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SUPPLEMENTARY SUBMISSION

I understand the Committee is still seeking information on clean (non-nuclear) energy options. Below is a summary, and a list of references which has already been sent to the Committee twice. Apart from sending the Committee the following summary plus the references to the most important literature (three times), I am willing to provide the Committee with a briefing on these issues.

This supplementary submission also addresses the grossly irresponsible plan to export uranium to China.

CLEAN ENERGY OPTIONS

(References listed here can be found in the report at:
<www.melbourne.foe.org.au/documents.htm>.)

'Deep cuts' studies

Numerous studies have detailed how major reductions in greenhouse gas emissions can be achieved through a combination of energy efficiency and renewable energy sources (see followingt section for a list of references).

While there are significant variations between the studies, they typically involve a significant reduction or phase-out of most uses of fossil fuel energy sources, and place no reliance on nuclear power growth.

The Clean Energy Future Group examines eight of these 'deep cuts' studies (Saddler et al., 2004, ch.13; see also Friends of the Earth (UK), 2002; Hansen et al., 2000; Climate Action Network of Australia, n.d.) Almost all of the studies demonstrate that large reductions in greenhouse gas emissions can be achieved by a combination of a strong commitment to energy efficiency

combined with decarbonisation of supply. All regard energy efficiency measures as important and necessary means of achieving emissions reductions (often at very little or no cost), but energy efficiency measures alone are insufficient. It is also necessary to reduce the relative usage of the most polluting fossil fuels in favour of more efficient uses of fossil fuels (e.g. gas cogeneration plants) and renewable energy sources. The main difference between the studies concerns energy supply options – some studies envisage much greater use of renewable energy sources, while others envisage smaller contributions from renewables and one focusses on reducing emissions from fossil fuels.

Studies on the means by which large emissions reductions can best be achieved demonstrate the importance of matching solutions to the prevailing circumstances. Solutions which are highly effective in one region may be far less so elsewhere – for example, some countries are far better placed to make greater use of solar or wind power than others.

How best to achieve large emissions reductions in Australia? Two 'deep cuts' studies are summarised below, both concerned with achieving large reductions in greenhouse gas emissions in Australia (and doing so without resorting to nuclear power). One was written by the Clean Energy Future Group (Saddler et al., 2004), the other by The Australia Institute (Turton et al., 2002).

Both studies are conservative in their assumptions. For example, they restrict their recommendations to the use of existing, well-developed technologies. Yet they both map out plausible plans to achieve 'deep cuts' to greenhouse gas emissions in Australia while reducing reliance on fossil fuel energy sources and without any reliance on nuclear power.

Similar research has been carried out for particular Australian states. For example Diesendorf (2005) analysed alternatives to new coal-fired electricity plants in New South Wales and concluded: "In short, there is no technical or economic barrier to ceasing to build new coal-fired power stations and commencing the transition to a much cleaner electricity system based on efficient energy use, renewable energy and natural gas. The real barriers are institutional, organisational and political." (Diesendorf, 2005.)

The Australia Institute study

The Australia Institute has published a report detailing how a 60% reduction in greenhouse gas emissions can be achieved in Australia by 2050 (Turton et al., 2002).

The parameters for the study include the following:

* The study covers all sectors of the Australian economy: agriculture, land use and forestry; the industrial and commercial sectors; the residential sector; transportation; waste and fugitive emissions; and energy supply. The study then develops projections for the growth or decline of each sector of the economy and provides an analysis of opportunities for reducing emissions in each sector by implementing efficient energy use and fuel switching.

* The study assumes that Australia's GDP will increase by almost 180 per cent in real terms between 2000 and 2050, based on a labour productivity growth rate of 1.75 per cent per annum and a growing workforce driven by population growth to almost 25 million in 2050.

* The study factors in predicted economic changes such as ongoing growth of the commercial and services sector and an ongoing decline in the relative share of manufacturing to GDP.

* It requires that technologies used in 2050 be already proven, although not necessarily currently commercial.

* It requires that energy production technologies in 2050 must have unit prices no greater than the prices of electricity or transport fuels that currently prevail in Western Europe.

* The study focuses on the end-point in 2050 rather than the paths by which it could be reached, with the timeframe allowing for most of the current stock of energy-using equipment and buildings to be replaced.

* The study presents only one of many possible end-points that achieve major reductions in greenhouse gas emissions. A number of possibilities were not considered because they involve unpredictable technological advances or challenging social choices – including reliance on a technological 'magic bullet' such as nuclear fusion; carbon sequestration including large-scale geosequestration; purchasing permits to emit greenhouse gases from abroad; nuclear power; and major lifestyle change.

* The analysis incorporates the effects on Australia's trade of a global deep-cuts scenario where other countries are seeking to stabilise global atmospheric greenhouse gas concentrations.

The report notes that a 60% cut in Australia's total 1999 emissions by 2050 would result in per capita emissions in Australia reduced from 27.9 to 11.2 tonnes of carbon dioxide equivalent per annum. Global convergence at a per capita entitlement of 11.2 tonnes would represent a modest increase in emissions for the UK, Japan and France, a 45% reduction for the United States, and a very large increase for developing countries such as China (currently three tonnes) and India (less than one tonne).

The report notes (pp.8-9): "The improvements in energy efficiency anticipated between now and 2050 will likely offset any increase in unit costs, resulting in households and industry paying less for energy in 2050. In other words, while unit prices of energy may rise, energy bills are likely to fall as a share of expenditure."

The report analyses the following sectors:

Agriculture, land use and forestry. The value of Australian agricultural output is expected to grow by about 120% by 2050, driven mainly by exports. Growth in global demand for beef will mean that, by 2050, emissions from beef cattle will alone be responsible for over half of the emissions from agriculture, land-use change and forestry combined. An end to land clearing will make a major contribution to reducing emissions. A range of other modifications and efficiencies in the agricultural sector will also reduce emissions. Overall, a 60% reduction in the agricultural sector is not envisaged, hence a greater than 60% reduction is required in other sectors to enable the national target to be met.

Industrial sector. Growth in chemical, non-ferrous metal, wood, paper and other products will drive energy demand in and increase emissions from the industrial sector. A contraction in coal, oil and gas extraction and petroleum and coal product manufacturing will partially offset growth in other areas. Reductions in the industrial sector occur predominantly from energy efficiency measures. Fuel switching to gas and biomass fuels where possible, and a shift to cogeneration, will further reduce demand for fossil fuels.

Commercial sector. Strong growth in the commercial and services sector will be offset mainly by improvements in building design, large-scale uptake of cogeneration, more efficient heating equipment (such as heat pumps), and a range of other modifications.

Residential sector. Growth in energy demand and emissions will be driven by increased population and a predicted 54% growth in the number of households. Offsets include improvements in building design and uptake of high-efficiency appliances. Large-scale uptake of solar thermal water heating and gas-fired cogeneration (fuel cell or microturbine) for electricity generation and space and water heating will further reduce emissions.

Transport. Growth in demand will be driven by increased economic activity, higher incomes and population growth. However, major technology improvements are expected, and the relatively fast turnover of the vehicle fleet will facilitate a rapid and large-scale uptake of these technologies, which include hybrids, fuel cells and biofuels. Fuel cell technology is assumed to have achieved a 50% penetration of road transport with a similar proportion of fuel sourced from renewable energy used to produce hydrogen. Only a small decrease in emissions is predicted from increased patronage of public transport.

The refining industry will shift from mainly processing crude oil to converting biomass into biogas and liquid biofuels, and using electricity to produce hydrogen from water via electrolysis. The fuel production industry will partially relocate and rescale to make best use of cropping, waste and forestry fuel sources. Biomass will grow to the extent that it produces biodiesel, hydrogen, petroleum and methanol/ethanol sufficient to meet all transportation needs, while also producing biogas to feed into the reticulated gas network.

Energy supply and demand.

By 2050 the utilities sector is projected to have undergone a major transformation from a fossil-based system to one designed to use and deliver renewable energy. Wind energy will play a major role, hydroelectricity will be significant, solar photovoltaics will supply certain niches. There will be a shift away from large-scale thermal generators isolated from load centres towards distributed cogeneration, meeting both electricity and heat needs at load centres.

The study assumes that there will be no large fossil fuel fired electricity generators located away from heat load centres by 2050, and all fossil-only generators will be used to cogenerate electricity and heat. A large amount of fuel for cogeneration will be gas produced from biomass.

An expansion in wind generation, underpinned by decreasing costs, is expected to supply 50% of gross electricity needs. This will require the installation of more than 11,000 wind turbines, or about 500-600 wind farms – on the coast, inland and off-shore. The report notes that identifying such a large number of suitable sites will pose a significant challenge.

Photovoltaic electricity generation is expected to remain one of the more expensive forms of renewable energy and is expected to satisfy demand only to a limited degree – for example in remote areas or to help meet peak demand in summer. Solar thermal technology is expected to supply a much larger amount of electricity as well as its use for water and space heating.

Hydroelectricity will continue to play a significant role in baseload electricity generation.

Biomass is expected to be a significant energy source. The equivalent of 6-7 million hectares of dedicated arable land would be required, although much can be supplied from plantation forests and agricultural and food industry wastes. The federal government is currently aiming to increase the plantation stock to three million hectares by 2020 with a further five million hectares of land suitable for farm forestry – so by 2050 it is expected that about eight million hectares of forest plantations could be available. The study assumes

that all eight million hectares are forested and about half the annual biomass production will be used for energy (and the other half for wood and paper products). In addition, there is greater utilisation of crop and food industry wastes and cultivation of 1-2 million hectares of other energy crops would be sufficient to supply the required quantity of biomass.

Other than the availability of suitable land, there are other considerations and constraints in relation to biomass: resource inputs such as water and fertilisers; the environmental implications of a large expansion of biomass production, processing and combustion; transport issues; and the effects of climate change on plant growth.

The amount of energy obtained from biomass in the Australia Institute's scenario for 2050 is about 70% of the amount currently used in Brazil.

Output of natural gas (including LNG) is expected to rise continuously through to 2050, with global demand projected to be more than three times the current level by then. Declining global demand for black coal is predicted to reduce Australian production by 50% and brown coal production is expected to fall to zero.

The shift from concentrated fossil energy to more dispersed renewables is expected to require a larger energy infrastructure. However, data on the expected costs of energy suggest that the transition to a low emission economy would not come at a large cost, particularly given that increases in energy efficiency will offset increases in energy unit costs.

Clean Energy Future Group study

The Clean Energy Future Group – which comprises renewable energy, and natural gas industries and WWF Australia – has produced a comprehensive paper called "A Clean Energy Future for Australia" (Saddler et al., 2004). The report details how energy demand can be met using various commercially-proven fuels and technologies while cutting greenhouse gas emissions by 50% by 2040 in the stationary energy sector.

The report focusses on stationary energy, which includes energy for commercial and residential uses, and for heat, power and engines in industry – in other words, all energy except that used for transportation. Stationary energy is the single largest producer of greenhouse gas emissions in Australia, accounting for about half of all emissions, and emissions from this sector have grown faster than those from any other sector since 1990.

The study assumes that economic growth will continue at 2% annually between now and 2040, with Gross Domestic Product per person 86% higher

in real terms in 2040 compared to 2004. The study also accounts for population growth, assuming a population of 25 million people in 2040.

The report proposes two broad strategies to achieve major greenhouse gas emissions reductions – reducing energy waste through increased efficiency, and changing the mix of source fuels for energy.

The report outlines policies which would contain energy demand to a modest 25% increase between 2001 and 2040. Some of the energy efficiency improvements identified in the report are:

- * more efficient industrial equipment such as boilers, kilns, furnaces and electric motors;
- * improved waste recovery and associated use of waste products as fuel;
- * improved building design and construction, hence reduced need for heating and air conditioning;
- * improvements in the efficiency of electrical and gas appliances and equipment, such as lights; and
- * a shift from electric water heating to gas and solar water heating.

The second set of measures involves changing the energy mix. The report identifies four key areas:

- * a change in the mix of electricity generation technologies away from coal in favour of natural gas and renewable energy sources;
- * the introduction of solar heating into the supply of steam and hot water in industrial and commercial applications, and widespread use of solar hot water in the housing sector;
- * substitution of natural gas for coal in almost all non-metallurgical applications; and
- * widespread adoption of cogeneration (the combined production of electricity and heat, using turbines and engines on the site where energy is used).

The report proposes that biomass (excluding native forests), natural gas, wind, hydroelectricity and solar heat should be the main contributors to a clean energy mix by 2040. All these technologies are cheaper than the International Energy Agency's projected costs of coal-fired electricity with geosequestration.

It should be noted that the role of gas as a transitional fuel is the subject of debate, because of differing assessments of the greenhouse gas emissions associated with its use and the fact that in Australia most gas-fired power stations are open cycle and hence relatively inefficient. The greenhouse gas contribution of Australia's gas resources over the time period assessed in the Clean Energy Future report will depend on the type of gas-fired power stations developed and the extent of gas development. If there is continual government subsidisation of fossil fuel industries, including gas, there is a risk

that this government support will undermine and supplant support for renewables.

The renewable technologies recommended in the report are all commercially well established and in most cases are widely deployed already. Other renewable technologies – such as wave power, tidal power, solar chimneys and hot dry rock systems – are not included as they are considered to be too immature, as is the cheap storage and transportation of (renewable) energy in the form of hydrogen.

The study does not presume early closure of existing coal fired power stations, and it presumes a 30 to 40 year lifespan so those stations built recently are still operating in 2040. The report assumes that no new conventional coal fired power stations are approved and built from 2004 onwards, and that by 2040 all but three of the 24 existing baseload coal fired power stations have closed. The coal industry is actually projected to increase, but the increase is driven by exports not domestic consumption. Likewise, production of LNG, steel and non-ferrous metals is projected to be higher in 2040 to meet overseas demand.

The cost of the Clean Energy Future Group's proposals are likely to be modest, in part because the timeframe for the plan is long enough to allow for the gradual replacement of almost all coal fired energy supply infrastructure with less greenhouse intensive options. The timeframe is also compatible with large-scale refurbishment and to some extent replacement of existing residential and commercial buildings.

The report notes that while delivered electricity prices to customers are likely to rise under the Clean Energy scenario, that price rise could be more than off-set by energy efficiency measures resulting in a projected 28% reduction in electricity consumption.

The Clean Energy proposals offer a range of advantages over a business-as-usual scenario:

- * The proposals can be achieved without any significant technological breakthroughs.
- * They take account of limited land area and limited reserves of oil and, in the longer term, natural gas.
- * They would not impose any significant economic burden, and would support projected levels of economic growth.
- * The proposals can be implemented rapidly. For example, renewable energy systems can be built within a 1-3 year time-frame rather than 5-6 years for coal fired power generation (and about 10 years for nuclear power reactors).
- * Renewable energy systems produce little of the emissions associated with coal – such as greenhouse gases, acid rain, smog, and various other toxic

chemicals (and of course renewable energy sources generate none of the high-level radioactive waste or weapons-useable fissile material associated with nuclear power).

* Renewable energy systems typically generate more jobs per unit of energy generation than fossil fuels – for example, wind energy developments provide 2-3 times more jobs than coal for each unit of electricity generated.

Employment in coal fired electricity has declined by 50% since 1991. The Clean Energy proposals would generate significant rural employment.

* The proposals would lead to growth in exports, particularly to developing countries where two billion people do not have access to electricity infrastructure.

The report notes that the barrier to the realisation of a clean energy future is not that the proposed technologies cannot produce enough energy at affordable prices. Rather, the barrier is the current lack of political will to break from the past and to begin work on a clean energy future. The report advocates a range of policies and strategies including economic instruments, regulations and standards, institutional/organisational change, direct funding, and education.

Chapter 12 of Clean Energy report lists 40 recommendations, including:

* Substantially increase the Mandatory Renewable Energy Target (MRET);

* Change the MRET regulation to encourage dedicated tree energy crops for the purpose of growing biomass fuel on land that was cleared before 1990;

* Mandate strict greenhouse intensity limits on any proposal to build a new coal fired power station or to refurbish an existing one;

* Implement national mandatory minimum energy and greenhouse performance standards and labelling for all appliances and equipment with capacity to use 50 watts or greater of electricity, with standards made increasingly stringent every 5 years;

* Mandate minimum energy and greenhouse performance standards for all commercial buildings, based on the Australian Building Greenhouse Rating Scheme;

* Mandate that a solar, heat pump or solar compatible natural gas hot water system with low standby losses be installed in every proposal for a new or substantially renovated residential building;

* Establish a target for cogeneration and provide grants on a dollar for dollar basis to assist in funding feasibility studies for specific projects;

* Provide specific support for the development and implementation of a biomass roadmap for Australia and its implementation;

* Consult widely on, develop and implement consistent planning guidelines across all levels of government for the establishment of wind farms; and

* Revise the National Electricity Code to ensure distributed generators receive fair network access and pricing, considering location of generators and time of day of generation.

* Government policies which provide a framework for continued investment in research and development as more significant emissions reductions are required beyond 2040.

GREENHOUSE GAS EMISSIONS REDUCTIONS STUDIES

All of the studies listed below analyse and propose methods of achieving large reductions in greenhouse gas emissions. Most of the studies do not envisage a role for nuclear power, though a small number consider scenarios with or without nuclear power. A number of these studies are summarised by Saddler et al., 2004, ch. 13.

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URANIUM SALES TO CHINA

Mate, I nuked myself in the foot

Editorial - Taipei Times - Taiwan
Saturday, Jan 21, 2006, Page 8

The Australian newspaper on Wednesday reported that an Australian government source has privately admitted that Canberra cannot prevent Beijing from using uranium bought from Australia in its nuclear arsenal, should the two countries strike a trade deal.

But this minor hitch is not likely to stop sales of uranium to China, because Australia's Department of Foreign Affairs and Trade (DFAT) seems to believe, in all seriousness, that China would honor an agreement in which the "use of [Australian uranium] for nuclear weapons, nuclear explosive devices, military nuclear propulsion [or] depleted uranium munitions will be proscribed," as a DFAT spokesperson put it.

Whether or not Aussie uranium goes directly into Chinese warheads -- or whether it is used in power stations in lieu of uranium that goes into Chinese warheads -- makes little difference. Canberra is about to do a deal with a regime with a record of flouting international conventions, notwithstanding the increased oversight that comes with participation in global bodies.

One can almost hear the Australian government's saliva collecting in its mouth at the prospect of selling billions of dollars of uranium from its huge reserves to an eager customer for decades to come.

Never mind that the customer is an unstable Third World despot with a big chip on its shoulder -- and the owner of nuclear warheads and other munitions pointing in potentially inconvenient directions for Japan, South Korea, the Philippines, Vietnam, Russia, India and Taiwan, not to mention US bases in the region.

The question that follows is whether Australia can be trusted to do not only the lucrative thing for itself, but also the smart thing for the region when it comes to nuclear non-proliferation. The answer appears to be "no."

We can expect to hear a lot of highfalutin language from Australia in the weeks to come about the need to modernize China and the role "clean" nuclear energy can play in a country desperate for fuel.

Such "global citizen" shtick won't wash. All of this is happening as evidence emerges of tawdry connections between DFAT and the Australian Wheat Board, which is under investigation for feeding massive bribes to Iraqi officials while former Iraqi president Saddam Hussein was still in power.

What confidence is there to be had in Canberra now that we know Prime Minister John Howard misled the public about the dangers of non-existent Iraqi weapons of mass destruction and lectured on the moral certitude of an invasion, at the same time as people with close government connections -- with possible government knowledge -- were spreading bags of filthy lucre across Baghdad and beyond?

In China's case, Canberra has been setting itself up for a sublime strategic fall for some time, with Washington increasingly concerned that Australia might act in a manner that would compromise regional stability, and US strategy in particular.

Were it not so preoccupied with "homeland security" and the grim situation in Iraq, perhaps Washington could better recognize the folly of its deputy sheriff in Asia profiting handsomely from the potential acceleration of China's nuclear militarization.

"She'll be right, mate," is the cry from an Australian who would seek to soothe the tempers of people around him and shut down an embarrassing conversation.

To which Taiwanese can only reply, "It's not right, and you're not my mate."

China's money blinds many to danger

February 10, 2006

Sydney Morning Herald

smh.com.au/news/opinion/chinas-money-blinds-many-to-danger/2006/02/09/1139465796018.html

It is wrong to trust the regime when it says it will not use Australian uranium for weapons, writes Yu Jie.

FOR the past few years, Western countries have gradually lost their vigilance toward the Chinese Communist Party regime. Western countries investing in China have become the greatest help to the maintenance of the Chinese Communist Party's economic growth.

This is particularly the case with the lopsided development of Shanghai, whose economic bubble is for the most part driven by Western investment. Western government and business circles are like the ostrich, pretending they cannot see the reality of China's political system, pretending they don't know the appalling human rights catastrophe now happening in China, such as the ruthless persecution of Falun Gong practitioners and the Christians worshipping in household churches - more than 100 million citizens pursuing freedom of belief.

This kind of persecution didn't just happen in the Middle Ages; it's happening in China today.

The Western policy of appeasement is driven by economic interest. In order to sell China Airbus and high-speed trains, the French President, Jacques Chirac, when he visited China, shamelessly said the Tiananmen incident belongs to the past century and we should let bygones be bygones.

In the greatest rebuke to him, not long after Chirac returned to France, the Chinese communist authorities opened fire on villagers in Dongzhou in Guangdong province. The Tiananmen incident remains China's bloody reality. The French and German governments have for a time energetically campaigned for the European Union to lift the embargo on selling weapons to China, but the regime is one that maintains its political rule by killing people. I can be regarded only as a nominal citizen. I am 32 this year, but I have never participated in an election - not an election of the head of state nor an election of the mayor. Not even once.

The legitimacy of Chinese Communist Party rule does not come from elections; it comes from military might. The founder of the party, Mao Zedong, once openly declared: "Political power comes from the barrel of a gun." There has not been any change in this principle today.

One aspect of the party authorities' foreign policy is to politely propagandise the foreign policy of China's peaceful rise to the people of the West.

Another aspect is to deliberately let Zhu Chenghu, the head of the National Defence University's Defence Academy and a People's Liberation Army major-general, issue an aggressive threat to the whole world, in asserting that China can launch a nuclear war on the West, particularly the United States.

Zhu Chenghu is a crown prince of pure lineage, the grandson of the founder of the Chinese Red Army, Zhu De. According to the Chinese Communist Party ruling principle that "the party commands the gun", it is not possible for a mere major-general to issue this kind of individual opinion on his own.

Even in a Western country with freedom of expression, a high-ranking military general cannot indiscreetly make his personal views about a nation's nuclear policy known in a public forum.

Zhu's views must therefore have received silent approval from the highest authorities - even from the nation's President, Hu Jintao. It's just like a master unleashing a fierce and vengeful dog to threaten the neighbours.

But Australian authorities blithely plan to export uranium ore to this highly dangerous regime, one side willingly believing a series of agreements, which China signed, that this uranium ore will not be used for military purposes. But when have the Communist Party authorities genuinely respected international agreements?

The European Union should not lift the weapons embargo against China, and Australia should not export uranium ore to China.

This shortsighted behaviour can in the short term bring a definite economic benefit. But in the long term it will inevitably endanger world peace.

Yu Jie, the co-founder and vice-president of Independent Chinese PEN Centre, is a writer and intellectual based in Beijing. Translation by Chip Rolley.

Uranium to China could go in nukes

Dan Box

The Australian

January 18, 2006

GOVERNMENT officials negotiating the sale of Australian uranium to China admit there is no guarantee it will never be used in nuclear weapons.

Australian diplomats, due to meet their Chinese counterparts today in Canberra, are expected to push for China to agree to safeguards similar to those signed by other nuclear weapons states that buy Australian uranium, such as the US, Britain and France.

The agreements are designed to prevent the use of Australian uranium in nuclear weapons. However, they allow countries with both nuclear power and nuclear weapons programs to mix Australian uranium with uranium from different sources.

The safeguards state only that an equivalent amount of uranium bought from Australia - designated Australian obligated nuclear material (AONM) - is not used in nuclear weapons.

This means Australian uranium can be mixed with uranium from other sources provided a portion of the total, matching the size of the Australian export, is used only for nuclear energy.

Australian officials admit the system means it is possible for Australian uranium to end up being used in the production of nuclear weapons.

"On an atom-for-atom basis it is theoretically possible," a government source said.

A spokesman for the Department of Foreign Affairs and Trade said yesterday Australian negotiators would insist that safeguards preventing the use of AONM in weapons production would be a condition of any trade in uranium to China.

"Use of AONM for nuclear weapons, nuclear explosive devices, military nuclear propulsion (or) depleted uranium munitions will be proscribed," he said.

Responsibility for monitoring the use of AONM is held by the Australian Safeguards and Non-Proliferation Office, whose director-general, John Carlson, is leading the talks in Canberra.

The office already accepts there is public concern the AONM principle means Australian uranium may end up being used in nuclear weapons. "This overlooks the realities of the situation, that uranium atoms are indistinguishable from one another and there is no practical way of attaching flags to atoms," it says in a 2000 report.

Critics of the current negotiations also argue that any export deal will allow China to use Australian uranium for its energy, diverting more of its existing uranium supplies to its weapons program.

In December, Chinese ambassador to Australia Fu Ying told an audience at the Melbourne Mining Club that China had enough uranium resources to support its weapons program but would need to import more to meet its power demands.

China is planning a significant expansion of its nuclear energy program. The Uranium Information Centre says China gets about half its uranium needs from its own mines - about 750 tonnes - with the balance imported from Kazakhstan, Russia and Namibia in Africa.

Today's talks are the result of years of informal negotiations between government and industry on both sides.

WMC Resources, the former owner of the Olympic Dam uranium mine in South Australia, lobbied Foreign Minister Alexander Downer in 2004 to open up discussions on an export safety agreement.

While Australia sits on about 40 per cent of the world's known uranium reserves, the industry's attempts to profit from this have suffered under longstanding Labor policy restricting mine development.

A number of senior party figures, including federal Opposition resources spokesman Martin Ferguson, support a change in the policy, widely expected to be debated at the ALP conference next year. This would be a significant step towards overturning restrictions on uranium development in place in individual Labor-held states.

"It's hard to accept that under the current policy we can, by 2011 or so, have the largest uranium mine in the world (at Olympic Dam) and be potentially the largest exporter of uranium in the world but, at the same time, say that some other little uranium mine which is a pip on the horizon can't be developed," Mr Ferguson said.

02/01/2006

<bulletin.ninemsn.com.au/bulletin/site/articleIDs/8B9E747B1188D978CA257103000722FD>

If Australia wins a contract to supply uranium to China, it may very well wind up supplying material for nuclear weapons. Paul Daley reports.

So you thought Doctor Strangelove died in the rubble of the Berlin Wall? And the N-bomb menace? About as relevant, you say, as Sting bleating on about the Russians loving their children, too? Prepare for a frightening truth. The New Terrorism that ushered in the 21st century with such terrible effect courtesy of suicide bombers and hijacked passenger planes is fast being superseded by a renewed global nuclear threat.

And it's not just terrorist groups like al-Qaeda who want to acquire or are threatening to use nuclear weapons. It seems the most onerous sabre-rattling today comes from the original nuclear powers – including China, France and the United States – and newcomers like Israel, Iran, Pakistan and India, which are developing, or already have, their own nukes.

Australia, which owns 40% of the world's established uranium stocks, is central to the future of global nuclear power and, therefore, to weapons proliferation. China, an emerging superpower and repressive military regime with arguably little distinction between its nuclear energy and weapons programs, is energetically engaged in multi-billion-dollar negotiations with Canberra to buy Australian uranium to fuel its nuclear reactors. It plans to spend up to \$40bn on a new program to ensure nuclear fuel provides up to 4% of its voracious domestic energy needs by 2010.

While the deal is worth potentially \$450m a year to Australia's uranium producers, it will be incumbent upon our political leaders to convince us of the virtually impossible – that any atomic material derived from Australian yellowcake sent to China is used solely for peaceful purposes. At the outset of diplomatic negotiations between Beijing and the Department of Foreign Affairs and Trade on January 17 over the proposed Australia-China Nuclear Co-operation Treaty, Australian officials and politicians talked tough: Australia would insist on stringent "safeguards", they said, to ensure China couldn't use our uranium for weapons. But that's impossible to guarantee. Impossible, because any Australian safeguards will be predicated on the fundamentally flawed safety regime of the UN's Vienna-based International Atomic Energy Agency, which makes inspections of nuclear facilities optional for the five original nuclear weapons states, namely the US, Britain, Russia, France – and China.

In the past few months everything old, at least in the world of weapons of mass destruction, has become new again, as threats and counter-threats of nuclear strikes have issued forth across the globe.

This month, apropos of little, soon-to-be-former French President Jacques Chirac announced Paris reserved the right to use its nuclear arsenal, its *force de frappe*, against state-sponsored terrorists. This coincided with Israel's thinly veiled warning that it might launch a nuclear strike against new global

bad boy, Iran, if Tehran continued to defiantly pursue its quest to enrich uranium, a critical process in the production of nuclear power – and N-bombs. An overreaction? Just late last year the new Iranian president, Mahmoud Ahmadinejad, did, after all, declare that Israel should be "wiped off the map". Could this have been anything but a nuclear threat?

All the while China, fast becoming enough of a military and trade colossus to spook the US, last year warned Washington that its intervention in any military conflict over Taiwan would be met with a nuclear response.

"If the Americans draw their missiles and position-guided ammunition onto the target zone on China's territory, I think we will have to respond with nuclear weapons," said Zhu Chenghu, a general in the People's Liberation Army.

"We, Chinese, will prepare ourselves for the destruction of all the cities east of Xian. Of course, the Americans will have to be prepared that hundreds of cities will be destroyed by the Chinese."

This reverberated in Washington and Taipei, where there is growing alarm over Australia's negotiations with China.

The Secretary-General of Taiwan's National Security Council, Professor Parris Chang, told *The Bulletin* that Australia could become an unwitting "accomplice" in China's nuclear weapons program and should not trust Beijing's assurances that its nuclear energy and weapons programs are distinct. He also stridently criticised Australia for having "east-tilted" towards China and for putting trade with Beijing ahead of regional security.

"China's assurance is not that valuable because we know China's record of proliferation ... and, yes, we know of China's [nuclear technology] assistance to Iran, Iraq, North Korea and Pakistan. And so we look [at] what China is doing instead of just what China is saying," Chang says.

"Certainly, Australia doesn't want to be seen as an accomplice in China's manufacturing of nuclear weapons because the sale of uranium to China, even though the Chinese say this is for nuclear power use, well ... the so-called peaceful use of the uranium could be transferred to the manufacture of nuclear weapons.

"Australia also ought to place a great emphasis on the peace and security of the South-East Asian area. In recent years we have noticed that Australia has almost east-tilted towards China because of trade considerations ... even for the purpose of business, for the interests of Australia, [Taiwan thinks] that really, peace and security in East Asia would be very important."

Concerns such as Chang's which, diplomatic sources maintain, are also held (albeit more discreetly) in the Pentagon, will, ironically, only make the prospect of a uranium deal with Australia all the sweeter for China.

One insider to the negotiations told- *The Bulletin* that while Beijing's priority was to secure a deal, "it will happily drive a wedge between Washington and Canberra on China policy and security policy relating to Taiwan.

"There is much more riding on this for China than just a uranium deal."

China is, indeed, playing a deft game with Canberra. It has been underscored almost from the outset by an implied threat that if it gets too difficult, Beijing

will take its fantastically lucrative business elsewhere. Beijing also made it clear well before formal negotiations began that it would play hard-ball on safeguards and would not subject itself to further – or perhaps any – IAEA inspections in relation to Australian uranium.

Last September, China's leading arms control official, Zhang Yan, refused to say if Beijing would allow IAEA inspections as part of the safeguards governing the import of Australian uranium.

"I can't give you an affirmative guarantee to that," he told *The Australian*.

Last December, meanwhile, China's ambassador to Australia, Madam Fu Ying, reportedly told almost 600 of Australia's leading mining executives that Australia needed to prove it was a "reliable" uranium supplier if it wanted the business.

"China really needs to be careful in where it chooses its source of supply," Fu said, adding that the "political environment" of supplier countries was a key factor.

"We don't want this trade to be interrupted by other factors," she said.

While the Chinese embassy did not respond to *The Bulletin's* repeated requests to interview Fu, insiders say she was effectively warning Australia not to complicate the deal with political bickering over safeguards or, indeed, the merits and safety of nuclear power.

It's an argument likely to appeal to the pro-mining, pro-nuclear energy Foreign Minister Alexander Downer who, with the imprimatur of John Howard, strongly favours exporting Australian uranium to responsible buyers. The Chinese have gone out of their way to fete Downer over this deal.

"Australia holds the world's largest uranium reserves, which enables us to make a major contribution to global energy production," he said in a major speech late last year. "It also means we have the responsibility and the opportunity to have a strong input on international efforts to counter proliferation of nuclear materials."

Downer and Howard will also be acutely mindful that any public debate on Australian uranium exports will draw attention to deep divisions in the Labor Party over its unworkable 1995 No New Mines Policy, which limits uranium production to the three existing mines – the giant Olympic Dam (which has a third of the world's uranium reserves) and Beverley mines in South Australia, and the Northern Territory's Ranger mine. Labor's state leaders have been seriously at odds over uranium policy. Some opponents, including Western Australia's recently retired premier Geoff Gallop, argued uranium mining opened the possibility of fissile material falling into the hands of terrorists. Others, like former NSW premier Bob Carr, have been more equivocal while Gallop's replacement, Alan Carpenter, foreshadowed a change to WA Labor's stance on uranium mining when he took over. Uranium stocks spiked.

Washington has made it clear it expects Australian military support in the event of any conflict with China over Taiwan. But could, as critics maintain, fissile material derived from Australian uranium find its way into Chinese

nuclear warheads fired at American – or indeed, Australian – interests in such circumstances?

The answer, it seems, is yes.

Sources maintain that Australian officials, led by the Australian Safeguards and Non-Proliferation Office – the section of our foreign service charged with ensuring Australian Obligated Nuclear Material is used solely for peaceful means – expect China will ultimately comply with what are in reality relatively relaxed safeguards imposed on other established nuclear weapons states, like Britain and the US, that have purchased our uranium. While the regulations allow export to countries, such as China, with both nuclear weapons and energy programs, such countries are only required to prove that the equivalent amount of yellowcake – as opposed to the specific uranium in the shipment – is used solely for power generation.

Any Australian uranium imported by China can, therefore, be mixed with uranium from elsewhere and used to make weapons – so long as a portion of the total, equal to the size of the Australian take, is demonstrably used solely for energy production.

As ASNO noted in a 2000 report: "Uranium atoms are indistinguishable from one another and there is no practical way of attaching flags to atoms."

Since the 1970 Non-Proliferation Treaty, which made possession of nuclear weapons the sole prerogative of China and the other nuclear weapons states – the Club of Five – other states must subject themselves to IAEA inspections if they wish to acquire nuclear technology.

Numerous countries – including North Korea, Pakistan, South Africa, India and now Iran – have covertly developed nuclear weapons while enriching uranium for energy.

The inherent bias of the IAEA safeguards towards the Club of Five underpins the safety guidelines for Australian uranium exports, because only states outside the club are subject to additional international protocols of random inspection and verification.

Despite much conjecture, it remains unclear what safeguards China will ultimately accept. China has indicated it would prefer Australian officials – rather than IAEA inspectors – to enforce any requisite safeguards attached to the Australian deal.

A DFAT spokeswoman confirmed to *The Bulletin* that the safeguards being sought by Australia in relation to the proposed uranium deal were based on those of the IAEA.

She said Australia was confident that, in the event of a deal, no Australian uranium would make its way into China's weapons program. "Consistent with other similar agreements China will be required to give a binding treaty-level commitment to use Australian uranium solely for peaceful purposes. Military purposes will be proscribed. It should be noted that Australian uranium would not be supplied to China for unspecified purposes, but would be sold to Chinese power utilities for electricity generation."

In the event of a deal, the spokeswoman said, Australians would not carry out inspections. "Under arrangements anticipated, the IAEA would conduct inspections – ASNO would monitor the flow of Australian nuclear material in China through nuclear accountancy, analysis of reporting provided by counterparts, and other relevant information."

The Australian Conservation Foundation, which opposes nuclear power and uranium exports, is stepping up its campaign against the Australia-China Nuclear Co-operation Treaty. It says all states should be subject to the additional safeguards.

"Our understanding is that a deal is being put forward whereby China will be expected to sign up to the existing safeguard regime, that is a non-binding agreement that will allow China to exclude certain facilities from inspection or opt out, citing national security, altogether," says the ACF's David Noonan.

"The ACF is also concerned that China – which, according to a US Congressional report has exported weapons technology to Iran, Pakistan, North Korea, Libya and Syria – does not make a real distinction between its nuclear weapons and energy programs and is opposed to any transparency in the process."

Despite the ambiguity surrounding China's nuclear programs, others argue that supplying uranium to China for energy simply frees up other uranium for weapons.

"Yes, sure, of course, unavoidably so – unless China were swimming in such a glut of uranium that it would never consider importing any. But if it is considering importing, then it presumably would not easily have enough for all its needs – civilian and military – without those imports," says Norman Rubin, director of Nuclear Research at Energy Probe, an anti-nuclear think-tank in Canada, another country negotiating uranium exports to China.

"In those circumstances, even if every atom of Australian uranium can be proved to have ended up in civilian use, Australia would still be helping China to meet its needs for military explosive uranium. One might as well argue that Australians should send money to al-Qaeda for flight training lessons, but not for knives or guns. In fact, sending money to al-Qaeda for textbooks and medicines and food and childcare is probably illegal in Australia, as it should be, because it will inevitably increase their ability to buy explosives and box-cutters."

"The bottom line," says the figure involved in the Beijing–Canberra negotiations, "is that China has enough uranium supplies for power *or* weapons, but not both, to last until 2020."

The talks between Australia and China will continue in the weeks ahead, but our insider describes the deal as a *fait accompli*.

All of which might give Sting something new (or should that be old?) to sing about.

Uranium exports to China would be a bad risk

Any promises made by China regarding Australian uranium are not to be trusted, says JIM GREEN
Canberra Times, 17/1/06.

A POLL of 1200 Australians last September found that 53 percent were opposed to uranium exports to China, with just 31 percent in favour. Nevertheless, the federal Government is meeting a Chinese delegation in Canberra this week to negotiate a bilateral uranium export agreement.

Some difficult questions arise. What would happen to a whistleblower publicly raising concerns about diversion of materials from China's nuclear power program to its WMD program? Most likely the same fate as befell Sun Xiaodi, who was concerned about environmental contamination at a uranium mine in north-western China. The non-government organisation Human Rights in China reports that Sun Xiaodi was sacked and harassed, and in April 2005, immediately after speaking to a foreign journalist, he was abducted by state authorities and has not been heard from since.

Beijing's record of media censorship is equally deplorable. According to Reporters Without Borders, at least 27 journalists were being held in prison at the start of last year, making China the world's largest prison for journalists. Of the 167 countries surveyed by Reporters Without Borders, China ranked 159th for press freedom.

Uranium sales to China would set a poor precedent. Will we now sell uranium to *all* repressive, secretive, military states, or just some, or just China?

Clearly we can't rely on whistleblowers or the Chinese media to inform us of any diversion of Australian uranium for nuclear weapons production. We would be completely reliant on the inspection system of the International Atomic Energy Agency (IAEA) and the provisions of the bilateral safeguards agreement being negotiated in Canberra this week.

As a nuclear weapons state, China is not subject to full-scope IAEA safeguards. Facilities using Australian uranium would be subject to inspections, but this is no simple matter since 'our' uranium is indistinguishable from, and mixed with, uranium sourced elsewhere. Further, the IAEA's inspection program is chronically under-resourced, so it is unlikely that inspections would be sufficiently numerous and rigorous to provide confidence - let alone certainty - that Australian uranium was not being diverted.

As for the bilateral agreement being negotiated this week, it will probably contain provisions such as a requirement for Australian consent before uranium is enriched beyond 20 percent uranium-235 (highly enriched uranium can be used in nuclear weapons) and a requirement for consent to reprocess spent fuel produced using Australian uranium.

While these provisions are commendable, they have never once been invoked. No customer country has ever sought permission to enrich beyond 20 percent. More importantly, numerous requests to reprocess spent fuel produced from Australian uranium have been received, but they have never once been rejected, even when this leads to the stockpiling of plutonium.

Given that bilateral agreement provisions have been repeatedly watered down, and some key remaining provisions have never once been invoked, it cannot truthfully be claimed that Australia's uranium export safeguards are better than any in the world. That claim will, however, be made repeatedly this week.

As for the argument that China will simply source uranium from elsewhere if we do not supply it, the argument is morally bankrupt. By the same logic, we might just as well be exporting illegal drugs, or profiting from the detention of political prisoners in China.

Freedom of Information documents released last year reveal that Beijing wants to weaken provisions contained in bilateral agreements, though the detail remains unclear.

Does China want a free hand to enrich uranium or to separate plutonium from spent fuel without seeking Australian consent? Currently, China claims that it is not producing fissile material for its weapons program, but there is no independent verification of the claim.

Perhaps Beijing wants the freedom to transfer Australian uranium, and by-products such as spent fuel and plutonium, to other countries without first seeking Australian consent? That also is an alarming scenario. Beijing joined the Nuclear Suppliers Group in 2004, and that hopefully represents a lasting change of attitude. But as recently as 2001, the CIA reported that China had provided missile-related items to North Korea and Libya as well as "extensive support" to Pakistan's nuclear program. In 2003, the US government imposed trade bans on five Chinese firms for selling weapons technology to Iran.

It is not difficult to envisage a scenario whereby the IAEA inspection regime and the bilateral agreement would count for nothing - the most obvious being escalating tension over Taiwan. Beijing promises military action in the event that Taipei declares independence, and Washington promises a military

reaction in which Australia could become embroiled. The bilateral agreement would not be worth the paper it's written on.

Former diplomat Professor Richard Broinowski has voiced his concern that by exporting uranium to China, we could free up China's limited domestic reserves for military use. Comments made in December by China's ambassador to Australia, Madame Fu Ying, strengthen this concern. The ambassador reportedly told a Melbourne Mining Club luncheon that China has sufficient uranium for its military program but not enough to accommodate both its military and civil requirements.