion."

"How might the world, or our citizens, react if we channelled the forecast carbon offsets budget into direct foreign aid? Typically the same economies would benefit – Indonesia and Papua New Guinea are our largest recipients of aid – and the uplift would be dramatic. Some of the other priority global issues could be ameliorated faster as a result. And then join the emissions reduction campaign 10, 20, 30 years later? The global climate would not notice our absence. Sea levels might rise, corals might bleach and icebergs melt whatever we do. In the international aid community, this is highly controversial as parties seek to maintain clear demarcation between aid and emissions mitigation. Alternatively, when it suits them, all political parties praise the skill and inventiveness of our scientists and engineers. Why send money offshore when we could invest in a program like the Manhattan Project in Australia aimed at transforming our energy infrastructure? Think of what you could do with an extra \$600bn across 40 years. And if we missed some expectations, well, the climate again wouldn't notice. But there is as much chance of over-delivering on expectations and resetting the culture of innovation in Australia. This is the lost opportunity and cost of exporting carbon offset dollars in return for carbon accounting adjustments."

"Finally, for much less than \$600bn Australia could have a national network of nuclear power stations to provide 100% of our electricity needs safely and cost-effectively with near zero greenhouse gas emissions. There would be money left over to build a central repository for spent fuel and other nuclear waste as well as to start an enrichment industry, and to buy and maintain nuclear submarines. All our stationary energy emission targets would be easily met, and society and industry would have something to point to for their dollars. The intensity of the political debate and media commentary reflects an assumption that climate change is the headline issue of modern times. But is it, and how might all that effort and money be better allocated? I think that's a debate worth having."

Ziggy Switkowski, Chancellor RMIT University Article : WA Business News, 23 Sep 2011

German anger at Polish nuclear plant on border : "Germany's decision to ditch nuclear power because of safety fears was undermined yesterday with the disclosure of plans in neighbouring Poland to build an atomic plant in its western border region near to Berlin. Brandenburg state, which borders Poland, said it had voiced strong objections after learning of four possible locations being considered for a reactor, including one just 275km from Berlin. German Chancellor Angela Merkel announced earlier this year that the country's nuclear power industry would be closed down by 2020, in response to the Fukushima disaster in Japan. She was widely seen to be courting the environmental vote after a surge in support for the Green Party."

"Relations with Poland, already strained after the former Polish Prime Minister Jaroslaw Kaczynski suggested this week that Ms Merkel came to power with the help of the secret police, are being tested by Warsaw's determination to start its first reactor in 2020, followed by a second larger one in 2030. It means Germany will be increasingly surrounded by nuclear plants, despite its decision to pursue renewable energy, with France committed to atomic energy and the Czech Republic planning to upgrade its nuclear facilities. Commentators have noted that Germany will probably have to import energy from nuclear sources, at least temporarily, as it tries to replace its own capacity with wind and solar power. Opposition to nuclear power has grown in Poland after Fukushima, but the country has signed up to EU targets to reduce greenhouse emissions and 90% of its electricity comes from coal-fired generators."

Angela Merkel, Chancellor of Germany Article : The Australian (Page 12), 08 Oct 2011 Jaroslaw Kaczynski, Prime Minister of Poland Article : The Australian (Page 12), 08 Oct 2011 End of Statements :

Most of our work is now done on Facebook, using photographs in albums :

- * Neil Smithson Albany Anzac 2014-18 (Vols. 1-2)
- Smithson Planning Albany Centenary of Anzac Alliance (Vol. 1)
- Smithson Planning Albany Major Redevelopment Opportunities (Vol. 1)
- Smithson Planning Albany Waterfront Project & Entertainment Centre (Vol. 1)
- Smithson Planning <u>Anzac Centenary Commemorations 2014-18</u> (Vols. 1-3)
- Smithson Planning Anzac Gallipoli History 2015 (Vols. 1-3)
- Smithson Planning Avon 2020 Regional Planning Strategy (Vol. 1)
- Smithson Planning Batavia 2020 Regional Planning Strategy (Vol. 1)
- Smithson Planning Fremantle South Metropolitan Regional Planning Strategy (Vol. 1)
- Smithson Planning Gascoyne 2020 Regional Planning Strategy (Vol. 1)
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- * Smithson Planning Rainbow 2000 Project (Powerpoint Presentation Short Version)
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- Smithson Planning Rainbow 2000 Project (Local Government Response)
- Smithson Planning Rainbow 2000 Project (Private Sector Response)
- Smithson Planning Rainbow 2000 Project (Media Response)
- * Smithson Planning Recherche Goldfields 2020 Regional Planning Strategy (Vol. 1)
- Smithson Planning Peak Oil, Gas & Nuclear Power (Vols. 1-2)
- Smithson Planning Western Australian Farmers (Vol. 1).

Discussion papers also available from the Smithson Planning website :

- <u>Albany International Airport</u> achieving regional accessibility for trade
- * Albany Industrial Seaport Relocation Plan achieving regional accessibility for trade
- Albany's UNESCO World Heritage Anzac & Convict Colonial Settlement international tourism
- Albany & the Corruption Crime Commission WA the complexity of regional development
- Anzac 2014-18 a National Celebration Strategy there is a role for each Australian state / various cities
- Global Warming & Sea Level Change profound implications for insurance & property development.
- * Manypeaks Transitional Governance a challenge for the State of Western Australia
- Peak Oil Gas & Nuclear Power everybody's growing concern
- Planning Instruments of Western Australia the bottom line of WA Planning Commission activities
- Planning & the Australian Media part of the problem / part of the solution



Website : Organisation of the Petroleum Exporting Countries (Interactive World Map), 15 Dec 2008



Website : Organisation of the Petroleum Exporting Countries (Interactive World Map), 27 Dec 2010

Following up – In two years, OPEC Far East is no longer; Production in OPEC Latin America is down 6%; Production in OPEC Middle East is down 10%; Production in OPEC Africa is down 40%; Indonesia is no longer a net exporter and member of OPEC; and in consumption Europe was down 38%; USA was down 20%; South Africa was down 33%; Asia steady; and South America was up 30%.



Website : Organisation of the Petroleum Exporting Countries (Interactive World Map), 13 Sep 2011

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Summary Analysis – Australia

It is difficult to argue the chemistry of greenhouse gas emissions (GGE) – they exist in certainty. Whether one can draw a correlation between the volume emitted, and the impact on climate change and global warming, remains a scientific debate. For some, it is worth having the argument. I personally doubt the forecast increase in sea-levels, and would suggest that de-afforestation in water catchment areas coupled with sedimentary erosion and deposition in river deltas is more likely to be threatening low-lying areas than a global polar meltdown (which of course is no less concerning to those island nations around the world).

However, there can be no doubting the yellow haze that congregates over most major metropolitan cities during the working day, and the impact on urban and regional air quality related to constrained environmental ecospheres (its not as if it 'dissipates' to somewhere else).

If Australia were genuinely serious about doing something to reduce its own current 2% GGE contribution (and that other GGE % related to our international coal & gas exports when such resources are expended overseas), then it would recognise the need :

- 1. for Nuclear power generation (as a global solution)
- 2. for Uranium mining to source feedstock material (as a potential major supplier)
- 3. for Nuclear energy technology advancement to provide for safer more efficient & diversified operating systems
- 4. to Progressively restrict current coal & gas exports using annual incremental Mtpa reductions to those countries / multi-nationals / companies that do not practice or participate in funding clean coal & gas technology.

Whether we are coming to the end of the hydrocarbon fuel cycle, or there are just profound implications for its continued operation and expansion, we should commence the energy transition to embrace GGE free energy supplies such as nuclear, geo-thermal and hydro-electric (where available), and renewable / sustainable energy technologies such as solar, wind and wave power (where practical), based on a free-market economy driven to energy consumption efficiency as the only sustainable business evolution.

The most damning aspect of the Garnaut Climate Change Report is the unexplained omission of the nuclear power solution. The question arises as to whether that political indifference will erode the international credibility of Australia's position on the need for energy reform.

The apparent dichotomy between State and Federal politics on both sides of the political spectrum suggests that Australia is incapable of taking a global leadership role on either nuclear power generation or greenhouse gas emissions reduction, preferring instead to spend the next decade in the lead-up to peak oil & gas talk-festing with business for domestic political advantage the implications of any action at all.

The farcical upside to a world war based on fuel oil supply is that such action would deplete known resources faster than general consumption; compromise the security of fuel oil & gas production and distribution; invariably increase the cost of fuel oil & gas supply; and therefore the cost of all commodities arising from the use of fuel oil & gas in production and distribution to the market.

Consider if you will the road freight transport task of urban, rural & remote development, rail freight (electrification), sea freight transit, and Jet-A1 fuel substitutes. Power generation is certainly politically important, but for transport and international trade, we can either prepare or wonder what on earth just happened to the global / domestic market during and after Peak Oil & Gas.

As a variety of societies operating globally in community and humanity, we the current custodians are potentially now living in the 'last ten to twenty years' of what has been an unparalleled 70-years of unrestricted personal and commercial accessibility. Markets and consumption / production characteristics have all progressed to truly global status and proportion. Clearly, the Information Technology Age has allowed that accessibility to transcend further international barriers to knowledge dissemination, and the question now is how to maintain that standard of living as a sustainable course of action.

Shutting the world down isn't the answer – either voluntarily or compulsorily.

If you fail to plan, you are planning to fail; so goes the saying – but it has always been the community that comes together in the face of adversity that prevails (excluding dinosaurs and minority indigenous peoples with inferior technology during colonialisation).

Through the ages, what is important to people though, no matter their age, race, religion or creed :

- Clean air & drinking water
- * Healthy food
- Effective shelter from the elements
- Love / companionship / family
- Spirituality / a sense of self-worth & belief / the continuity of humanity / and the freedom to enjoy life.

THE RA NBOW 2000[©] PROJECT.

Author's notes : The Rainbow 2000° Project is both a corporate investment strategy and a doctoral research program that examines the hypothesis "Is planning the antithesis of politics? – a case study of Albany & the Great Southern Region, Western Australia, focusing on the inter-relationship between regional development and Local, State & Federal politics in contemporary Australia.

In thirteen years, the *West Australian* Newspaper and the *Sunday Times* never published one article about Rainbow 2000[©] that we are aware of (one exception : West letters 30 July 2007 Page 15); the *WA Business News* published one small piece suggesting some reticence about the continuity of port access in the framework of a significant port expansion program to accommodate grain, woodchips and iron ore.

Perth television **STW9**, **TVW7**, **NEW10 & SBS28** have never covered Rainbow 2000[©], and both *GWN7* and *WIN9* as regional networks have not canvassed the regional strategy – GWN's Noel Brunning stood for the federal seat of Forrest (Independent) in 2007; Reece Whitby from Channel 7 Perth stood for the state seat of Morley (Labor) in 2008; and Karen Brown from the West Australian and the Weekend Australian stood for the state seat of Mt. Lawley (Labor) in 2008 – Whitby and Brown being part of Premier Alan Carpenter's parachute dream team – all were unsuccessful for a variety of reasons.

ABC National (radio & television) maintains a largely anti-development stance in the Great Southern, although nationally they have done some great things for Anzac and via Difference of Opinion. **RadioWest** sceptically accepted a paid advertisement.

There were the original paid advertisements referred to by the Albany Town & Shire Councils et.al. of 13 November 1997 appearing in the *Albany Advertiser* and the *Albany & Great Southern Weekender*, with the occasional timely paid reminder advertisement in the Albany Advertiser to reflect that Rainbow 2000° – a Regional Planning Strategy for Albany & the Great Southern was not going away that easy.

One rather prominent (and perhaps cynical) article appeared in the *Weekend Australian* in the lead-up to Mayoral / Council elections for the City of Albany in 1999, following which the author was a 'failed' candidate. Otherwise, all communication channels have been pursued vigorously with extensive material being referred to politicians on all sides of the debate, media journalists in print, radio and television and the *National Press Club* in Canberra.

The only thing people choose to believe in is the power of authority and / or the investment dollar – media was no exception, regardless of whether the program could have been beneficial to their commercial aspirations. The alternative is that the non-Albany based media from Perth and Bunbury understood only too well the implications, and misconstrued growth and development as competitive threat (doubtful).

Local politics and commercial relationship both took their toll on local newspaper coverage and balanced representation of the issues. It is reasonable to suggest that few people understand let alone endorse long-term strategic planning that doesn't directly benefit them instantly.

In twelve years, the program of community consultation / participation has included advice in some form or other to governance :

- Australian embassies of the nations of the World, the United Nations & European Union
- Covernor-Generals of Australia, and every Federal member of parliament (House / Speakers & Senate / Presidents)
- Prime Ministers & Federal Cabinet Members, and the Leaders of the Opposition & Shadow Cabinet Members & Minority Parties
- Sovernors of Western Australia, and every State member of parliament (Legislative Assembly & Council)
- * Western Australian Premiers & Cabinets, and the Leaders of the Opposition & Shadow Cabinets & Minority Parties
- Premiers / Ministers of New South Wales, Victoria, Queensland, South Australia, Tasmania
- Leaders of the Opposition / Shadow Ministers of New South Wales, Victoria, Queensland, South Australia, Tasmania
- Chief Ministers / Ministers of the Australian Capital Territory and Northern Territory
- * Lord Mayors & Councils of the Cities of Brisbane, Sydney, Melbourne, Hobart, Adelaide and Perth
- Advisory Council of Infrastructure Australia & the Convenors of the Australia 2020 Forum
- Relevant Federal and State agencies / regulatory authorities
- Great Southern, and other Regional Development Commissions of Western Australia
- Fremantle Ports, Westralia Airports Corporation, and the Albany Port Authority
- Australian Local Government Association and each State / Territory Association
- Local Government Authorities of Western Australia & the Great Southern Region
- Mayors / Presidents / Commissioners & Councillors of the Town, Shire and City of Albany
- Presidents & Executive Councillors of the Returned & Services League of Australia (National & State Divisions)
- Presidents & Executive Councillors of the Planning Institute of Australia
- Presidents & Executive Councillors of the Environment Institute of Australia & New Zealand
- Presidents & Executive Committees of the Australian, Western Australian and Albany Chambers of Commerce & Industry
- Presidents & Executive Committees of the Australian & Western Australian National Trusts & the Albany Historical Society.

For a comprehensive (and interactive) list of community participation / consultation, refer to :

- ★ www.smithsonplanning.com.au/R2000Participation1997-2006.zip (275 A4 pages : ~ 14,422 entries : 0.81Mb zipped : 4.04Mb)
- www.smithsonplanning.com.au/R2000Participation2007-2008.zip (377 A4 pages : ~ 19,997 entries : 1.56Mb zipped : 7.46Mb)
- www.smithsonplanning.com.au/R2000Participation2009-2010.zip (431 A4 pages : ~ 22,994 entries : 2.78Mb zipped : 12.10Mb)
- www.smithsonplanning.com.au/R2000Participation2011-2027.zip (223 A4 pages : ~ 11,000+ entries : 1.26Mb zipped : 5.23Mb).

It is not our place to judge the politics - that will be for the electorate, and the Commonwealth Director of Public Prosecutions.

All in all - things are looking very good. A general disclaimer applies to this material - don't assume, please ask.

Date : Thursday, 15 December 2011

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